Victoria Institution (College)
78 B, A.P.C. Road. Kolkta-700009

3.5.1. List and Copies of Documents indicating the functional MoU/Linkages /Collaborations Activity-wise and Year-wise

Students and Faculty Exchange

2022-2023 & 2021-2022

Sl. No.	Name of MoU Partner	Duration of MoU	Page No.
1.	Rammohan College	3 years	1-13
2.	West Bengal Zoo Authority & Bengal Safari Park	5 years	14-20
3.	Bangabasi Morning College	5 years	21-26
4.	K.K. Das College	1 year	27-33
5.	Asutosh College	5 years	34-40
6.	Moulana Azad College	5 years	41-47
7.	Surendranath College	3 years	48-52
8.	Scottish Church college	1 year	53-61
9.	New Alipore College	3 years	62-69

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Collaborative Research

2022-2023

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Variable Energy Cyclotron Center, Kolkata	1 year	70
2	Calcutta Institute of Theoretical Physics (CITP)	1 year	71-80
3	Jadavpur University	1 year	81-82

2021-2022

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Variable Energy Cyclotron Center, Kolkata	1 year	83
2	Jadavpur University	1 year	84-86
3	Calcutta Institute of Theoretical Physics (CITP)	1 year	87-90

Victoria Institution (College)
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Collaborative Research

2020-2021

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Variable Energy Cyclotron Center, Kolkata	1 year	91-93
2	Jadavpur University	1 year	94-95

Collaborative Research

2019-2020

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Variable Energy Cyclotron Center, Kolkata	1 year	96-97
2	University of Calcutta	6 years	98-101
3	UGC- DAE CSR, KC	3 years	102-115

2018-2019

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Variable Energy Cyclotron Center, Kolkata	1 year	116-121
2	Jadavpur University	1 year	122-126

Victoria Institution (College)
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On-the-Job Training

2022-2023

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Indian Council of Philosophical Research	1 year	127-131
2	Indian Association of Physics Teacher, RC 15	1 day	132-134
3	Calcutta Institute of Theoretical Physics (CITP)	1 day	135-137

On-the-Job Training

2021-2022

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	UGC- DAE CSR, KC	2 days	138-140
2	Indian Council of Social Science Research-Eastern Regional Centre, Kolkata	1 year	141-150
3	The Institute of Company Secretaries of India	1 day	151-152
4	Indian Council of Philosophical Research	2 days	153-155
5	Indian Association of Physics Teacher, RC 15	3 days	156-160

Victoria Institution (College)
78 B, A.P.C. Road. Kolkta-700009

On-the-Job Training

2020-2021

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	The Institute of Company Secretaries of India	1 day	161-162
2	UGC- DAE CSR, KC	5 days	163-165

On-the-Job Training

2018-2019

Sl. No.	Name of the Collaboration/Linkage Partner	Duration of Collaboration/Linkage	Page No.
1	Indian Council of Social Science Research-Eastern Regional Centre, Kolkata	1 year	166-184

Faculty and Students' exchange 2022-2023
and 2021-2022 under MoU

MEMORANDUM

of

UNDERSTANDING

between

Victoria Institution (College),
78-B Acharya Prafulla Chandra Road, Kolkata-700 009,
West Bengal, India

AND

Rammohan College
102/1, Raja Rammohan Sarani,Kolkata-700009,
West Bengal, India

8. No financial transaction will be involved except the fees charged for add-on courses in any collaborative activities.

9. Special cases may be considered by the two Heads of the Institutions and IQAC Coordinators.

10. This agreement will remain in force for three (03) years from the date of signing unless it is terminated by either institution with a minimum of one month's notice to the other institution.

This collaboration agreement is entered on the 13th day of February month and 2023 year.

Teacher-in-Charge 13-02-23
Victoria Institution (College)
Victoria Institution (College)

Principal
Rammohan College
Principal
Rammohan College
Kolkata - 700009

Witness:

1. Arpita Mukherjee 13/02/2023
Victoria Institution (College)
2. Debjani Roy Ghosh 13/2/23

Witness:

1. Co-ordinator
IQAC
Rammohan College
Kolkata
2. 13/02/23

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
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Memorandum of understanding (MOU) between Victoria institution (College),Kolkata and Rammohan College, Kolkata

A Memorandum of Understanding (MOU) was signed on 13th day of February 2023 between Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700 009, West Bengal and Rammohan college, 102/1, Raja Ram Mohan Sarani Kolkata, 700009 West Bengal.

Duration of MoU: 3 years

The purpose of this agreement was to develop academic and educational collaboration through faculty exchange, student exchange, seminar/webinar talks, and resource exchange including sharing of best practices for the holistic development of both the institutions.

Activities Under MoU

RAMMOHAN COLLEGE

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Student Exchange			
					Date	Dept	Topic	No. of Students
1.	Rammohan College	13.02.2023	03	To develop academic and educational collaboration through faculty and student exchange, seminar etc. To encourage faculty & student exchange in regular academic courses.	25.4.2023	English	1. Student paper presentation- Diverse Nature of variety in Shakespearean Oeuvre	05
					25.4.2023	English	2. Student dramatic performance-Aphra Behn's The Rover	09
					25.4.2023	English	3. Student dramatic performance-Shakespeare's Twelth Night in observation of 'Shakespeare Day'	06
					27.4.2023	English	4. Poster presentation on William Shakespeare Definition of Ferce	05
					Faculty Exchange			
					17.3.2023	1. Dr. Indrani Chakraborty, Associate Professor, Dept. of Bengali, VIC	About the Dramatist, Dinabandhu Mitra	
					23.3.2023		Text Analysis-Sadabhar Ekadashi by Dinabandhu Mitra	
					31.3.2023		Discussion on different topics of Sadabhar Ekadashi	
					4.4.2023		Short story of Sulekhaaa SANYAL. Introduction SEM4 & Short story "Gennya"	
					11.4.2023		Discussion on different topics of Gennya and text analysisof "Bhanga Gharer Kabya"	
					18.4.2023		Text Analysis of the story,'Bhanga Gharer Kabya' and discussion on it.	

					25.4.2023		**Short story of Sunil Gangopadhyay. Introduction and short story of Sunil Gangopadhyay-'Palatak o Anusarankari'**	
					2.5.2023		**Text analysis--'Palatak o Anusarankari'**	
					5.5.2023		**Discussion on different topics of '-'Palatak o Anusarankari' and short stories of Dipendra nath Bandyopadyay.**	
					7.5.2023		**Short story of Dipendranath Bandyopadhyay. ASHWAMWDHER GHORA-TEXT ANALYSIS**	
					18.5.2023		**Discussion on different topics of ASHWAMWDHER GHORA and short story of Dipendranath Bandyopadhyay-Jatayu**	
					25.5.2023		**Discussion on different topics of Jatayu and one extended lecture on 'Epar GANGA, Opar GANGA' by Jyotirmoyee Debi**	
					25.4.2023	**2. Dr. Sayoni Mitra, Associate Prof. Dept. of English, Rammohan College**	**Theatre and Bertoit Brecht.**	
					27.04.2023	**3. Ms. Sananda Laha, Assistant Professor, Dept. of English, VIC**	**Shakespeare and Popular culture**	
					10.5.2023	**4. Sri. Arijit Baidya, Assistant Professor, Dept. of Sanskrit, VIC**	**Kalidas o Rabindranath**	

Student Exchage Programme
Rammohan College

1. Student Paper Presentation. Date: 25.04.2023

Students of English honours, Semester 2 of Victoria Institution (college) presented papers on the Evolution of Theatre and Shakespearean Drama. The students covered the entire arena of progress of theatre from the Greek times till the Modern Age and presented their papers with the help of slides and presentations in the English Seminar Room of the college.The students discussed in details the themes and styles of Shakespeare's plays and their stagesetting, costumes and the popular plays through slide shows The teachers and students of Rammohan College were present on this occasion.
No. of Participants= 5.

Students of Victoria Institution (College) are presenting their paper

2. Student Dramatic Performance: Aphra Behn's The Rover . Date-25.04.2023

Students of Rammohan College, English Honours enacted a scene from Aphra Behn's The Rover at Victoria College. The faculty and students of English department were present on the occasion. The Teacher-in-Charge was present to encourage the programme. Each participant has been given a certificate from Victoria Institution (College). No. of Participants =9.

Students of Rammohan College enacted a scene from Aphra Behn'sThe Rover

3. **<u>Student dramatic Performance-Shakespeare's Twelfth Night in observation of 'Shakespeare Day'. Date-25.04.2023</u>**

Students of Semester 6, English Honours, Victoria Institution (College) enacted a scene from Shakespeare's Twelfth Night in observation of 'Shakespeare Day'. This event was in collaboration with Rammohan College, Department of English. No of participants: 06.

Students of Victoria Institution(College), enacteda scene fromShakespeare'sTwelfth Night in observation of 'Shakespeare Day'

4. Poster presentation by students on William Shakespeare Definition of Ferce. Date-25.04.2023

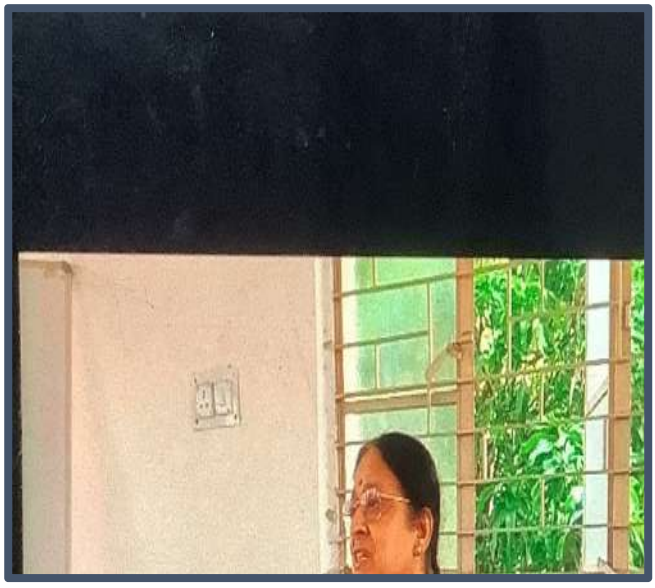
Students of Semester 2 and Semester 4 of Victoria Institution (College) presented posters on William Shakespeare and delivered speeches on them at Rammohan College. The students of the English department of Rammohan College enthusiastically participated in the programme and at the end of the programme certificates were also presented to the participants.

Students are presenting their posters

Faculty Exchange Programme

1. Dr. Indrani Chakraborty, Department of Bengali, VIC

It is a matter of great pleasure that one of our faculty members Dr. Indrani Chakraborty , Associate professor,from Department of Bengali was invited as the visiting professor for conducting Post graduate classes in the Department of Bengali, Rammohan College Kolkata. Dr. Chakraborty conducted around 24 classes in total covering various topics from the CBCS post graduate syllabus of Bengali, Calcutta University. She conducted classes during the time period of 17 March 2023 to 25 May 2023. During her teaching sessions, Dr Chakraborty delivered lectures to the first semester students and the fourth semester students of the department. In post graduate class of semester one, she delivered lecture on a play called "***Sadharan Ekadashi***" by Dinabandhu Mitra. Several short stories from the post graduate semester four syllabus were covered by Dr Chakraborty. Dr Indrani Chakraborty conducted a very lively and interactive sessions with the students of the Rammohan College and provided a great learning experiences to the students.



Dr. Indrani Chakraborty conducting classes for the students of post-graduation class as a visiting Professor in Department of Bengali, Rammohan College Kolkata.

Faculty exchange

2. Dr. Sayonti Mitra,Department of English, Rammohan college.

Date: 25.04.2023

Department of English, Victoria Institution (College) observed Theatre Day on 25.04.2023 in collaboration with IQAC and Rammohan College under MOU signed by the two colleges; in the presence and patronage of Teacher-in-Charge Dr. Uma Ray Srinivasan.

Dr. Sayonti Mitra, Associate Professor in English, Rammohan College delivered a talk on Theatre and Bertolt Brecht at the seminar room of English department, Victoria Institution (College). Both faculty and students from both the colleges attended and appreciated the lecture. A certificate of appreciation was presented to the resource person.

Prof. Anuradha Basu, HoD of English department presenting the Certificate to Dr. Sayonti Mitra

Faculty exchange

3. Ms. Sananda Laha; Department of English, VIC.

Date 27.04.2023

Ms. Sananda Laha, Assistant Professor in English, Victoria Institution (College) delivered a talk on 'Shakespeare and Popular Culture' at Rammohan College on 27.04.2023. the lecture focused on the relevance of the Bard on various aspects of popular culture in today's time. The illuminating lecture was followed by an interactive session the students of the host college participated with great interest and enthusiasm.

Sananda Laha (Assistant Professor, Dept. of English, VIC) at Rammohan College to deliver a talk on 'Shakespeare and Popular Culture

Faculty and Student participants of the collaborating colleges on the event of Shakespeare's Day Celebration at Rammohan College, Kolkata

Faculty exchange

4. Mr. Arijit Baidya,Department of Sanskrit, Victoria institution (College)
Date: 10.05.2023

An extension lecture was jointly organized by Department of Bengali and IQAC, Rammohan college on **10.05.2023.** Our respected faculty member of Victoria Institution (College), Mr Arijit Baidya, Assistant Professor, department of Sanskrit was invited as the resource person to deliver a lecture on an interesting topic about „Kalidas" and „Rabindranath". Mr. Baidya delivered an interesting, meaningful and thought provoking lecture on "**Kalidasa o Rabindranath"** which captivated the students and the faculty members of Rammohan college. The The lecture was attended by the staff and students of Bengali department, Rammohan college and two students from Victoria Institution (College) also attended the lecture session. In total 32 students attended the session. It was an enlightening session. Students had extensive Participation in the session and put their queries which were justifiably answered by the speaker.

Arijit Baidya, Assistant professor of VIC, after delivering his lecture

पश्चिमबंगाल पश्चिम बंगाल WEST BENGAL 76AB 318556

Teacher-in-Charge
VICTORIA INSTITUTION
(College)

Director
Living Earth
Bengal Wild Animals Park
Siliguri

MOU AGREEMENT

THE AGREEMENT IS MADE ON THIS

THE DATE OF

10TH JANUARY, 2023

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
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15.03.2024 09:05:

MEMORANDUM OF UNDERSTANDING BETWEEN VICTORIA INSTITUTION (COLLEGE), KOLKATA NORTH BENGAL WILD ANIMALS PARK (BENGAL SAFARI), SILIGURI AND WEST BENGAL ZOO AUTHORITY

This MoU is entered into by Department of Zoology, Victoria Institution (College), 78-B, Acharya Prafulla Chandra Road, Kolkata-700009, West Bengal affiliated under University of Calcutta, North Bengal Wild Animals Park (Bengal Safari), 5th Mile, Sevoke Rd, Salugara, Siliguri, West Bengal 734008 and West Bengal Zoo Authority, Aranya Bhavan, Second Floor, Block LA-10A, Sector III, Salt Lake City, Kolkata-700106. The purpose of this agreement is to develop friendship and cooperation between our institutions and promote mutual understanding through scientific, environmental and educational development.

The three organizations agree to promote and develop cooperation with various activities as listed below:

1. Dissemination of working experience in field to develop students' interest and their contribution towards the conservation, education and breeding programme of North Bengal Wild Animals Park (Bengal Safari), Siliguri.

2. Voluntary services by the students towards conservation in the park will be guided by the officials of North Bengal Wild Animals Park (Bengal Safari), Siliguri.

3. It is understood that implementation of any type of cooperation stated in clause 1 and 2 shall depend upon the availability of resources and financial support at all the organizations concerned.

4. Opportunity to be provided to the students / faculties to involve themselves in the adoption programme of North Bengal Wild Animals Park (Bengal Safari), Siliguri.

5. Organising seminars and conducting lectures in either of the institutes in different environmental aspects / ecological issues by the esteemed experts of both the participating institutes.

6. Lodging and fooding and other related costs for faculty members and students from Victoria Institution (College), Kolkata will be borne by the respective faculty members and students of Victoria Institution (College), Kolkata.

7. Exchange of information through training programmes on the diversity of fauna and flora of North Bengal Wild Animals Park (Bengal Safari), Siliguri, for the Honours and General students' of Department of Zoology, Victoria Institution (College).

8. The data collected from North Bengal Wild Animals Park (Bengal Safari), Siliguri by the students and faculties shall be owned by WBZA. Both the WBZA, North Bengal Wild Animals Park (Bengal Safari), Siliguri and Victoria Institution (College), Kolkata will be authors on any publications.

Director
North Bengal Wild Animals Park
Siliguri

Teacher in Charge
VICTORIA INSTITUTION
(College)

Trilateral Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and Bengal Safari Park (Siliguri) and West Bengal Zoo Authority

A Memorandum of Understanding (MOU) was signed on 10.01.2023 with
West Bengal Zoo Authority, 2nd Floor, Ban unnayan Bhawan, KB-19, Sector 3, Bidhannagar,, Kolkata, West Bengal 700098

&

Bengal Safari Park
5th Mile, Sevoke Rd, Salugara, Siliguri, West Bengal 734008.
Duration of MoU: 5 years

The purpose of the agreement is:

● to encourage exchange in regular academic courses, data collection, Scientific Studies.

● to develop friendship, cooperation between three Institutions and promote mutual understanding through scientific, environmental and educational development a MoU has been signed among these three institutions for a period of five (05) years.

● to develop students into citizens who can globally engaged, comfortable with diversity and with the skills to operate effectively across cultures with different views and belief systems

● to encourage exchange in regular academic courses, data collection, Scientific Studies.

Activities Under MoU

Bengal Safari Park and West Bengal Zoo Authority

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Student Exchange and Participation			
					Date	Dept	Topic	No. of Students
1.	Bengal Safari Park and West Bengal Zoo Authority	10.01.2023	05	To encourage exchange in regular academic courses, data collection and Scientific Studies between three Institutions and to promote mutual understanding through scientific, environmental and educational development.	31.01.2023	Conducted by Alipur Zoological Garden, Kolkata	1. Inter-college competition on the occasion of Celebration of International Zebra Day.	02
					03.03. 2023	Conducted by Dept of Zoology & IQAC, VIC	2. Inter-college Poster competition on Celebration of World Wildlife Day	12
					03.03. 2023	Conducted by North Bengal Wild Animals Park (Bengal Safari), Siliguri	3. Inter-college Poster competition on Celebration of World Wildlife Day	01

Activities under the MoU

Student Participation

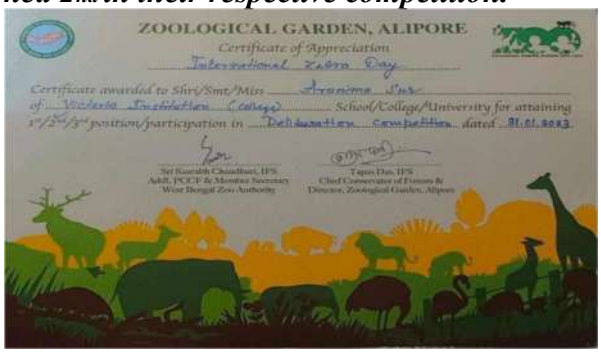
1. Inter-college competition on the occasion of Celebration of International Zebra Day. Conducted by Alipur Zoological Garden, Kolkata

Date: 31.01.2023

An Inter-College Competition On the occasion of Celebration of International Zebra Day was Organized by the Alipur Zoological Garden, Kolkata on 31st March, 2023. As the organization is under the MoU with Victoria Institution (College), two students from the department of Zoology Honours participated in two different event. Meghamitra Ghosh, SEM III Zoology Honours in Photography Competition and Arunima Sur, SEM I Zoology Hons. in Deliberation Competition.

Both the girls have secured their position in the events.
Meghamrita turned 3rd and Arunima turned 2nd in their respective competition.


ZOOLOGICAL GARDEN, ALIPORE
Certificate of Appreciation
International Zebra Day
Certificate awarded to Shri/Smt/Miss Meghamitra Ghosh
of Victoria Institution (College) School/College/University for attaining
1st/2nd/3rd position/participation in Photography Competition (Land scape) dated 31.01.2023


ZOOLOGICAL GARDEN, ALIPORE
Certificate of Appreciation
International Zebra Day
Certificate awarded to Shri/Smt/Miss Arunima Sur
of Victoria Institution College School/College/University for attaining
1st/2nd/3rd position/participation in Deliberation Competition dated 31.01.2023

2. **Inter-college Poster competition on Celebration of World Wildlife Day**

Conducted by Dept of Zoology & IQAC, VIC

Date: 03.03.2023

An Inter College poster competition was held on Celebration of World Wildlife Day. This programme was arranged by Dept of Zoology, Victoria Institution (College) on 3rd March, 2023. 12 undergraduate students of 2 sister colleges under MoU have participated in this programme. This programme was judged by Deputy Director of Alipore Zoo Dr. Piyali Chottopadhay and Assistant Professor of BKC College Dr. Sandipan Gupta.
Among all 2 students of our institution, Bipra Halder of Semester VI (Zoology Hons) secured 1st position and Abhishikta Ghosh of Semester VI (Zoology Hons) secured 2nd position positively.

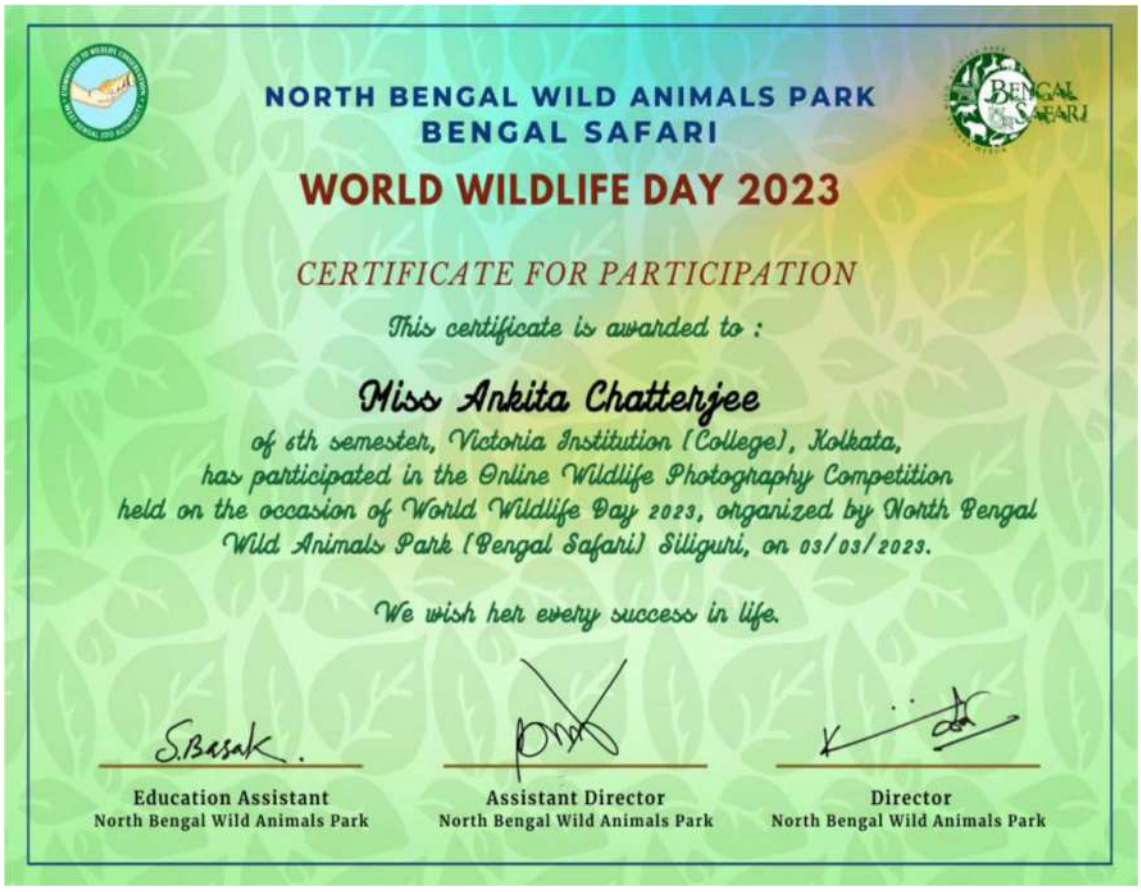
3. Student Participation

Online Wildlife Competition on occasion of World Wildlife Day.

Conducted by North Bengal Wild Animals Park (Bengal Safari), Siliguri

Date: 03.03.2023

An online Wildlife Competition was conducted by the North Bengal Wild Animals Park (Bengal Safari) Siliguri on the eveing of World Wildlife Day on 3rd March, 2023.
It was an online photography competition.
Ankita Chatterjee, a student of Zoology Honours of Victoria institution (College) participated in that competition and after the successful completion of that she got the certificate.



Certificate of participation

MEMORANDUM

of

UNDERSTANDING

between

Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700 009, West Bengal, India

AND

Bangabasi Morning College,

19, Rajkumar Chakraborty Sarani,

Kolkata-700 009, West Bengal, India

8. No financial transaction will be involved except the fees charged for add-on courses, in any collaborative activities.

9. Special cases may be considered by the two Heads of the Institutions and IQAC Coordinators.

10. This agreement will remain in force for five (05) years from the date of signing unless it is terminated by either institution with a minimum of one month's notice to the other institution.

This collaboration agreement is entered on the 2nd day of May month and 2023 year.

Teacher-in-Charge 02/05/23
Victoria Institution (College)

Teacher-in-Charge
VICTORIA INSTITUTION
(College)

Witness:

1. 2/5/23

2. 2/5/23

DR. SUMALLYA KARMAKAR
IQAC Co-ordinator
Victoria Institution (College)

Principal
Bangabasi Morning College

Principal
Bangabasi Morning College
Kolkata-700009

Witness:

1. 02/05/2023

2.

BANGABASI MORNING COLLEGE
Kol - 9

Coordinator, IQAC
BANGABASI MORNING COLLE
KOLKATA-700009

Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and Bangabasi Morning College, Kolkata

A Memorandum of Understanding (MOU) was signed on 02.05.2023 with Bangabasi Morning College, 19, Rajkumar Chakraborty Sarani, Kolkata, Pin:700009 to encourage teacher exchange & student exchange in regular academic courses and add-on courses.

Duration of MoU: 5 years

The purpose of the agreement is to encourage teacher exchange & student exchange in regular academic courses and add-on courses.

Activities Under MoU

Bangabasi Morning College

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Student Exchange and Participation			
					Date	Dept	Topic	No. of Students
1.	Bangabasi Morning College	02.05.2023	05	To develop academic and educational collaboration through faculty and student exchange, seminar etc. To encourage faculty & student exchange in regular academic courses.	14.07.2023	Organised by Dept. of Zoology,VIC	Museum visit of Bangabasi Morning College for SEM 2 HONS students	16 students of Victoria Institution College
					14.07.2023	Organised by Dept. of Zoology,Bangabasi Morning College	1. Museum visit of Victoria Institution College for SEM 2 HONS students	24 (students of Bangabasi Morning College)

Student Exchange and Participation

1. Museum visit of Bangabasi Morning College for Sem II Honours students Conducted by the Department of Zoology, Victoria Institution (College) Date: 14.07.2023

A visit to the Museum of the Zoology Department of Bangabasi Morning College was organized by the department of Zoology, Victoria Institution (College) on 14th July, 2023. 16 students of Semester II, Zoolology Hons. of VIC visited the Museum and experienced knowledge.

This visit was a student exchange programmme under the MoU.

Students of Victoria Institution (College) visiting the Museum of Department of Zoology, Bangabasi Morning College

2. Museum visit of Victoria Institution (College) for Sem II Honours students Conducted by the Department of Zoology, Bangabasi Morning College Date: 14.07.2023

24 students of Semester II of the Zoology Department of Bangabasi Morning College visited the Museum of the Zoology Department of Victoria Institution (College) on 14th July, 2023. The students of the Victoria College demonstrated about their departmental Museum. The vising students were interestingly observed the exhibition of stuffed animals, skeletons, horns and bones which helped them to gain scientific knowledge. This visit was a student exchange programme under the MoU.

Students of Bangabasi Morning College) visiting the Museum of Department of Zoology, Victoria Institution (College)

Memorandum of Understanding On Academic Cooperation Between

Victoria Institution (College)
78B, Acharya Prafulla Chandra Road
PIN 700009

K.K.Das College
GRH-17, Baishnabghata Patuli
PIN 700084

This Memorandum of Understanding is hereby solemnised between K. K. Das College, GRH – 17, Baishnabghata Patuli, Garia, Kolkata- 700084 and Victoria Institution (College), 78-B, Acharya Prafulla Chandra Road, Baithakkhana, Kolkata- 700009, West Bengal for nourishing and honing collaborative academic growth and development of both the colleges for a period of Five Years w.e.f 15.02.2023 with the following shared vision:

1. Building up academic partnerships.
2. Online sharing of innovative ideas in Teaching – Learning and e-Governance.
3. Institutes preparedness for NEP matters.
4. Library sharing.
5. Teachers/students – Exchange Programme.
6. Joint national/ international seminars/ workshops.
7. Collaborative Research Works.
8. Collaborative mentorship for NAAC matters.
9. To host students career orientation programmes jointly.

15/02/2023

Dr. Ranajoy Prasad Chakraborty
K. K. DAS COLLEGE

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
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88.3732529745284
15.03.2024 09:05

This MOU will respect Intellectual Property Rights and any intellectual matter developed by the collaborative efforts of two colleges shall be retained by them. Both the colleges shall respect and retain confidentially in each/ any of the collaborative efforts, and all collaborative academic exercises shall be guided, directed and impelled by the greater academic interest of both the colleges, and not any other / commercial interest. No legal relationship between the two colleges is implied through this linkage, and any of the two colleges can choose to terminate the linkage with a prior written notice of six months.

This MOU shall uphold the ethos of holistic and integrated academic excellence and growth followed by all higher education institutions of the country, and shall not in any way impede or affect each of the participatory college's individually and distinctiveness, by any way whatsoever.

Teacher in- Charge 15/2/23
Victoria Institution (College)
78B, Acharya Prafulla Chandra Road,
Kolkata -700009

Teacher-in-Charge
VICTORIA INSTITUTION
(College)

15/02/2023
Principal
K.K Das College
Garia, Kolkata – 84

Dr. Ramkrishna Prasad Chakraborty
Principal
K. K. DAS COLLEGE
Garia, Kol. 84

Witness

1. Arpita Mukherjee
15/2/2023
IQAC Coordinator
Victoria Institution (College)

1. N. Mandal 15.02.2023
IQAC Co-ordinator
K. K. Das College
GRH-17, Balkhnabghata-Patuli
Garia, Kolkata - 700 084

2. Debjani Das(Ghosh)
15/2/23
MOU Committee Convenor,
IQAC Member,
GB Member

2. Anjana Brahma
IQAC Member
G.B. Member

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MAITREYI RAY KANJILAL
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Event: Discussion on Preparation of forthcoming NAAC Accreditation

Resource Person : Dr. Ramkrishna Prasad Chakraborty, Principal, K.K.Das College

Date of Event: 19.04.2023

Place: Victoria College

Time : 11.00 a.m. to 3.00 p.m.

An interactive method was initiated by the resource person Dr. Ramkrishna Prasad Chakraborty, Principal, K.K.Das College on the Preparation of forthcoming NAAC Accreditation in the new system.

15 Members of IQAC including Teacher In Charge, NAAC co-ordinator and IQAC coordinator of Victoria Institution (College)was present in the interactive session and took part in it.

The session was simple and Knowledge gathering and sharing, at the End of the Session Dr. Chakraborty discuss how to overcome our shortfall of teaching strength by working together under MoU

The session was appreciated by the participants.

Teacher In-Charge
Victoria Institution (College) 19/04/23

19/04/23
Principal
K.K.Das College

Dr. Ramkrishna Prasad Chakraborty
Principal
K. K. DAS COLLEGE

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Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and KK DAS College, Kolkata

A Memorandum of Understanding (MOU) was signed on 15.02.2023 with K.K.Das College. GRH-17, Baishnabghata-Patuli, Garia, Kolkata - 700084 2023 to encourage teacher exchange & student exchange in regular academic courses and add-on courses.

Duration of MoU: 1 year

The purpose of the agreement is:

- Exchange of students, faculties to provide the opportunity to study, work and live in the sister school community
- Exchange of leadership development information between Head of the Institutions.
- Conducting lectures and organizing symposia.
- Organising and exchanging of "Pilot" classes or add-on courses or groups of students in both the institutions to collaborate in common curriculum as much as possible.
- Investigate best practices in the two institutions in areas of expertise including Arts, Science and Commerce etc.

On the occasion of signing the MoU among the two institutions

Activities Under MoU

K. K. Das College.

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Student Exchange and Participation & Special Talk			
					Date	Dept	Topic	No. of Students
1.	K.K.Das College	15.02.2023	05	To strengthen relationships, understanding and appreciation between two institutions.	04.05.2023 onwards	Conducted by Dept. of Mathematics, K.K. Das College	1. Special Online Lecture Series	14
					19.04.2023	Conducted by the IQAC, VIC	2. Discussion on Preparation for forthcoming NAAC.	12

Activities under the MoU

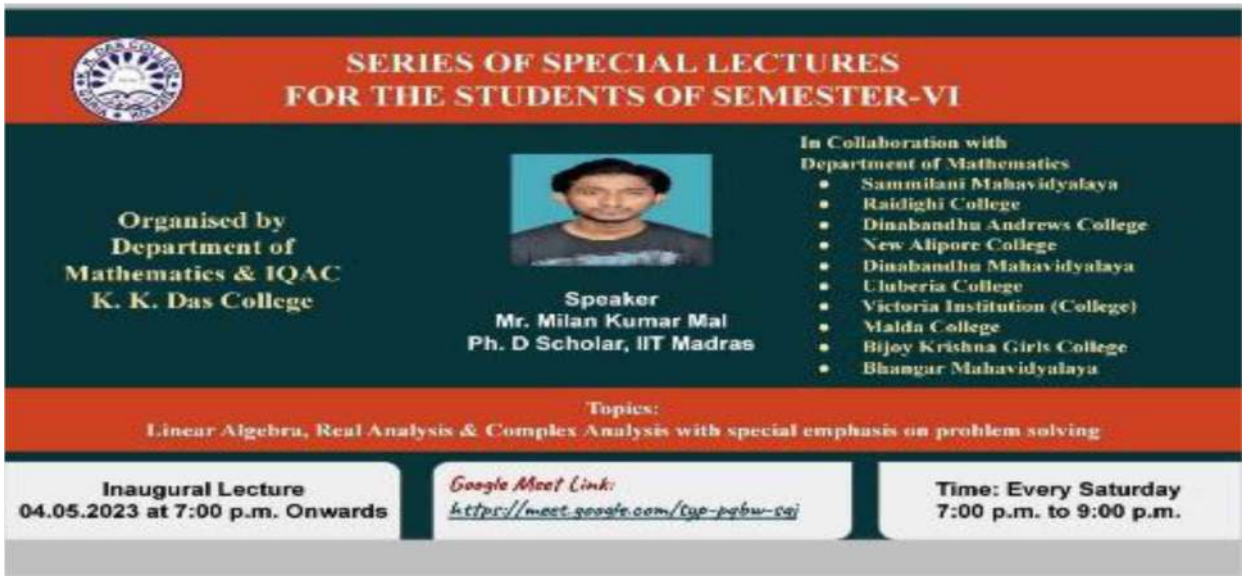
Student Participation

1. **Special Online Mathematics Lecture Series**

Conducted by Department of Mathematics, K.K. Das College

Date: 04.05.2023 onwards

A special Online Mathematics Lecture Series was organized by the department of Mathematics, K.K. Das College which was held on every Saturdays from 7 p.m. to 9 p.m. commencing on 04.05.2023. Active participation of all the Sem VI Mathematics honours students from Victoria Institution (college)was encouraged and ensured by the department of Mathematics, VIC. This series of lectures was organised by K K Das college, our collaborative college under MoU for 60 hours as an extension activity to support regular class lectures on the syllabus. 14 students have regular attendance at this programme.



Special Talk

2. Discussion on Preparation for forthcoming NAAC.

Conducted by the IQAC, Victoria Institution (College)

Date: 19.04.2023

To discuss matters related to the preparation of forthcoming NAAC, a special talk was conducted by the Internal Quality Assurance Cell, Victoria Institution (College) on 19.04.2023, venue: Suniti Sabhagha of Victoria Institution (College). The esteemed speaker for the session, **Dr. Ramkrishna Prasad Chakraborty**, Principal, K.K. Das College deliberated on different significant aspects of the Self Study Report to be submitted, he also gave some useful suggestions on several quality improvement measures to be undertaken by the college for the upcoming NAAC Accreditation. The main thrust of the day's discussion was on the topic of Administrative and Academic Audit. Dr. Chakraborty described in a detailed manner the process and parameters for such carefully structured review, the importance of introducing more Add-on courses, amongst others. The event was attended mainly by the Internal members of the IQAC, the faculty members directly involved in the process of formulation of the AQAR and SSR, the Teacher Representatives of the GB; in presence of the respected Teacher in Charge, Victoria Institution (College). The session proved to be very enlightening and productive for all concerned.

Dr. Ramkrishna Prasad Chakraborty, Principal, K.K. Das College deliberating his lecture

पश्चिमबङ्ग पश्चिम बंगाल WEST BENGAL AN 782092

Memorandum of Understanding (MOU)

THIS AGREEMENT is made on this **12 day of June, 2023**

BETWEEN

ASUTOSH COLLEGE, situated at 92, Shyama Prasad Mukherjee Rd, Kolkata West Bengal 700026

AND

VICTORIA INSTITUTION (COLLEGE), situated at 78-B, A. P. C. Road, Kolkata-700009

This Memorandum of Understanding ("MOU") is to promote academic linkages between the two institutions and facilitate their development of collaborative and mutual programmes that will enhance the intellectual life of both institutions, contribute to increased cooperation and promote mutual understanding. Thus, ASUTOSH COLLEGE and VICTORIA INSTITUTION (COLLEGE), here in after individually referred to as "The Party" and jointly referred to as "The Parties" have agreed to the following:

PRINCIPAL
ASUTOSH COLLEGE
92, S. P. MUKHERJEE ROAD
KOLKATA-700 026

12/06/23

Principal
VICTORIA INSTITUTION

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authenticity of this document
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Article 1

OBJECTIVE OF COLLABORATION

The objective of this Memorandum of Understanding (MOU) is to collaborate with each other in educational projects in areas of mutual interest.

Article 2

SCOPE OF COLLABORATION

The Parties agree to implement collaborative programmes including but not limited to:

a. Online/offline sharing of innovative ideas in Teaching – Learning and e- Governance;
b. Faculty and student mobility
c. Organising seminars / webinars / conferences / symposia through blended mode (online and offline)
d. Sharing of scientific information on areas of mutual interest.
e. Sharing of resources (online and reading room facilities of the library, laboratory).
f. Undertaking Joint Research Programmes where possible.
g. Academic quality-based collaborations, including publications and internships.

Article 3

FINANCIAL ARRANGEMENT

Involvement of funds, if required under this Memorandum of Understanding, will be subjected to approval of relevant authority/authorities.

Article 4

LOCATION OF ACTIVITIES

1. The Parties agree to implement the programmes stated in Article 2 at Asutosh College and Victoria Institution (College).
2. Any changes of the location of the programmes shall be mutually agreed upon by the Parties.

Article 5

MODE OF CONDUCTING THE PROGRAMMES

The programmes will be conducted in blended mode (offline and online).

Article 6

CONFIDENTIALITY AND INTELLECTUAL PROPERTY RIGHTS (IPR) PROTECTION

Both the institutions shall respect and retain confidentiality in each/ any of the collaborative efforts, and all collaborative academic exercises shall be guided, directed and impelled by the greater academic interest of both the colleges, and not any other / commercial interest.

This MOU will respect Intellectual Property Rights and any intellectual matter developed by the collaborative efforts of two institutions shall be retained by them.

ASUTOSH COLLEGE
92, S. P. MUKHERJEE ROAD
KOLKATA-700 026

PRINCIPAL
ASUTOSH COLLEGE
92, S. P. MUKHERJEE ROAD
KOLKATA-700 026
12/06/23

12/06/23
Principal
VICTORIA INSTITUTION,
(College)

Signature Not Verified
MAITREYI RAY KANJILAL
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authenticity of this document
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Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and Asutosh College, Kolkata

A Memorandum of Understanding (MOU) was signed on 12th day of June 2023 between **Victoria Institution (College),** 78-B Acharya Prafulla Chandra Road, Kolkata-700009
and
Asutosh College, 92, Shyamaprasad Mukherjee Road. Kolkata. West Bengal. India. 700026.

Duration of MoU: 5 years

The purpose of this agreement is to encourage teacher exchange & student exchange in regular academic courses and add-on courses.

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List of Activities:

Sl.No.	Date of theactivity	Nature of the activity	Participating facultyand Institute	Host institute	Topic covered	Number of students /Faculty/Employees benefitted
1	25/11/2023	One Day seminar	Invited lecture by Dr. Sukriti Lahori Sinha, Associate Professor of Victoria Institution(College)	Asutosh College	Rabindranath Tagore's play'Raktakarabi'.	15
2	6/1/2024	Annual State-Level Strategy Planning Meet with MoU Colleges	Dr. Maitreyi Ray Kanjilal (Principal), Dr. Sumallya Karmakar (IQAC Coordinator) and Sri Arijit Baidya (Assistant Professor, Dept of Sanskrit	Asutosh College	Synergising for the Future	30
3	10/10/2023	Faculty exchange program	Dr. Priyanka Roy, Assistant Professor Department of Journalism and Mass Communication & Smt. Maulisri Chattopadhyay SACT-1, Department of Journalism and Mass Communication	Victoria Institution College	1. Career Options in Journalism and Mass Communication Asutosh College 2. Concept of Journalism and Mass Communication Asutosh College Participants: Students of Journalism and Mass Communications, Victoria Institution	17

1.MoU Activity with Asutosh College on 25th Nov, 2023

The Bengali Department of Asutosh College, Raja Pyarimohan College And Rabindra Research Centre ' Srijani ' jointly organized a one- day seminar on 25th Nov, 2023, at the Centenary Hall of Asutosh College to celebrate the hundredth year of Rabindranath Tagore's play 'Raktakarabi'.

The speakers included Dr. Pabitra Sarkar, Dr.Soumitra Basu and Dr. Maloy Rakshit. Their informative and highly valuable speech enriched the audience. The second half of the seminar was based on the performance of Raktakarabi. One of the speakers was Sri Subhashis Gangopadhyay, a director who works with blind artists.

Dr. Sukriti Lahori Sinha, Associate Professor of Victoria Institution (College), Department of Bengali, and famous actor Sri Rajat Ganguly were invited for this seminar.

Their play reading from ' Raktakarabi' mesmerised the audience.

Reading Session

Invitation Letter

With the Students and the Audience

2. Program: Annual State-Level Strategy Planning Meet with MoU Colleges
Organised by: Asutosh College

Theme:Synergising for the Future:
Emphasising on the need of cooperation and collaboration between the Institutes to ensure that all the institutes can 'grow together' to achieve newer goals in the newlyintroduced NEP curriculum.
Date: 06/01/2024

Participants from VIC: Victoria Institution (College) were represented by Dr. Maitreyi Ray Kanjilal (Principal), Dr. Sumallya Karmakar (IQAC Coordinator) and Sri Arijit Baidya (Assistant Professor, Dept of Sanskrit).

3. Program: Faculty Exchange Program
Venue: Victoria Institution (College)
Speakers:
1. Dr. Priyanka Roy, Assistant Professor
Department of Journalism and Mass Communication
Lecture Topic: Career Options in Journalism and Mass Communication
Asutosh College
2. Smt. Maulisri Chattopadhyay
SACT-1, Department of Journalism and Mass Communication
Lecture Topic: Concept of Journalism and Mass Communication
Asutosh College
Participants: Students of Journalism and Mass Communications, Victoria Institution
Date:10/10/2023
Time:1-2.30pm

पश्चिमबंगाल पश्चिम बंगाल WEST BENGAL 80AB 537573

MoU AGREEMENT

THE AGREEMENT IS MADE ON THIS

THE DATE OF

13th June, 2023

Dr. Maitreyi Ray Kanjilal
Prin[illegible]
VICTORIA INSTITUTION
[C[illegible]]

Principal
Maulana Azad College
Kolkata
Govt. of West Bengal

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Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and Moulana Azad College, Kolkata

A Memorandum of Understanding (MOU) was signed on 19th day of June 2023 between Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700 009, West Bengal and Moulana Azad College
8, Rafi Ahmed Kidwai Rd, Taltala, Kolkata, West Bengal 700013

Duration of MoU: 5 years

The purpose of this agreement is encourage teacher exchange & student exchange in regular academic courses and add-on courses

Activities Under MoU

Moulana Azad Collge

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Faculty Exchange			
					Date	Dept	Topic	No. of Students participated
1.	Moulana Azad Collge	19.06.2023	05	To strengthen relationships, understanding and appreciation between two institutions To encourage teacher exchange and student exchange in regular academic courses and add-on courses.	08.08.2023	Conducted by Victoria Institution	1. Women;s Empowerment	60
					Students' Participation in Add On Course			
					07.08.2023-11.08.2023	Conducted by Dept. of Zoology, Moulana Azad College	2. Hands on Training on Biomedical Technique	05

Faculty Exchange Program
1. Special Talk on "Women Empowerment" on 8.08.2023
Organised by Victoria Institution (College)

Dr. Shampa Dutta Gupta, Associate Professor, Maulana Azad College delivered a lecture on Women's Empowerment on 8th August, 2023 in the Orientation Programme organised by Victoria Institution (College) for the B.A. Honours students of Semester 1. About 60 students attended the programme. The newcomers are enlightened by the lecture very much.

Dr. Shampa Dutta Gupta, the resource person is delivering the talk.

Students' Participation

2. 'Hands on Training on Biomedical Technique' organized by the Department of Zoology, Moulana Azad College

Date: 07.08.2023-11.08.2023

Five students of Semester 6 Hons, Department of Zoology, Victoria Institution (College) attended and successfully completed a thirty- hour Add-on Course on 'Hands on Training on Biomedical Technique' organised by Department of Zoology, Maulana Azad College from 7th August, 2023 to 11th August, 2023. They were given Hands on training on "Determination of Some Haematological Parameters", "Effect of pH on Enzyme Activity", "Mitotic Chromosome Preparation From Bone Marrow of Albino Rat (*Rattus* sp.)", "Restriction endonuclease digestion and demonstration" and on "RNA isolation from animal tissue using TRIzol reagent". Students were awarded certificates for the same

Hands on Training on Biomedical Technique

LIST OF ZOOLOGY, SEMESTER 6 HONS STUDENTS ATTENDED THE HANDS ON TRAINING PROGRAM

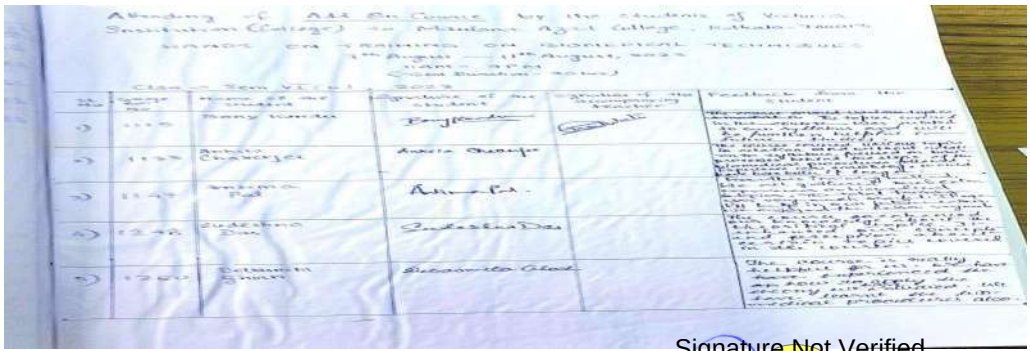
Sl. No.	Name	College Roll no	Gmail	Got certificate
1	BONY KUNDU	1115	bonyk2618@gmail.com	Yes
2	ANKITA CHATTERJEE	1133	ankitachatterjee642@g mail.com	Yes
3	ANTIMA PAL	1147	palantima223@gmail.co m	Yes
4	SUDESHNA DAS	1248	sudeshnadasmishtu@g mail.com	Yes
5	DEBASMITA GHOSH	1260	ghoshdebasmita2002@gmail.com	Yes


Maulana Azad College
8, Rafi Ahmed Kidwai Rd, Taltala, Kolkata
West Bengal 700013
(NAAC accredited 'A' grade and DBT Star Status College)
CERTIFICATE OF PARTICIPATION
This is to certify that Ankita Chatterjee of Victoria Institution (College), Kolkata has actively participated in the 30 Hours Add-on Course entitled "HANDS ON TRAINING ON BIOMEDICAL TECHNIQUES" in the session 2022-2023 organised by Department of Zoology in collaboration with IQAC, Maulana Azad College.


Maulana Azad College
8, Rafi Ahmed Kidwai Rd, Taltala, Kolkata
West Bengal 700013
(NAAC accredited 'A' grade and DBT Star Status College)
CERTIFICATE OF PARTICIPATION
This is to certify that Antima Pal of Victoria Institution (college), Kolkata has actively participated in the 30 Hours Add-on Course entitled "HANDS ON TRAINING ON BIOMEDICAL TECHNIQUES" in the session 2022-2023 organised by Department of Zoology in collaboration with IQAC, Maulana Azad College.


Maulana Azad College
8, Rafi Ahmed Kidwai Rd, Taltala, Kolkata
West Bengal 700013
(NAAC accredited 'A' grade and DBT Star Status College)
CERTIFICATE OF PARTICIPATION
This is to certify that Debasmita Ghosh of Victoria Institution(College) , Kolkata has actively participated in the 30 Hours Add-on Course entitled "HANDS ON TRAINING ON BIOMEDICAL TECHNIQUES" in the session 2022-2023 organised by Department of Zoology in collaboration with IQAC, Maulana Azad College.


Maulana Azad College
8, Rafi Ahmed Kidwai Rd, Taltala, Kolkata
West Bengal 700013
(NAAC accredited 'A' grade and DBT Star Status College)
CERTIFICATE OF PARTICIPATION
This is to certify that Bony Kundu of Victoria Institution (College), Rajabajar, Kolkata has actively participated in the 30 Hours Add-on Course entitled "HANDS ON TRAINING ON BIOMEDICAL TECHNIQUES" in the session 2022-2023 organised by Department of Zoology in collaboration with IQAC, Maulana Azad College.



Surendranath College
(Formerly RIPON COLLEGE, Estd. 1884)
24/2, Mahatma Gandhi Road, Kolkata-700009
Phone(033)23502864(P),23543876(O)
Email: principalsurendranathcollege@gmail.com
Website: http://www.surendranathcollege.org

Victoria Institution (College)
Since 1932
78-B, AcharyaPrafullaChandra Road, Kolkata-700009
Phone (033)23501959/ (033)23600046
Email: victoriacollege1932@gmail.com
Website: victoriacollege.co.in

MEMORANDUM OF UNDERSTANDING

BETWEEN

Victoria Institution (College), 78-B, Acharya Prafulla Chandra Road, Kolkata-700009

&

Surendranath College, 24/2, Mahatma Gandhi Road, Kolkata-700009

Victoria Institution(College), 78-B, Acharya Prafulla Chandra Road, Kolkata-700009 and Surendranath College, 24/2, Mahatma Gandhi Road, Kolkata-700009, hereby agree to become partner institutions in order to develop friendship and cooperation between our two institutions and promote mutual understanding, educational, social and cultural development.

PARTNER INSTITUTION PROGRAMME GOALS

- To strengthen relationships, understanding and appreciation between two institutions.
- To provide opportunities for students and teachers to develop skills which enhance academic and social relationships.
- To support and supplement teaching/learning of different subjects in the respective institution with mutual cooperation in common academic programmes.
- To develop ties of friendship through regular communication.
- To develop globally responsible citizens with a broad outlook and eclectic thinking to operate effectively across cultures with wide ranging beliefs and practices.

PARTNER INSTITUTION ACTIVITIES

Suggestions for activities that the institutions may wish to consider:

- Exchange of information about curriculum, institutional events.
- Exchange of teaching resources, study materials, teaching strategies, scholarly articles and publications.
- Exchange of students, faculties to provide the opportunity to study and work together.
- Exchange of leadership development information between Heads of the institutions.
- Organizing symposia and conducting lectures in different subjects / issues.
- Organising and exchanging "Pilot" classes.
- Exchange of students for add-on courses in both the institutions to collaborate in common curriculum as much as possible.
- Investigate best practices in the two institutions in areas of expertise in every possible stream.

The institutions will review this agreement on an annual basis to determine new inclusions as well as future directions of this agreement. This MoU is valid for three (03) years from the date of signing by Heads of the Institutions of both the institutions. The two institutions will establish a joint committee to regularly exchange information.Heads of the Institutions will appoint coordinators from both the Colleges to carry on the collaborative activities. No financial transaction, except the fees as charged for the add-on courses, will be involved in the above collaborative activities (special cases may be considered by the two Heads of the Institutions& IQAC Coordinators).

26-8-22

Dr. IndranilKar,
Principal
Surendranath College, Kolkata-9

Principal
Surendranath College
Kolkata-700009

26/8/22

Dr. Uma Ray Srinivasan,
Teacher-in-Charge,
Victoria Institution (College), Kolkata-9

Teacher-in-Charge
Victoria Institution (College)

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MEMORANDUM OF UNDERSTANDING BETWEEN VICTORIA INSTITUTION (COLLEGE), KOLKATA AND SURENDRANATH COLLEGE, KOLKATA

A Memorandum of Understanding (MOU) was signed on 26.08.2022 with Surendranath College, 24/2, Mahatma Gandhi Rd, Baithakkhana, Sealdah, Baithakkhana, Kolkata, West Bengal 700009.

Duration of MoU: 3 years

The purpose of the agreement is:

- To encourage faculty & student exchange in regular academic courses and add-on courses.
- To support and supplement teaching/learning of different subjects in the respective institution with mutual cooperation in common academic programmes.
- To develop ties of friendship through regular communication.

On the occasion of signing the MoU with the two institutions

Activities Under MoU

Surendranath College

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Faculty Exchange			
					Date	Dept	Topic	No. of Students
1.	Surendranath College	26. 08.2022	03	To encourage faculty & student exchange in regular academic courses.	26.8.2022	Conducted by the dept. of English, Surendranath College	1. Host-Parasite Interaction by Dr. Debjani Das (Ghosh) from Dept of Zoology, VIC	05
					28.03.23	Conducted by the Dept. of Zoology, Surendranath College	2. Samuel Johnson's poem "London" by Smt. Anuradha Basu from Dept of English, VIC	12
						Inter-College competition		
					28.02.2023	Dept. of Zoology, Victoria Institution (College)	1. Inter-college Photography Competition on Wildlife Conducted by IQAC and Department of Zoology, Victoria Institution (College) to celebrate Wildlife Week	25

ACTIVITIES

Faculty Exchange

1. **Lecture Delivered by Dr. Debjani Das Ghosh, Associate Professor, Department of Zoology, Victoria Institution (College) on 26.08.2022 at Surendranath College.**

The Department of Zoology, Surendranath College organised an extension lecture under the Faculty Exchange Programme. The topic was Host-Parasite Interaction and five students of Zoology Honours, Surendranath College from Semester 6 Hons attended the lecture session. The lecture was very interesting and informative and the students were very benifited from this exchange lecture.

Dr. Debjani Das Ghosh is delivering a lecture at Surendranath College

Faculty Exchange

1. **Lecture Delivered by Smt. Anuradha Basu, Associate Professor, Department of English, Victoria Institution (College) on 28.03.2023 at Surendranath College.**

Smt. Anuradha Basu, Associate Professor in English, Victoria Institution (College) delivered a special lecture at Surendranath College on 28.03.2023 under MOU signed by the two colleges. She spoke on Dr. Samuel Johnson's poem "London" concentrating especially on the contrast between city life and country life and vices of city life. 12 students of Surendranath College were attended the lecture.

Lecture delivery and interactive session

1. Inter-college Photography Competition on Wildlife

Conducted by IQAC and Department of Zoology, Victoria Institution (College) to celebrate Wildlife Week

Date: 28.02.2023

An inter-college photography competition on Wildlife was conducted by IQAC and Department of Zoology, Victoria Institution (College) on 28.02.2023 at the Keshub Memorial Hall. 25 students from 4 undergraduate colleges took part in the event. Among the participants 5 were from Surendranath college. The event was judged by Mr. TapasDas, Director, Alipore Zoo Garden, Dr. Aniruddha Chatterjee, Assistant Professor, Scottish Church Collegeand Dr. Kaustav Dutta Choudhury, Assistant Professor, Rammohan College.

The First Prize was awarded to Sharmistha Debnath, Semester 6, Hons, Department of Zoology, Victoria Institution (College).

On the Dias, IQAC Coordinator, TIC of Victoria Institution (College) and the Panel of Judges

TIC of Victoria Institution (College) Dr. Uma Ray Srinivasan handed over the prize to the awardee

पश्चिमबंग पश्चिम बंगाल WEST BENGAL 86AB 658806

COLLABORATION AGREEMENT

This agreement is entered into by the **Scottish Church College 1 & 3, Urquhart Square, Kolkata 700006, West Bengal**, and the **Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700 009, West Bengal**

1. The purpose of this agreement is to develop academic and educational collaboration through faculty exchange, student exchange, seminar/webinar talks, and resource exchange including sharing of best practices for the holistic development of both the institutions.
2. This collaboration is a manifestation of the parties' intention to collaborate and is not legally binding contract
3. Both organizations agree to conduct the following collaborative activities in academic areas of mutual interest, on the basis of equality and reciprocity.

COORDINATOR
IQAC
Scottish Church College
Kolkata - 700 006

Signature Not Verified
MAITREYI RAY KANJILAL
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authenticity of this document
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7. This agreement will remain in force for one year from the date of signing unless it is terminated by either institution with a minimum of one month's notice to the other institution.
8. As long as this agreement is in force, the Heads of both the Institutions will appoint a faculty member to act as coordinator for the effective implementation of the activities of collaboration.
9. Both the parties agree that any dispute arising during the course of implementation of this collaboration will be sorted out with mutual discussion.

This collaboration agreement is entered on the 19th day of December month and 2022 year.

Madhumangsi Mandal 19/12/22

Principal
Scottish Church College
Principal
Scottish Church College
Kolkata

Witness:

1. Supratim Das 19/12/2022
Vice-Principal
Scottish Church College
Kolkata 700 006
2. 19/12/2022

COORDINATOR
IQAC
Scottish Church College
Kolkata - 700 006

Uma Ray Srivastava 19/12/22

Teacher-in-Charge
Victoria Institution (College)
Teacher-in-Charge
Victoria Institution (College)

Witness:

1. Arpita Mukherji 19/12/22
IQAC Coordinator
Victoria Institution (College)
2. Debjani Das (Ghosh)
MoU Core Committee
IQAC Member-GB Member 19/12/22

VICTORIA INSTITUTION (COLLEGE)

Both the institution mutually agrees to promote and develop cooperation with various activities listed below:

1. Students of both institutions will have equal access to quality enhancement programs organized by the institutions
2. Exchange of students between the two institutions for academic/ extra-curricular purposes
3. Exchange of faculty members between the two institutions
4. Exchange of teaching resources, study materials, teaching strategies, scholarly articles and publications on a mutual agreement basis
5. Participation/ joint conducting add-on courses/ certificate programmes/ seminars/ workshops in both the institutions on the basis of mutual discussion
6. It is understood that the implementation of any type of cooperation stated in clause '1-5' shall depend upon the availability of resources and financial support at the institution/s concerned
7. This agreement will remain in force for ***three years*** from the date of signing unless it is terminated by either institution with a minimum of one month's notice to the other institution
8. As long as this agreement is in force, the Heads of both the Institutions will appoint a faculty member to act as coordinator for the effective implementation of the activities of collaboration
9. Both the parties agree that any dispute arising during the course of implementation of this collaboration will be sorted out with mutual discussion

This collaboration agreement is entered on the 17th day of January month and 2024 year.

Madhumangsi Mandal 17/1/24
Principal
Scottish Church College
Principal
Scottish Church College
Kolkata

Witness:

1. Supratim Das 17/01/2024
Vice Principal
Scottish Church College
Kolkata 700 006

2. Samrat Bhattacharya 17-1-2024

COORDINATOR
IQAC
Scottish Church College
Kolkata - 700 006

Maitreyi Ray Kanjilal 17/1/24
Principal
Victoria Institution (College)
Principal
VICTORIA INSTITUTION
(College)

Witness

1. DR SUMALYA KARMAKAR
IQAC Co-ordinator
Victoria Institution (College)

2. Debjani Das (Ghosh)
GB Member
IQAC Member
Mail coordinator

DR SUMALYA KARMAKAR
IQAC Co-ordinator
Victoria Institution (College)

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.574920761731686,
88.3732529745284
15.03.2024 09:05

Activities under Memorandum of understanding (MoU) between Victoria institution (College), Kolkata and Scottish Church College, Kolkata

A Memorandum of Understanding (MoU) was signed on 19.12.2022 between Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700009, West Bengal
with
Scottish Church College, 1 & 3, Urquhart Square, Manicktala, Azad Hind Bag, Kolkata, 700006, West Bengal.

Duration of MoU: 1 year

PURPOSE:

- Victoria Institution (College) has signed a MoU with Scottish Church College to encourage teacher exchange and student exchange in regular academic courses and add-on courses. Various activities have been taking place between these two colleges.
- To encourage faculty & student exchange in regular academic courses and add-on courses.
- To support and supplement teaching/learning of different subjects in the respective institution with mutual cooperation in common academic programmes.
- To develop students into citizens who can globally engaged, comfortable with diversity and with the skills to operate effectively across cultures with different views and belief systems.

On the occasion of Signing the MoU among these two institutes

Activities Under MoU

Scottish Church College

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Student Exchange and Participation			
					Date	Dept	Topic	No. of Students
1.	Scottish church college	19.12.2022	01	To provide opportunities for students and teachers to develop skills which enhance academic and social relationship.	28.02.2023	Conducted by Dept of Zoology & IQAC, VIC	Inter-college Photography competition on Celebration of World Wildlife Day	02 (Students Of Scottish Church College)
					24.02.2023	Conducted by Scottish Church College, Kolkata	"Streets Dogs and Cats", "Biodiversity and Taeniasis" respectively.	03 (students of VIC)
					02.05.2023	Conducted by Departments of Microbiology, Botany and Zoology, Scottish Church College and Nature Club (SCC)	1.Seminar 2.Photography Competition and 3.Poster Competition	02 (Students of VIC)
					10.06.2023	Conducted by Scottish Church College, Kolkata	Awareness programme for preparation in Civil Services Examinations	18 (Students of VIC)

ACTIVITIES

1. Dr. Aniruddhya Chatterjee, Assistant Professor, Scottish Church College acted as one of the Judge in the **Inter College Photography Competition organised by Department of Zoology & IQAC, VIC on 28th February, 2023.** 25 participants from four different colleges competed in this competition.

Sitting among the other judges, Dr. Aniruddhya Chatterjee, Scottish Church College

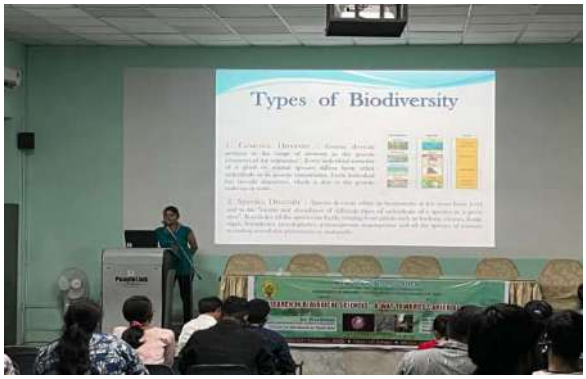
2. Students participation in the Inter College Photography Competition organised by Department of Zoology & IQAC, VIC on 28th February, 2023:

04 students from Scottish Church College participated in this competition.

Few of the participants from the Photography Competition

3. Students' participation in 'A Day Long Students' Seminar and Career Guidance Programme', dated 24/02/2023.

Three students of Zoology Hons (Sem V), namely Antima Pal, Rima Mandal and Bony Kundu participated in a Students' Seminar organised by Scottish Church College on 24/02/2023, and gave presentations on " Streets Dogs and Cats", "Biodiversity" and "Taeniasis" respectively. They were accompanied by Dr. SumallyaKarmakar, Assistant Professor, Department of Zoology.

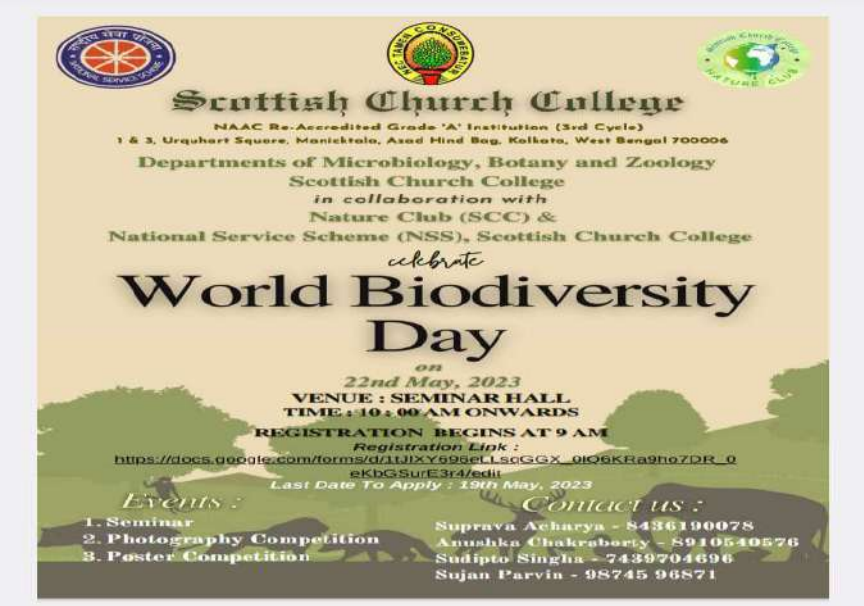


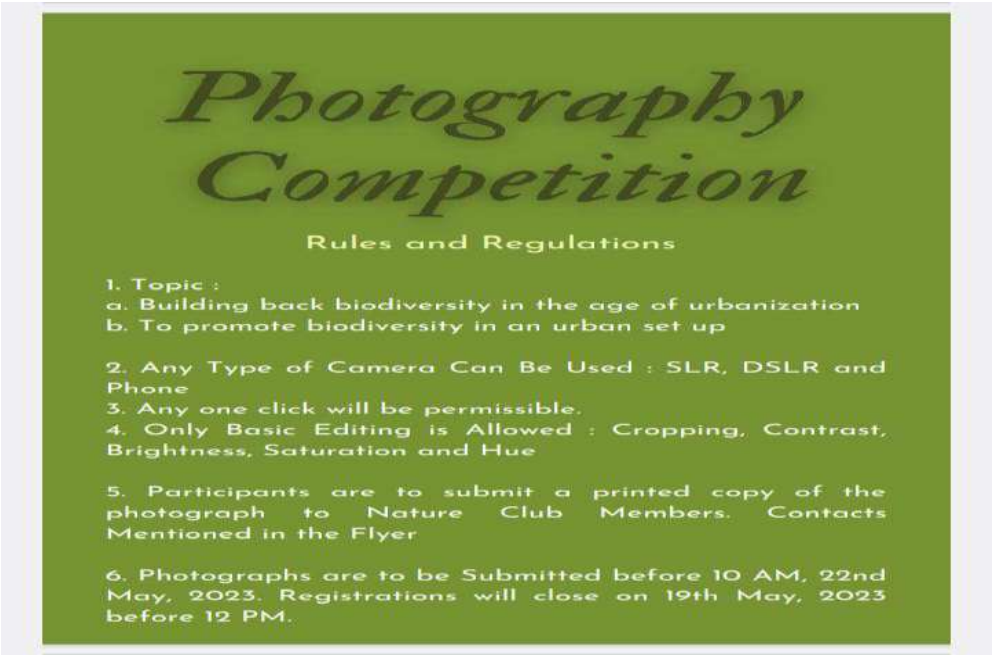
Antima Pal, SemV Zoo Hons on "Street Dogs and Cats" Rima Mandal, Sem V Zoo Hons on " Biodiversity"

Bony Kundu, Sem V Zoo Hons on " Taeniasis"

4. Student's participation in 'A Seminar, Photography Competition and Poster Competition', dated 22/05/2023.

Two students of Victoria Institution (College), namely Surjayani Roy Department of Political Science, Semester - II (Hons)participated in a Photography Competition and Farat Jana Department of English, Semester – II(Hons) participated in a Poster Competitionorganised by the Departments of Microbiology, Botany and Zoology, Scottish Church College on 22/05/2023.





5. Student's participation in'Awareness programme for preparation in Civil Services Examinations', dated 10/06/2023.

Eighteen students of Victoria Institution (College), Kolkata,participated in Awareness programme for preparation in Civil Services Examinationsorganized byScottish Church College, Kolkata on 10/06/2023.

Phone : (033) 2970-1513 (Office)
(033) 2407-1828
Mobile : 9432207607

NEW ALIPORE COLLEGE

GOVT. SPONSORED ● NAAC ACCREDITED - GRADE B+ ● ISO Certified (IN12629A)
NEW ALIPORE, KOLKATA-700 053
E-mail : newaliporecollege@yahoo.co.in ● Website : www.newaliporecollege.ac.in

Ref. No ..... Date .....

ACADEMIC LINKAGE/COLLABORATIONS

This Academic Linkage is hereby solemnised between New Alipore College, New Alipore, Kolkata-53 and Victoria Institution (College), 78 B, Acharya Prafulla Chandra Rd, Baithakkhana, Kolkata-9, West Bengal 700009 for fostering collaborative academic growth and development, for a period of TWO YEARS with the following shared vision w.e. f. 11.02.2022 :

1. Teachers' Exchange Programmes
2. Teachers' training on quality issues
3. Joint hosting of seminars

This linkage will respect Intellectual Property Rights and any intellectual matter developed by the collaborative efforts of two colleges shall be retained by them. Both the colleges shall respect and retain confidentiality in each / any of the collaborative efforts, and all collaborative academic exercises shall be guided, directed and impelled by the greater academic interest of both the colleges, and not any other commercial interest. No legal relationship between the two colleges is implied through this linkage, and any of the two colleges can choose to terminate the linkage with a prior written notice of three months.

This Academic Linkage shall uphold the ethos of holistic and integrated academic excellence and growth followed by all higher education institutions of the country, and shall not in any way impede or affect each of the participatory college's individuality and distinctiveness, by any way whatsoever.

Principal
New Alipore College, Kolkata-53

Principal
New Alipore College
Block-I, New Alipore
Kolkata - 700 053

Principal
Victoria Institution (College) 11/02/22

Teacher-in-Charge
Victoria Institution (College)

Witness

1. Govindalal Mandal
2. Arpita Mukherjee 11/2/22

IQAC Coordinator
Victoria Institution (College)

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.574920761731686,
88.3732529745284
15.03.2024 09:05:

Memorandum of understanding (MOU) between Victoria institution (College), Kolkata and New Alipore College, Kolkata

A Memorandum of Understanding (MOU) was signed on 11th day of February 2022 between Victoria Institution (College), 78-B Acharya Prafulla Chandra Road, Kolkata-700009, West Bengal and New Aliore College G86J+JQR, Block L, New Alipore, Kolkata, West Bengal 700053.

Duration of MoU: 3 years

PURPOSE:

- To strengthen relationships, understanding and appreciation between two institutions.
- To provide opportunities for students and teachers to develop skills which enhance academic and social relationship.

A MoU has been signed with New Alipore College on 11.02.2023

Activities Under MoU

New Alipore College

Sl. No.	Name of the Institution	MoU Signed on	For the Period of (Year)	Purpose or Area of activities	Teaching Staff training programme			
					Date	Dept	Topic	No. of Students
1.	New Alipore Colelge	11.02.2022	02	to encourage teacher exchange & student exchange in regular academic courses and add-on courses	28.03.2023	Organised by the IQAC, Victoria Institution (College)	1. Teaching Staff-training Program	24

Teaching Staff-training Program organized by IQAC, VIC on 28.03.2022

A teaching staff training programme was organized by IQAC on 28th March, 2023. The venue was Suniti Sabhaghar.

The internal members of the IQAC and the Heads of all the departments attended the program.

The external members of IQAC of the College Dr. Jaydeep Sarangi, Mr. Priyal Chaudhuri and Ms. Vrinda Jhingan were present on that day. The program was started with an welcome note by the IQAC Coordinator Dr. Dipanwita Paul Ghosh, followed by a brief address by TIC of the college Dr. Uma Ray Srinivasan.

The resource person was Dr. Jaydeep Sarangi, Principal, New Alipore College (MoU institution) and an internal member of IQAC of the college. The objectives of the program were to give an idea about the activities to be performed by the IQAC of the college over the period and the preparation regarding NAAC.

24 participants attended the program enthusiastically and an interesting interactive session was enjoyed by all.

.

VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009
Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046
Website : www.victoriacollege.co.in

Ref. No.....

Date: 24/03/2022

NOTICE

Dr. Jaydeep Sarangi, Principal, New Alipore College, now an honoured nominee of the IQAC of our College, has kindly consented to address the internal members of the IQAC on 28.03.2022. The meeting will take place at Suniti Sabhaghar at 1:15 p.m. All teachers of IQAC, all Teacher Representatives of the Governing Body, the Secretary of Teachers' Council, the Bursar (present and former) and the IQAC Coordinator and the HODs are requested to attend the meeting.

Uma Ray Srinivasan

Dr. Uma Ray Srinivasan
Teacher-in-Charge
Date: 24.03.2022

Teacher-in-Charge
VICTORIA INSTITUTION
(College)

IQAC Meeting (STP) 28/3/2022

1. Uma Roy Srinivasan 28/3/22
2. Dipanwita Paul Ghosh 28.3.22.
3. Arpita Mukherjee 28/3/22
4. Jayati Pal 28/3/22
5. S. Guha 28/3/22
6. Tapas Bandyopadhyay 28/3/22
7. Aparna Pal 28/03/22
8. Ishita Saha 28.3.22
9. Kabori Brahma 28/3/22
10. Saroj Das 28/3/22
11. Simanti Banerjee 28/3/22
12. Parimita Roy Biswas 28/3/22
13. Sulagna Pradhan 28/3/22
14. Sankalita Mukherjee 28/03/2022
15. Srikanth Kakoti Sinha 28/03/2022
16. Basanti Hansda 28/03/2022
17. Ashis Biswas 28/03/2022
18. Subhendu Chanda 28/03/2022
19. Sumallya Karmakar.
20. Basudev Pandya 28/3/22
21. Debjani Das (Ghosh) 28/3/22
22. Aloka Mukhopadhyay 28/3/22
23. Shinjini Das Gupta 28/3/2022
24. Sananda Saha. 28/3/22

28/3/22

Signature of External Members

1. [illegible] (Joydeep Sarangi)
2. Priyal Chowdhuri
3. Vrinda Jhingan

External Members - (1) Dr Joydeep Sarangi (2) Mr Priyal Chowdhury (3) Ms Brinda Jingal present at the Meeting

PHYSICAL REVIEW C **107**, 064318 (2023)

Search for the origin of wobbling motion in the $A \approx 130$ region: The case of ^{131}Xe

S. Chakraborty,[1,*] S. Bhattacharyya,[1,2,†] R. Banik,[3] Soumik Bhattacharya,[1,‡] G. Mukherjee,[1,2] C. Bhattacharya,[1,2] S. Biswas,[4,§] S. Rajbanshi,[5] Shabir Dar,[1,2] S. Nandi,[1,2,‖] Sajad Ali,[6] S. Chatterjee,[7] S. Das,[7] S. Das Gupta,[8] S. S. Ghugre,[7] A. Goswami,[9,2,¶] A. Lemasson,[4] Debasish Mondal,[1] S. Mukhopadhyay,[1,2] A. Navin,[4] H. Pai,[10] Surajit Pal,[1] Deepak Pandit,[1,2] R. Raut,[7] Prithwijita Ray,[11] M. Rejmund,[4] and S. Samanta[7,#]

[1]*Variable Energy Cyclotron Centre, Kolkata 700064, India*

[2]*Homi Bhabha National Institute, Mumbai 400094, India*

[3]*Institute of Engineering and Management, Kolkata 700091, India*

[4]*Grand Accélérateur National d'Ions Lourds (GANIL), CEA/DRF-CNRS/IN2P3, BP 55027, F-14076 Caen Cedex 5, France*

[5]*Department of Physics, Presidency University, Kolkata 700073, India*

[6]*Department of Physics, Government General Degree College at Pedong, Kalimpong 734311, India*

[7]*UGC-DAE Consortium for Scientific Research, Kolkata Centre, Kolkata 700098, India*

[8]*Department of Physics, Victoria Institution (College), Kolkata 700009, India*

[9]*Saha Institute of Nuclear Physics, Kolkata 700064, India*

[10]*Extreme Light Infrastructure - Nuclear Physics (ELI-NP), IFIN-HH, Bucharest-Magurele 077126, Romania*

[11]*Department of Physics, Acharya Brojendra Nath Seal College, Coochbehar 736101, India*

(Received 27 February 2023; revised 22 March 2023; accepted 19 May 2023; published 27 June 2023)

In-beam γ-ray spectroscopy of ^{131}Xe was carried out to study the structure of the intruder $\nu h_{11/2}$ band. Excited states were populated via an α-induced fusion-evaporation reaction at $E_\alpha = 38$ MeV. Inspection of $\gamma\gamma$-coincidence data resulted in the identification of a new rotational sequence. Based on the systematics of excitation energy, assigned spin-parity, decay pattern, and the electromagnetic character of the interband $\Delta I = 1$ γ transitions, this sequence is proposed as the unfavored signature partner of the $\nu h_{11/2}$ band. The structure of this band is further illuminated in the light of the triaxial particle rotor model (TPRM). The possibility of wobbling excitation in $N = 77$ Xe-Ba-Ce isotones was explored in a systematic manner.

DOI: 10.1103/PhysRevC.107.064318

I. INTRODUCTION

Rotational motion is a typical collective mode of excitation in atomic nuclei [1]. It originates to restore the rotational symmetry broken by nuclear deformation. The wave function of an axially symmetric (prolate or oblate) nucleus is invariant with respect to a rotation by an angle of 180° about an axis perpendicular to its symmetry axis ($\mathcal{R}$). The quantum number associated with the $\mathcal{R}$ operator is known as the signature (α) [2]. The even and odd spin sequences of a rotational band in even-A nuclei correspond to $\alpha = 0$, 1, respectively. Likewise, the $I = \frac{1}{2}, \frac{5}{2}, \frac{9}{2}, \ldots$ and $I = \frac{3}{2}, \frac{7}{2}, \frac{11}{2}, \ldots$ sequences in an odd-A nucleus correspond to $\alpha = \pm 1/2$. The signature-dependent splitting in energy is known as signature splitting $S(I)$ and can readily be extracted from the experimentally deduced level energies. The magnitude of $S(I)$ has a distinct K dependence (K is the projection of total angular momentum on the symmetry axis) [3]. For instance, in an axially symmetric nucleus, a rotational band with a high-K (low-K) configuration is predicted to exhibit a small (large) signature splitting [4]. However, in triaxially deformed nuclei, the quantity K no longer remains conserved and hence the band structures in these nuclei have mixed configurations of wave functions with different K values. As a consequence, a rotational phenomenon like signature splitting is found to appear in a different way than expected [5]. Thus, the quantity $S(I)$ was proposed to quantify the degree of triaxiality in atomic nuclei [6].

The rotational motion of a triaxially deformed nucleus can be realized by observing a pair of chiral doublet bands or a wobbling band or a γ band [2,7–9]. A large number of experimental signatures in favor of triaxial nuclear shapes have been found in the $A \approx 130$ region, mainly due to the presence of the unique parity shape driving $h_{11/2}$ orbital. Among these, the occurrence of wobbling bands at low angular momentum in normal-deformed γ-soft nuclei has drawn a lot of attention in the recent [illegible] properties, such as moments

*saikat.c@vecc.gov.in

†sarmi@vecc.gov.in

‡Present address: Department of Physics, Florida State University, Tallahassee, Florida 32306, USA.

§Present address: Neutron and Muon Division, Paul Scherrer Institute, Forschungsstrasse 111, 5232 PSI-Villigen, Switzerland.

‖Present address: Physics Division, Argonne National Laboratory, Argonne, Illinois 60439, USA.

¶Deceased.

#Present address: Department of Physics, University of Genova, Via Dodecaneso 33, 16146 Genova, Italy.

Gmail Research Collaboration

Subhendu Chandra <subhendu170975@gmail.com>

Fw: IJTP Vol.68 Nos 1 & 2, 2020

susil sarkar <susil_vcsarkar@yahoo.co.in> Mon, Nov 15, 2021 at 8:19 PM
To: Subhendu Chandra <subhendu170975@gmail.com>

See the Vol 68 Nos 1 & 2, 2020.
SKS

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Arup Roy <aryscottish@gmail.com>
Sent: Monday, 15 November, 2021, 08:18:01 pm IST
Subject: Fw: IJTP Vol.68 Nos 1 & 2, 2020

Pl. see the Vol.68 Nos 1 & 2, 2020.
Susil Kumar Sarkar

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: PARTHASARATHI MAJUMDAR <sarathi.partha.majumdar@gmail.com>
Sent: Monday, 15 November, 2021, 08:16:38 pm IST
Subject: Fw: IJTP Vol.68 Nos 1 & 2, 2020

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Susil Kumar Sarkar

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From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Indira Ghosh <indira0654@gmail.com>
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Subject: Fw: IJTP Vol.68 Nos 1 & 2, 2020

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Susil

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Jayeeta Chowdhury <jyt.cdr@gmail.com>
Sent: Monday, 15 November, 2021, 08:13:56 pm IST
Subject: Fw: IJTP Vol.68 Nos 1 & 2, 2020

Pl.see the Vol.68 Nos 1 & 2, 2020
Susil Kumar Sarkar

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From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Joydip Mitra <jmscphys@gmail.com>
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VOLUME 69 **NOS. 3,4**

JULY, 2021 – DECEMBER, 2021

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(Formerly, INSTITUTE OF THEORETICAL PHYSICS)

"BIGNAN KUTIR"

4/1, MOHAN BAGAN LANE, KOLKATA-700004

(Peer-reviewed Journal)

C O N T E N T S

INDIAN JOURNAL OF THEORETICAL PHYSICS, VOL 69, NOS. 3 &4, 2021

Review on the Electromagnetic Mechanism behind the Phenomena of Surface Enhanced Raman Scattering (SERS)

Subhendu Chandra

Assistant Professor in Physics, Victoria Institution (College), 78B A. P. C. Road, Kolkata-700 009, West Bengal, India

E-mail ID: subhendu170975@google.com

Abstract : Objective of the review article is to assist the understanding and identification of the electromagnetic mechanism involved in the SERS phenomenon. Electromagnetic (EM) contribution to surface enhancement is though well recognized but charge transfer (CT) contribution to SERS is less clearly understood as yet. It is usually believed that two enhancement mechanisms, one a long-range electromagnetic (EM) effect and the other a short-range chemical (CHEM) effect, are simultaneously operative. The EM mechanism is established on the amplified electromagnetic field produced by optical excitation of surface plasmon resonance of nano-scale surface roughness. When the molecules are adsorbed by the nanocolloidal SERS active metal surface they create hot spots. At the position of the hot spots there will be a huge enhancement of the electromagnetic fields causesing amplification of the Raman signal and this enormous application is used in the recent development of science and technology in the fields of physics and chemistry. The various types of EM mechanisms and its recent development are discussed here with detailed theoretical explanations.

Keywords: Surface plasmon, Polarizability, Electromagnetic mechanism, Raman bands, Hot spots.

Gmail

Subhendu Chandra <subhendu170975@gmail.com>

Fw: Resolution of EC meeting.

susil sarkar <susil_vcsarkar@yahoo.co.in> Thu, Jul 21, 2022 at 8:07 PM
To: Subhendu Chandra <subhendu170975@gmail.com>

Pl. see the resolution of EC meeting. SKS

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: k_mri@yahoo.com <k_mri@yahoo.com>
Sent: Thursday, 21 July, 2022 at 08:05:58 pm IST
Subject: Fw: Resolution of EC meeting.

Pl. see the resolution of EC meeting.. Susil K Sarkar

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: PARTHASARATHI MAJUMDAR <sarathi.partha.majumdar@gmail.com>
Sent: Thursday, 21 July, 2022 at 08:04:58 pm IST
Subject: Fw: Resolution of EC meeting.

Pl.see the resolution of EC meeting. Susil Sarkar

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Keya Bose <keyabose64@gmail.com>
Sent: Thursday, 21 July, 2022 at 08:00:48 pm IST
Subject: Fw: Resolution of EC meeting.

Pl. see the resolution of EC meeting. Susil K Sarkar

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Tapasi Chakrabarty <tapasiphy@gmail.com>
Sent: Thursday, 21 July, 2022 at 07:59:49 pm IST
Subject: Fw: Resolution of EC meeting.

Pl. see the resolution of EC meeting. Susil

----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Mrinal Chakrabarti <mkchakra@gmail.com>
Sent: Thursday, 21 July, 2022 at 07:58:57 pm IST
Subject: Fw: Resolution of EC meeting.

Pl. see the resolution of EC meeting. Susil K Sarkar
----- Forwarded message -----
From: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Indira Ghosh <indira0654@gmail.com>
Sent: Thursday, 21 July, 2022 at 07:57:56 pm IST
Subject: Fw: Resolution of EC meeting.

Pl. see the resolution of EC meeting. Susil

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INDIAN JOURNAL OF THEORETICAL PHYSICS

CALCUTTA INSTITUTE OF THEORETICAL PHYSICS

(Formerly, Institute of Theoretical Physics)

[Established in 1953 by Late Prof. K. C. Kar, D. Sc.]

Gmail **Subhendu Chandra <subhendu170975@gmail.com>**

I am sharing 'Metallic Nanoparticles (After correction)' with the highlighted corrected portion.

susil sarkar <susil_vcsarkar@yahoo.co.in> Thu, Jun 1, 2023 at 7:31 PM
Reply-To: susil sarkar <susil_vcsarkar@yahoo.co.in>
To: Subhendu Chandra <subhendu170975@gmail.com>

Thank you.Your article will be published in IJTP vol.70 Nos 3&4,2022.
S K Sarkar CITP

Sent from Yahoo Mail on Android

On Thu, 1 Jun 2023 at 7:20 pm, Subhendu Chandra <subhendu170975@gmail.com> wrote:

ISSN : 0019-5693

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JULY, 2022 – DECEMBER, 2022

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4/1, MOHAN BAGAN LANE, KOLKATA-700004

(Peer-reviewed Journal)

C O N T E N T S

INDIAN JOURNAL OF THEORETICAL PHYSICS, VOL 70, NOS. 3 & 4, 2022

A Brief Review on Metallic Nanoparticles

Subhendu Chandra

Associate professor in Physics

Victoria Institution (College)

78-B, A. P. C. Road, Kolkata-700 009

[Abstract: Metallic nanoparticles have involved scientist for over a century and are now deeply applied in biomedical sciences and engineering. They are an attention of interest because of their enormous potential in nanotechnology. Today these materials can be synthesized and improved with various chemical functional groups which allow them to be conjugated with antibodies, ligands, and drugs of interest and thus introducing a extensive variety of potential applications in biotechnology, magnetic separation, targeted drug delivery, and automobiles for gene and drug delivery and more significantly diagnostic imaging. Moreover, different imaging modalities have been established over the period of time such as Magnetic resonance imaging (MRI), computed tomography (CT), Positron Emission Tomography (PET), ultrasound, Surface Enhanced Raman Spectroscopy (SERS), and optical imaging as an aid to image various disease states. This led to the invention of various nanoparticulated contrast agent such as magnetic nanoparticles (Fe_3O_4), gold, and silver nanoparticles for their application in these imaging modalities. In addition, to use various imaging techniques in tandem newer multifunctional nanoshells and nanocages have been developed. Thus in this review article, we aim to provide an introduction to magnetic nanoparticles

Research Collaboration

Your presentation at ICORS 2022

From: epotma (epotma@uci.edu)

To: epotma@uci.edu

Date: Wednesday, 3 August, 2022 at 08:28 pm IST

Dear ICORS 2022 speaker,

We look forward to your upcoming presentation at ICORS 2022! The technical program is attached and can also be found at https://mrs.org/icors/program.

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See you soon in Long Beach!

Eric Potma

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Development of a new unique concept for accurate sample measurement across different microscope based molecular spectroscopy system

Kohei TAMURA[1], Carlos MORILLO[2], Yuji HIGUCHI[1], Erika TAIRA[1], Kento AIZAWA[1], Satoko SUZUKI[1], Ken-ichi AKAO[1]
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Graphene and Phthalocyanine Heterostructures for Surface Enhanced Raman Spectroscopy

Angela Luis Matos, Soraya Y. Flores Chalco, Muhammad Shehzad Sultan, Brad Weiner, Gerardo Morell
University of Puerto Rico Rio Piedras, Puerto Rico (U.S.)

Study of SERS of pharmaceutically significant organic molecule 4, 5-Dicianoimidazole adsorbed on Au nanocolloids: Theoretical modelling using DFT

Subhendu Chandra
Victoria Institution (College), India

TERS Investigation of Combustion-generated Ultrafine Particulate Matter

Ophélie Lancry[1], Jennifer A. Noble[2], Sébastien Legendre[1], Marc Chaigneau[1]
[1]Horiba, France; [2]PIIM, Aix-Marseille Université, France

Confocal Raman Particle Analysis on the Micron Scale Applied to Microplastics, Bacteria and 2D Materials

Thomas Dieing, Miriam Böhmler, Harald Fischer, Matthias Finger, Olaf Hollricher
WITec GmbH, Germany

Rheological properties of calcalkaline rhyolites assessed through Boson Peak analysis.

Michele Cassetta[1], Danilo Di Genova[2], Marco Giarola[3], Marco Zanatta[4], Gino Mariotto[1]
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De-noising and differentiation of low-SNR Raman-spectra of EV's

Mathias Novik Jensen, Benjamin Ricaud, Olav Gaute Hellesø
Dept. of physics and technology, UiT The arctic university of Norway, Norway

Optimizing SERS Structures beyond the monochromatic E4-Model

Henriette Maaß[1,2], Thien Anh Le[1,2], Enno Schatz[1,2], Thorsten Feichtner[1], Bert Hecht[1]
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Multi-technique assessment of the SERS adsorption isotherm approximation

Evandro Ivanov, Paola Corio
University of São Paulo, Brazil;

SmartSamplingTM: a revolution in Raman imaging

Thibault Brulé, Sébastien Laden, Ludivine Fromentoux, Jérémy Brites
HORIBA France SAS, France

Deep Ultra-Violet Raman Spectroscopy for Eyesafe Standoff Chemical Threat Detection

Shayne Harrel, Adam Wise, Jenny Goulden
Andor Technologies, Belfast, UK

Raman spectroscopy evaluation of indomethacin stability loaded into microcontainers – influence of shape and size

Chiara Mazzoni, Roman Slipets, Oleksii Ilchenko, Lasse Højlund Eklund Thamdrup, Line Hagner Nielsen, Anja Boisen
The Danish National Research Foundation and Villum Foundation's Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics (IDUN), Department of Health Technology, Technical University of Denmark

The impact of graphene derivatives additives on polymer membranes analysed by Raman microspectroscopy

Aleksandra Weselucha-Birczynska[1], Anna Kołodziej[1], Emilie Gérouville[1], Małgorzata Świętek[2], Elżbieta Długoń[3], Marta Błażewicz[3]
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Cl- only capped silver nanoparticles obtained by AgCl photoreduction

Andrei Stefancu[1,2], Stefania Dana Iancu[1,2], Loredana Florina Leopold[2], Nicolae Leopold[1]
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Visualizing Surface Phase Separation in PS-PMMA Polymer Blends at the Nanoscale using Tip-Enhanced Raman Spectroscopy

Dušan Mrđenović[1], Daniel Abbott[1], Victor Mougel[1], Weitao Su[2], Naresh Kumar[1], Renato Zenobi[1]
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Rapid Detection of Ciprofloxacin in Milk by a Hand-held Raman Spectrometer

Jing Miao[1], Xingyu Si[2]
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Magnetic rotational band in ^{116}Sb

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Abstract

The excited states of ^{116}Sb have been populated using the α induced reaction ^{115}In(α, 3n)^{116}Sb at a beam energy of 40 MeV and investigated via in-beam gamma spectroscopic techniques. A positive parity sequence (B1) of strong M1 transitions with relatively weak crossover E2 transitions, connected to the yrast negative parity rotational band (B2) of ^{116}Sb, has been observed. The experimental B(M1)/B(E2) values for band B1 are found to decrease with angular momentum (I). The origin of this band (B1) has been interpreted in terms of Magnetic Rotation (MR) under the framework of Semi-Classical Model (SCM) and Shears mechanism with Principal Axis Cranking (SPAC) formalism and is assigned a four quasiparticle

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Research Collaboration

Requesting to be an Editorial Board member for the upcoming special issue on SERS in Frontiers in Chemistry

From: joydeep chowdhury (joydeep72_c@rediffmail.com)

To: s.sanchez.cortes@csic.es; joydeep72_c@rediffmail.com; subhenduchandra@yahoo.com; sougata.sarkar81@gmail.com

Date: Sunday, 18 July, 2021 at 10:03 pm IST

Dear Professor Sanchez- Cortes,
Hope this email finds you in best of your health and spirit. In fact we last met here in Bangalore at ICOVS, It was pleasure meeting you there.

Infact the chief editor of Frontiers in Chemistry (Analytical Chemistry) invited me to to publish a special issue on Surface enhanced Raman scattering: Theory and Applications . The initial proposal has been accepted and we are now ready to start our work. The following board of members have been fixed for the issue and most of the secretarial work will be done by Dr Chandra, who did his Ph.D under my supersvion.

1.Dr. Joydeep Chowdhury (Guest Editor), Department of Physics, Jadavpur University, Kolkata, India

2.Dr. Sougata Sarkar (Section Editor), Department of Chemistry, Ramakrishna Mission Vivekananda Centenary College, Rahara, India

3,Dr. Subhendu Chandra (Advisor), Department of Physics, Victoria Institution (College), Kolkata, India

In this regard it will be great honour for me as well as for the Journal "Frontiers in Chemistry " if you join us a member of the editorial team , so that our issue will be rich and informative.
I hope you will accept my invitation and only upon your approval I will suggest your name to the chief Editor of the Journal. We will then make a google meet and think about the blue print of the articles to be invited.
With my personal regards as ever,
Stay safe. Here in India, we have just recovered from the 2nd wave and really very sceptical about the 3 rd.
Yours
Joydeep

==========
==========

Prof. (Dr.) Joydeep Chowdhury Ph.D, FASc &T.
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Editorial: Surface enhanced raman scattering: Theory and applications

Joydeep Chowdhury[1]*, Václav Ranc[2] and Sougata Sarkar[3]

[1]Jadavpur University, Kolkata, India, [2]Palacký University, Olomouc, Czechia, [3]Ramakrishna Mission Vivekananda Centenary College, Rahara, India

KEYWORDS

SERS, plasmons, sensors, DFT, nanoparticles

Editorial on the Research Topic
Surface enhanced raman scattering: Theory and applications

Surface-enhanced Raman scattering (SERS) has turned out to be a fascinating analytical tool that can detect analyte molecules at trace concentrations. The technique though established as a formidable analytical tool continued to draw research interests among the physicists, chemists, material scientists and biologists. The primary reason behind the fact lies in understanding the phenomenon and fabrications of durable SERS responsive substrates which in turn stand responsible for the generation of SERS sensors towards the detection of explosives, illicit drugs and in diagnostics. We are deeply privileged to compile this Research Topic of *Frontiers in Chemistry* dedicated to "*Surface Enhanced Raman Scattering: Theory and Applications*" that vividly depict all the modern aspects in this area of research both from the viewpoint of fundamental aspects to its applications. The seven invited articles in this Research Topic cover the recent advances in SERS research covering all its aspects in the current scenario.

The first article by Zhang et al. is dedicated to the fabrication details of SERS active substrate with silver nanoparticles (AgNPs) decorated on colloidal polystyrene (PS) microspheres through a seed-mediated *in situ* growth technique. This technique helps to generate highly dense agglomeration of AgNPs on the surface of the colloid that yields superior SERS enhancement. They showed that the PS/Ag substrate can sense Nile blue A (NBA) at a low concentration ~10^{-7} M. Detection of malachite green (MG) from fish was also accomplished with the limit of detection (LOD) 0.02 ppm. Furthermore the substrate also shows its ability to sense many pesticides simultaneously by SERS technique.

The second article by Das et al. is focused on Raman, SERS and surface enhanced resonance Raman scattering (SERRS) studies of merocyanine dye supported by DFT calculations. Existences of the two different conformeric forms of the molecule have been suggested. The adsorptive behaviour of the dye on as prepared silver-coated films (SCFs) were investigated from wavelength dependent SERS studies.

The third article by BrezesteanFarcău et al. is focused on the fabrication of colloidal silver nanoparticle (AgNP) films by convective self-assembly technique. The nanoparticles so fabricated were subsequently used for a detection of pesticide α-endosulfan (α- ES). SERS efficacy of the AgNPs films is tested with p-aminothiophenol molecules. They also showed that the pesticide Thiabendazole could be readily adsorbed on the prepared AgNPs films. The AgNPs films can detect the presence of Thiabendazole at a low concentration down to

10^{-6} M. Efficacies of the substrates for detecting the pesticides were further demonstrated from multivariate data analyses.

The fourth article by Zhang et al. discusses about SERRS and fluorescent sensor for detection of a plant harmone Abscisic acid (ABA). The dual SERRS and fluorescence sensor was developed based on the quenching of Raman enhancement and fluorescence quenching properties of gold nanorods (AuNRs).

The fifth article by Zhai et al. is devoted on the fabrication of arrays of high density silver nanoparticles-decorated TiO_2 nanotubes as three dimensional reusable SERS active substrate for the detection of organic dye molecules. The enhancement factor (EF) of the as prepared SERS substrate was reported to be as ~ 1.4×10^8 orders of magnitude, thus showing promising potentials for rapid and trace SERS detections of organic chemicals.

The sixth article by Sinha et al. is aimed on the fabrication of SERS active substrate through self-assembly of Gold nanoparticles on Heat cooled Calf Thymus DNA (HC-Ct DNA) Langmuir-Blodgett (LB) film scaffold. Substrate shows huge enhancement of Raman bands of 4-mercaptopyridine molecule upon adsorption of the gold nanoparticles embedded DNA origamic scaffolds. The substrate has also been used for sensing pesticide malathion at trace concentration.

Final article written by Si et al. discusses about the adsorption of the 5-fluorouracil (5FU) on small gold clusters AuN by means of SERS and DFT. Theoretical calculations show that N-H and C=O stretching vibrations play a pivotal role in the SERS phenomenon. Mechanism for the releasing drug from the gold surface is also depicted.

This Research Topic contains the original studies covering all modern aspects of research in the field of surface enhanced Raman spectroscopy. We are deeply indebted to all the authors for their wonderful contributions and sharing their recent researches in this Research Topic. Special thanks to Dr. Subhendu Chandra, Associate Professor in Physics, Victoria Institution (College), Kolkata, India and for his kind help, suggestions and secretarial assistance throughout the editing process.

We are deeply grateful to all the learned reviewers for critically reviewing the manuscripts in time despite of their busy schedule. Finally we will feel that our venture to be fruitful if the contents of this Research Topic prove useful and thought provoking not only for the experts but also for the young researchers who are new in this exciting field of research.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Gmail Research Collaboration **Subhendu Chandra <subhendu170975@gmail.com>**

Review article on Electromagnetic Mechanism of SERS

Subhendu Chandra <subhendu170975@gmail.com> Sun, Apr 24, 2022 at 9:55 PM
To: susil sarkar <susil_vcsarkar@yahoo.co.in>

Respected Sir,
I am sending the manuscript as a review article. I am very much glad to you if you kindly allow me to publish the article in your esteemed Journal
Thanking you
--

Dr. Subhendu Chandra

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Review on SERS.docx
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C O N T E N T S

INDIAN JOURNAL OF THEORETICAL PHYSICS, VOL 70, NOS. 3 & 4, 2022

A Brief Review on Metallic Nanoparticles

Subhendu Chandra

Associate professor in Physics

Victoria Institution (College)

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[Abstract: Metallic nanoparticles have involved scientist for over a century and are now deeply applied in biomedical sciences and engineering. They are an attention of interest because of their enormous potential in nanotechnology. Today these materials can be synthesized and improved with various chemical functional groups which allow them to be conjugated with antibodies, ligands, and drugs of interest and thus introducing a extensive variety of potential applications in biotechnology, magnetic separation, targeted drug delivery, and automobiles for gene and drug delivery and more significantly diagnostic imaging. Moreover, different imaging modalities have been established over the period of time such as Magnetic resonance imaging (MRI), computed tomography (CT), Positron Emission Tomography (PET), ultrasound, Surface Enhanced Raman Spectroscopy (SERS), and optical imaging as an aid to image various disease states. This led to the invention of various nanoparticulated contrast agent such as magnetic nanoparticles (Fe_3O_4), gold, and silver nanoparticles for their application in these imaging modalities. In addition, to use various imaging techniques in tandem newer multifunctional nanoshells and nanocages have been developed. Thus in this review article, we aim to provide an introduction to magnetic nanoparticles

First Observation of Multiple Transverse Wobbling Bands of Different Kinds in ^{183}Au

S. Nandi,[1,2] G. Mukherjee,[1,2,†] Q. B. Chen,[3] S. Frauendorf,[4] R. Banik,[1,2,‡] Soumik Bhattacharya,[1,2] Shabir Dar,[1,2] S. Bhattacharyya,[1,2] C. Bhattacharya,[1,2] S. Chatterjee,[5] S. Das,[5] S. Samanta,[5] R. Raut,[5] S. S. Ghugre,[5] S. Rajbanshi,[6] Sajad Ali,[7] H. Pai,[8] Md. A. Asgar,[9] S. Das Gupta,[10] P. Chowdhury,[11] and A. Goswami[8,*]

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We report the first observation of two wobbling bands in ^{183}Au, both of which were interpreted as the transverse wobbling (TW) band but with different behavior of their wobbling energies as a function of spin. It increases (decreases) with spin for the positive (negative) parity configuration. The crucial evidence for the wobbling nature of the bands, dominance of the $E2$ component in the $\Delta I = 1$ transitions between the partner bands, is provided by the simultaneous measurements of directional correlation from the oriented states ratio and the linear polarization of the γ rays. Particle rotor model calculations with triaxial deformation reproduce the experimental data well. A value of spin, I_m, has been determined for the observed TW bands below which the wobbling energy increases and above which it decreases with spin. The nucleus ^{183}Au is, so far, the only nucleus in which both the increasing and the decreasing parts are observed and thus gives the experimental evidence of the complete transverse wobbling phenomenon.

DOI: 10.1103/PhysRevLett.125.132501

Nuclear wobbling excitation is a manifestation of nonaxial nuclear shape, which was first discussed by Bohr and Mottelson [1]. The nonaxial (triaxial) nuclear shape appears due to the unequal nuclear mass distribution along the three principal axes and implies three unequal moments of inertia about the three principal axes. A triaxially deformed nucleus always tries to rotate around the medium (m) axis having the largest moment of inertia but the presence of the rotations around the other two axes, i.e., short (s) and long (l), generates a precession of the medium axis rotation about the space-fixed angular momentum axis, similar to the classical wobbling motion of an asymmetric top [2]. The energy spectrum of this excitation is given by [1]:

$$E = E_{\mathrm{rot}} + (n_w + 1/2)\hbar\omega_{\mathrm{wob}}$$

where, the term E_{rot}, corresponds to the rotation about the medium axis while n_w is the wobbling quanta and ω_{wob} is the wobbling frequency with wobbling energy $E_{\mathrm{wob}} = \hbar\omega_{\mathrm{wob}}$. This generates a series of rotational bands with different n_w.

This exotic excitation has been observed only in a few odd-A nuclei [3–13]. In case of the odd-A nuclei, the odd particle in high-j orbital couples with a triaxial core and modifies the wobbling motion. Depending on the coupling of the odd particle, two types of wobbling bands can be observed: longitudinal wobbling (LW) and transverse wobbling (TW) [14]. In LW, the angular momentum of the odd particle aligns along the medium axis while in TW, it aligns along one of the perpendicular axes (short or long).

An extensive theoretical description of the wobbling motion has been given by Frauendorf and Dönau [14] in terms of a quasiparticle triaxial rotor model. Analytical expression for $\hbar\omega_{\mathrm{wob}}$ has been derived with the assumption of "frozen alignment" and harmonic oscillation (HFA). It was shown that E_{wob} increases as a function of angular momentum (I) in case of LW which has been recently observed experimentally in ^{133}La [10] and ^{187}Au [12]. However, in case of TW, the variation of E_{wob} is highly dependent on the values of the moments of inertia, $\mathcal{J}_m$, $\mathcal{J}_s$, and $\mathcal{J}_l$ along the medium, short, and long axes, respectively, of the triaxial core. In general, E_{wob} decreases with I. But in a situation where $\mathcal{J}_m$ is slightly larger than $\mathcal{J}_s$ and

[14] S. Frauendorf and F. Dönau, Phys. Rev. C **89**, 014322 (2014).
[15] S. Das *et al.*, Nucl. Instrum. Methods Phys. Res., Sect. A **893**, 138 (2018).
[16] D. C. Radford, Nucl. Instrum. Methods Phys. Res., Sect. A **361**, 297 (1995).
[17] W. F. Mueller *et al.*, Phys. Rev. C **59**, 2009 (1999).
[18] L. T. Song *et al.*, Phys. Rev. C **71**, 017302 (2005).
[19] https://www-nds.iaea.org/public/ensdf_pgm/.
[20] A. Krämer-Flecken, T. Morek, R. M. Lieder, W. Gast, G. Hebbinghaus, H. M. Jäger, and W. Urban, Nucl. Instrum. Methods Phys. Res., Sect. A **275**, 333 (1989).
[21] K. Starosta *et al.*, Nucl. Instrum. Methods Phys. Res., Sect. A **423**, 16 (1999).
[22] C. Droste, S. G. Rohoziński, K. Starosta, T. Morek, J. Srebrny, and P. Magierski, Nucl. Instrum. Methods Phys. Res., Sect. A **378**, 518 (1996).
[23] R. Banik, S. Bhattacharyya, S. Biswas, S. Bhattacharya, G. Mukherjee *et al.*, Phys. Rev. C **101**, 044306 (2020).
[24] S. Nandi, G. Mukherjee, T. Roy, R. Banik, A. Dhal *et al.*, Phys. Rev. C **99**, 054312 (2019).
[25] I. Hamamoto, Phys. Rev. C **65**, 044305 (2002).
[26] W. X. Shi and Q. B. Chen, Chin. Phys. C **39**, 054105 (2015).
[27] E. Streck, Q. B. Chen, N. Kaiser, and U.-G. Meißner, Phys. Rev. C **98**, 044314 (2018).
[28] Q. B. Chen, S. Frauendorf, and C. M. Petrache, Phys. Rev. C **100**, 061301(R) (2019).
[29] *Relativistic Density Functional for Nuclear Structure*, edited by J. Meng, International Review of Nuclear Physics Vol. 10 (World Scientific, Singapore, 2016).
[30] J. Meng, J. Peng, S. Q. Zhang, and S.-G. Zhou, Phys. Rev. C **73**, 037303 (2006).
[31] P. W. Zhao, Z. P. Li, J. M. Yao, and J. Meng, Phys. Rev. C **82**, 054319 (2010).
[32] P. Joshi, A. Kumar, G. Mukherjee, R. P. Singh, S. Muralithar, U. Garg, R. K. Bhowmik, and I. M. Govil, Phys. Rev. C **66**, 044306 (2002).
[33] S. Frauendorf and F. Dönau, Phys. Rev. C **92**, 064306 (2015).
[34] A. D. Ayangekaa, U. Garg, M. D. Anthony, S. Frauendorf, J. T. Matta *et al.*, Phys. Rev. Lett. **110**, 172504 (2013).
[35] T. Roy *et al.*, Phys. Lett. B **782**, 768 (2018).

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experiment at VECC

2 messages

Sarmishtha Bhattacharya <sarmi@vecc.gov.in> Fri, Nov 20, 2020 at 1:01 PM
To: Shinjinee Dasgupta <shinjinee14@gmail.com>, subhphy@gmail.com, Ranabir Banik <ranabir.banik@vecc.gov.in>, Sajad Ali <sajadali113@gmail.com>
Cc: Soumik Bhattacharya <soumik@vecc.gov.in>, Shabir Dar <phy.shabir@gmail.com>

Dear Shinjinee, Subhendu, Ranabir and Sajad

Hope you all are keeping well.

We have started setup at VECC for few experiments.
From VECC, we have two experiments:

1. For PhD thesis of our student Shabir: "Search for signature partner bands based on g7/2 in 115Sb"

2. Expt of Soumik: "Effect of high-j orbitals towards the triaxiality in 199Hg"

We would like you to be present and collaborate in both the experiments.

We will let you know the exact schedule.
tentatively, we will start testing of detectors, DAQ etc. next week and
actual run probably from 1st week of December.

Regards
Sarmishtha and Soumik.

shinjinee dasgupta <shinjinee14@gmail.com> Fri, Nov 20, 2020 at 1:13 PM
To: Sarmishtha Bhattacharya <sarmi@vecc.gov.in>

Dear Sarmishthadi,

Great News. Will be present during the experiments.

Regards,
Shinjinee
[Quoted text hidden]

Gmail Research Collaboration

Subhendu Chandra <subhendu170975@gmail.com>

JAP: Receipt of New Manuscript MS #JAP21-AR-02272

jap-edoffice@aip.org <jap-edoffice@aip.org> Fri, Apr 30, 2021 at 4:45 PM
Reply-To: jap-edoffice@aip.org
To: subhendu170975@gmail.com

Dear Dr. Chandra,

On 30-Apr-2021, we received the manuscript entitled: "**Decoding the topographical features of more realistic SERS active substrates in presence of the probe molecules from statistical considerations: An in-depth study bridging Microscopy with Spectroscopy**".
Your manuscript is assigned the Manuscript #JAP21-AR-02272.

We are sending you this notification because you are listed as one of the authors. If you as a coauthor do not approve its submission, please let us know as soon as possible by replying to this message. Refer to the manuscript number listed above in any correspondence. We would be happy to provide a copy of the paper for your information immediately. Otherwise, the manuscript has been cleared for editor assignment.

The order of the authors on your submitted manuscript is as follows: Somsubhra Saha, Manash Ghosh, Subhendu Chandra, and Joydeep Chowdhury.
Please note that if this order is changed or if there are any deletions or additions of authors, each author must provide approval for this change.

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Decoding the topographical features of more realistic SERS active substrates in presence of the probe molecules from statistical considerations: An in-depth study bridging Microscopy with Spectroscopy

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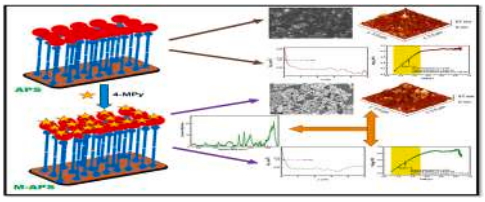
HIGHLIGHTS

- Surface topographies of the SERS active substrates have been explored in detail.
- Topographical features of the substrates were mapped in presence of 4-MPy molecule.
- Bare SERS substrates are compared with the same substrate in presence of 4-Mpy.
- The chaotic behavior of the substrates has been revealed from Lyapunov exponents.

GRAPHICAL ABSTRACT



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ABSTRACT

This paper reports for the first time the topographical parameters of SERS active substrates, fabricated through Langmuir-Blodgett and self-assembly techniques, in presence of the probe 4- Mercapto Pyridine (4-Mpy) molecules. Prior to this study the topographical parameters of bare SERS active substrates in absence of probe molecules had been investigated. However, correlating the topographical parameters of bare SERS active substrates with the corresponding SERS responses may be incomplete and imprecise, as in reality the SERS signals are collected from the probe molecules only upon adsorption on the substrates. The adsorption of probe molecules on the SERS active substrates can modify their overall morphologies in comparison to the pristine counterparts. The present paper thus reports the topographical features of the SERS active substrates in presence of 4-Mpy molecule from the statistical considerations in terms of lateral correlation length (ξ), Hurst or roughness exponents (α), root mean square surface roughnesses (ω) and fractal dimensions (D_f). Attempts have been made to correlate the topographical features of the substrates in presence of 4-Mpy molecule with their corresponding SERS responses. The chaotic behaviors of the substrates in pristine form and in the presence of 4-MPy molecules are also revealed from the Lyapunov exponents and the 2D phase space trajectories. We believe that the present report will help to correlate the topographical features of more realistic SERS active substrates in presence of probe molecules with their corresponding SERS activities and render significant advancement towards successful fabrications of efficient SERS active substrates in future endeavors.

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Revealing multiple band structures in ^{131}Xe from α-induced reactions

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The excited states in the transitional nucleus ^{131}Xe have been populated by using α-induced fusion-evaporation reaction and the de-exciting γ rays were detected with the Compton suppressed clover detector setup of the Indian National Gamma Array coupled to digital data acquisition system. The existing level structure of ^{131}Xe has been significantly extended with the observation and placement of 72 new γ-ray transitions. The use of light-ion (α) beam helped to identify several new band structures in ^{131}Xe with different quasiparticle (qp) configurations. The multipolarities of the observed γ rays have been determined on the basis of the directional correlation from oriented states ratio and polarization asymmetry measurements. The yrast negative-parity band has been confirmed up to $35/2^-$ spin and the highly nonyrast signature partner of this band has been identified for the first time. The positive-parity band, based on the $3/2^+$ ground state, has been extended up to $23/2^+$ with the observation of a signature inversion, which signifies a pair of particle alignment around the spin of $15/2$ $\hbar$. A dipole band, consisting of $M1$ transitions has been identified and assigned a 5-qp configuration. A new band structure built on a 3-qp $23/2^+$ state has been observed with a large signature splitting. A comparison in the isotopic and isotonic chains reveals the transitional nature of the $N = 77$ nuclei. Total Routhian surface calculations have been performed to understand the structure of ^{131}Xe associated with different configurations.

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I. INTRODUCTION

The transitional nuclei in the $A = 130$ region, above the $Z = 50$ proton shell closure and below the $N = 82$ neutron shell closure, provide a rich variety of single-particle and collective structures and their coexistence [1–3]. The vibrational bands, signifying mostly the spherical structures, are more prominent in nuclei near the $N = 82$ shell closure, while the rotational bands, signifying the deformed structures, appear with several numbers of neutron holes below $N = 82$. A similar situation arises for nuclei with proton number close to or away from the $Z = 50$ shell closure. The nuclei with a few numbers of neutron holes and proton particles with respect to the $N = 82$ and $Z = 50$ shell closures are the transitional ones in this region. The structure of these transitional nuclei depends largely on the shape driving effect of the orbitals which are occupied by the odd nucleon. Most of the even-even nuclei in this transitional region are known to depict softness with respect to γ deformation [4]. It is, therefore, possible that the addition of an extra nucleon in different orbitals near the Fermi surface drives the structure of an odd-A nucleus in different shapes depending on the shape driving effect of the involved orbital. In this context, it is very interesting to study the different band structures of odd-A nuclei in the transitional region which will provide important information on the shape driving effect of different orbitals. Such an effect of some of the neutron orbitals has been reported in the nuclei in the $A \approx 130$ region from the observation of different rotational band structures [5,6]. Moreover, both proton and neutron Fermi levels of the nuclei in this mass region lie within the same major shell, that is, the Z, $N = 50$–82 shell. Hence protons (as particles) and neutrons (as holes) can occupy different (e.g., low-Ω and high-Ω) components of the same high-j, $h_{11/2}$ orbital. Therefore, different polarizing effects of these components, as well as different phenomena arising due to particle-hole combination, may be manifested in the level structure of the same nucleus. This can be investigated by studying various quasiparticle (qp) excitations in nuclei of this region. The involvement of the unique-parity, high-j $h_{11/2}$ orbital is known to generating high-spin states

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[2] S. Juutinen, P. Simecek, P. Ahonen, M. Carpenter, C. Fahlander, J. Gascon, R. Julin, A. Lampinen, T. Lönnroth, J. Nyberg, A. Pakkanen, M. Piiparinen, K. Schiffer, G. Sletten, S. Törmänen, and A. Virtanen, Phys. Rev. C **51**, 1699 (1995).

[3] T. Lönnroth, J. Kumpulainen, and C. Tuokko, Phys. Scr. **27**, 228 (1983).

[4] N. V. Zamfir and R. F. Casten, Phys. Lett. B **260**, 265 (1991).

[5] A. P. Byrne, K. Schiffer, G. D. Dracoulis, B. Fabricius, T. Kibédi, A. E. Stuchbery, and K. P. Lieb, Nucl. Phys. A **548**, 131 (1992).

[6] R. Ma, E. S. Paul, D. B. Fossan, Y. Liang, N. Xu, R. Wadsworth, I. Jenkins, and P. J. Nolan, Phys. Rev. C **41**, 2624 (1990).

[7] A. Granderath, P. E. Mantica, R. Bengtsson, R. Wyss, P. von Brentano, A. Gelberg, and E Seiffert, Nucl. Phys. A **597**, 427 (1996).

[8] R. F. Casten and P. von Brentano, Phys. Lett. B **152**, 22 (1985).

[9] K. Nomura, T. Niksic, and D. Vretenar, Phys. Rev. C **96**, 014304 (2017).

[10] E. Teruya, N. Yoshinaga, K. Higashiyama, and A. Odahara, Phys. Rev. C **92**, 034320 (2015).

[11] A. Astier, M.-G. Porquet, T. Venkova, C. Theisen, G. Duchêne, F. Azaiez, G. Barreau, D. Curien, I. Deloncle, O. Dorvaux, B. J. P. Gall, M. Houry, R. Lucas, N. Redon, M. Rousseau, and O. Stézowski, Eur. Phys. J. A **50**, 2 (2014).

[12] L. Kaya *et al.*, Phys. Rev. C **98**, 014309 (2018).

[13] A. Al-Khatib, G. B. Hagemann, G. Sletten, A. K. Singh, H. Amro, G. Benzoni, A. Bracco, P. Bringel, F. Camera, M. P. Carpenter, P. Chowdhury, R. M. Clark, C. Engelhardt, P. Fallon, B. Herskind, H. Hübel, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, A. Neuber-Neffgen, and C. R. Hansen, Phys. Rev. C **83**, 024306 (2011).

[14] S. Chakraborty, H. P. Sharma, S. S. Tiwary, C. Majumder, P. Banerjee, S. Ganguly, S. Rai, Pragati, Swati Modi, P. Arumugam, Mayank, S. Kumar, R. Palit, A. Kumar, S. S. Bhattacharjee, R. P. Singh, and S. Muralithar, Phys. Rev. C **97**, 054311 (2018).

[15] S. Chakraborty, H. P. Sharma, S. S. Tiwary, C. Majumder, P. K. Prajapati, S. Rai, P. Popli, M. Singh, S. S. Bhattacharjee, R. P. Singh, S. Muralithar, P. Banerjee, S. Ganguly, S. Kumar, A. Kumar, and R. Palit, Braz. J. Phys. **47**, 406 (2017).

[16] Y. Huang, Z. G. Xiao, S. J. Zhu, C. Qi, Q. Xu, W. J. Cheng, H. J. Li, L. M. Lyu, R. S. Wang, W. H. Yan, H. Yi, Y. Zhang, Q. M. Chen, C. Y. He, S. P. Hu, C. B. Li, H. W. Li, P. W. Luo, X. G. Wu, Y. H. Wu, Y. Zheng, and J. Zhong, Phys. Rev. C **93**, 064315 (2016).

[17] G. Rainovski, D. L. Balabanski, G. Roussev, G. Lo Bianco, G. Falconi, N. Blasi, D. Bazzacco, G. de Angelis, D. R. Napoli, F. Dönau, and V. I. Dimitrov, Phys. Rev. C **66**, 014308 (2002).

[18] R. A. Meyer, F. Momyer, and W. B. Walters, Z. Phys. **268**, 387 (1974).

[19] A. D. Irving, P. D. Forsyth, I. Hall, and D. G. E Martin, J. Phys. G: Nucl. Phys. **5**, 1595 (1979).

[20] D. C. Palmer, A. D. Irving, P. D. Forsyth, I. Hall, D. G. E. Martin, and M. J Maynard, J. Phys. G: Nucl. Phys. **4**, 1143 (1978).

[21] C. Bargholtz, S. Beshai, and L. Gidefeldt, Nucl. Phys. A **270**, 189 (1976).

[22] A. Kerek, A. Luukko, M. Grecescu, and J. Sztarkier, Nucl. Phys. A **172**, 603 (1971).

[23] S. Bhattacharya, R. Banik, S. Nandi, Sajad Ali, S. Chatterjee, S. Das, S. Samanta, K. Basu, A. Choudhury, A. Adhikari, S. S. Alam, Shabir Dar, B. Das, Sangeeta Das, A. Dhal, A. Mondal, K. Mondal, P. Mukhopadhyay, H. Pai, P. Ray, A. Saha, I. Shaik, C. Bhattacharya, G. Mukherjee, R. Raut, S. S. Ghugre, A. Goswamiand, and S. Bhattacharyya, Proceedings of the DAE Symposium on Nucl. Phys. **63**, 1156 (2018).

[24] S. Das, S. Samanta, R. Banik, R. Bhattacharjee, K. Basu, R. Raut, S. S. Ghugre, A. K. Sinha, S. Bhattacharya, S. Imran, G. Mukherjee, S. Bhattacharyya, A. Goswami, R. Palit, and H. Tan, Nucl. Instrum. Methods A **893**, 138 (2018).

[25] D. C. Radford, Nucl. Instrum. Methods A **361**, 297 (1995).

[26] http://www.tifr.res.in/~pell/lamps.html.

[27] A. Krämer-Flecken, T. Morek, R. M. Lieder, W. Gast, G. Hebbinghaus, H. M. Jäger, and W. Urban, Nucl. Instrum. Methods A **275**, 333 (1989).

[28] K. Starosta, T. Morek, Ch. Droste, S. G. Rohoziński, J. Srebrny, A. Wierzchucka, M. Bergström, B. Herskind, E. Melby, T. Czosnyka, and P. J. Napiorkowski, Nucl. Instrum. Methods A **423**, 16 (1999).

[29] C. Droste, S. G. Rohoziński, K. Starosta, T. Morek, J. Srebrny, and P. Magierskib, Nucl. Instrum. Methods A **378**, 518 (1996).

[30] https://www-nds.iaea.org/public/ensdf_pgm/.

[31] Y. Khazov, I. Mitropolsky, and A. Rodionov, Nucl. Data Sheet **107**, 2715 (2006).

[32] H. Pai, G. Mukherjee, A. Raghav, R. Palit, C. Bhattacharya, S. Chanda, T. Bhattacharjee, S. Bhattacharyya, S. K. Basu, A. Goswami, P. K. Joshi, B. S. Naidu, Sushil K. Sharma, A. Y. Deo, Z. Naik, R. K. Bhowmik, S. Muralithar, R. P. Singh, S. Kumar, S. Sihotra, and D. Mehta, Phys. Rev. C **84**, 041301(R) (2011).

[33] C. T. Zhang, P. Bhattacharyya, P. J. Daly, Z. W. Grabowski, R. H. Mayer, M. Sferrazza, R. Broda, B. Fornal, W. Królas, T. Pawlat, D. Bazzacco, S. Lunardi, C. Rossi Alvarez, and G. de Angelis, Nucl. Phys. A **628**, 386 (1998).

[34] L. Goettig, C. Droste, A. Dygo, T. Morek, J. Srebrny, R. Broda, J. Styczeń, J. Hattula, H. Helppi, and M. Jääskeläinen, Nucl. Phys. A **357**, 109 (1981).

[35] T. Lönnroth, J. Haitula, H. Helppi, S. Juutinen, and K. Honkanen, Nucl. Phys. A **431**, 256 (1984).

[36] W. Nazarewicz, J. Dudek, R. Bengtsson, T. Bengtsson, and I. Ragnarsson, Nucl. Phys. A **435**, 397 (1985).

[37] W. Nazarewicz, M. A. Riley, and J. D. Garrett, Nucl. Phys. A **512**, 61 (1990).

[38] G. Mukherjee, P. Joshi, R. K. Bhowmik, S. N. Roy, S. Dutta, S. Muralithar, and R. P. Singh, Nucl. Phys. A **829**, 137 (2009).

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Title of Thesis

"Exploring The Role Of Spatial Correlation In Dynamics Of Complex Systems."

Name of the Supervisor : **Prof. Dr. Parongama Sen**
Name of the Joint Supervisor : **X**
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Opinion formation models with extreme switches and disorder: Critical behavior and dynamics

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In a three-state kinetic exchange opinion formation model, the effect of extreme switches was considered in a recent paper. In the present work, we study the same model with disorder. Here disorder implies that negative interactions may occur with a probability p. In the absence of extreme switches, the known critical point is at $p_c = 1/4$ in the mean-field model. With a nonzero value of q that denotes the probability of such switches, the critical point is found to occur at $p = \frac{1-q}{4}$ where the order parameter vanishes with a universal value of the exponent $\beta = 1/2$. Stability analysis of initially ordered states near the phase boundary reveals the exponential growth (decay) of the order parameter in the ordered (disordered) phase with a timescale diverging with exponent 1. The fully ordered state also relaxes exponentially to its equilibrium value with a similar behavior of the associated timescale. Exactly at the critical points, the order parameter shows a power-law decay with time with exponent 1/2. Although the critical behavior remains mean-field-like, the system behaves more like a two-state model as $q \to 1$. At $q = 1$ the model behaves like a binary voter model with random flipping occurring with probability p.

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I. INTRODUCTION

To address the problem of opinion formation in a society [1–3], several models with three opinion states have been considered recently [4–20]. Typically these opinions are taken as ± 1 and 0, where ± 1 may represent extreme ideologies. In a recent paper [17], using a mean-field kinetic exchange model, the present authors studied the effect of extreme switches of opinion, which is not usually considered in such models. Several interesting results were obtained; in particular, for the maximum probability of such a switch, the model was shown to effectively reduce to a mean-field voter model beyond a transient time. In this paper we extend the previous work by including negative interaction between the agents which acts as a disorder. Such negative interactions have been incorporated in three-state kinetic exchange models previously [10–14] and several properties have been studied in different dimensions. However, the effect of extreme switches and negative interaction both occurring together has not been studied earlier. Since these two features can occur simultaneously in reality, the dynamics of a model incorporating both is worth studying. In the absence of the extreme switches the critical point as well as the critical behavior is known [10–12]. The interest is primarily to see how the critical behavior is affected in the presence of the extreme switches.

In the present two-parameter model, representing the probabilities of negative interaction and extreme switches, in addition to obtaining the phase boundary and behavior of the order parameter, we have studied the dynamical behavior close to the fixed point. The relaxation of the order parameter from a fully ordered state is also studied at and away from criticality. The static critical behavior as well as the dynamical behavior are found to be similar to the mean-field model without extreme switches. However, we find that the nature of the phases in terms of the densities of the three types of opinions is quite different. Especially, the case with maximum extreme switches in the presence of the negative interaction leads to an interesting mapping to a disordered binary model. As a starting point, the mean-field model has been studied where the majority of the results can be obtained analytically. We derive the time derivatives of the three densities of population in terms of the transition rates which are then either solved analytically or numerically. A small-scale simulation is also made particularly to study the finite size scaling behavior of the order parameter.

In Sec. II, the model is described. Results are presented in Sec. III and some further analyses are made in the last section which also includes the concluding remarks.

II. THE MODEL

We have considered a kinetic exchange model for opinion formation with three opinion values $0, \pm 1$. Such states may represent the support for two candidates or parties and a neutral opinion [17,21,22] or three different ideologies where ± 1 represent radically different ones. The opinion of an individual is updated by taking into account her present opinion and an interaction with a randomly chosen individual in the fully connected model. The time evolution of the opinion of the ith individual opinion denoted by $o_i(t)$, when she interacts with the kth individual, chosen randomly, is given by

$$o_i(t+1) = o_i(t) + \mu o_k(t), \tag{1}$$

where μ is interpreted as an interaction parameter, chosen randomly. The opinions are bounded in the sense $|o_i| \leqslant 1$ at all times and therefore o_i is taken as 1 (-1) if it is more (less) than 1 (-1). There is no self-interaction so $i \neq k$ in general. The values of the interaction parameter are taken

Nonequilibrium dynamics in a three-state opinion-formation model with stochastic extreme switches

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We investigate the nonequilibrium dynamics of a three-state kinetic exchange model of opinion formation, where switches between extreme states are possible, depending on the value of a parameter q. The mean field dynamical equations are derived and analyzed for any q. The fate of the system under the evolutionary rules used in S. Biswas *et al.* [Physica A **391**, 3257 (2012)] shows that it is dependent on the value of q and the initial state in general. For $q = 1$, which allows the extreme switches maximally, a quasiconservation in the dynamics is obtained which renders it equivalent to the voter model. For general q values, a "frozen" disordered fixed point is obtained which acts as an attractor for all initially disordered states. For other initial states, the order parameter grows with time t as $\exp[\alpha(q)t]$ where $\alpha = \frac{1-q}{3-q}$ for $q \neq 1$ and follows a power law behavior for $q = 1$. Numerical simulations using a fully connected agent-based model provide additional results like the system size dependence of the exit probability and consensus times that further accentuate the different behavior of the model for $q = 1$ and $q \neq 1$. The results are compared with the nonequilibrium phenomena in other well-known dynamical systems.

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I. INTRODUCTION

One of the main motivations in studying nonequilibrium phenomena is to check what kind of steady states can be reached using different initial conditions. In the well-known Ising-Glauber model at zero temperature, on lattices or networks, several studies have been made to show that the steady states may not be the equilibrium steady states [1–14]. Exit probability, a quantity related to the type of final state reached from an initially biased state, has also been studied extensively in recent times in spin and opinion-formation models [15–26]. In systems with more than two states, several other interesting features, like the two-stage ordering process, have been noted [26]. In addition, how a system evolves to a stable state starting from an unstable fixed point is also a matter of interest [27].

Opinion dynamics models relevant to social phenomena have received extensive attention recently [28–31]. These models typically show a rich nonequilibrium behavior. Usually, the opinion of an agent is updated following the interaction with other individuals; sometimes the influence of media is also incorporated. In the numerous models studied so far, the interaction and the choice of the interacting agent(s) play crucial roles. The simplest models involve binary opinions typically represented by 0,1 or ± 1. The voter model [32,33], in which an agent just copies the opinion of another randomly picked up agent, is one of the simplest and earliest opinion dynamics models. Later, models involving more complexities have been constructed [29,30]. The binary models obviously cannot capture all the intricacies of the real world. Hence, models with three or more opinion states as well as continuous values of opinions have been considered in the recent past. The voter model can be generalized with a larger number of states easily [34] while other multistate models which involve the effect of more neighbors have also been considered [35,36]. In comparison to the simple binary-state models, here the opinions are not merely flipped but can change in more than one possible way. We focus our attention on the so-called kinetic exchange models where pairwise interactions are considered at each step [37]. However, these models generally have some restrictions. In particular, in the kinetic exchange models most recently studied with three discrete opinion states quantified by -1, 0, and 1 (assumed to represent e.g., left, central, and right ideologies), a transition from 1 to -1 or vice versa (i.e., an extreme switch of opinion) is not allowed to the best of our knowledge [38–42]. Also, in many other similar three-state models such a restriction is imposed [43–49]. However, human behavior being complex and unpredictable, such switches cannot be completely ruled out. In fact, there are real-world examples where even political cadres or leaders shift their allegiance to parties with totally opposite principles [50,51]. The reasons may be associated with immediate gains and selfish interests, lack of strong ideological beliefs, etc. We consider a model for opinion dynamics where extreme switches are allowed to happen and see how the dynamics are affected by this. It may be added here that for the multistate voter model or Potts-type models, such extreme switches can take place; however, in the relevant studies, the effect of such switches has not been the issue of interest specifically [34–36].

In this article, we have considered a kinetic exchange model of opinion dynamics with three states, with the possibility of switching between extreme opinions. In the mean field approach, the equations for the time derivatives are set

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Highlights

Block size dependence of coarse graining in discrete opinion dynamics model: Application to the US presidential elections

Physica A xxx (xxxx) xxx

Kathakali Biswas, Soumyajyoti Biswas*, Parongama Sen

- Considering Ising model and Kinetic exchange model as opinion dynamics model.
- Simulating electoral collage system by applying coarse graining(CG) procedure.
- Non-monotonic variation of popular candidate losing probability(ϵ) with coarse graining block sizes.
- Observable dependence of ϵ with involved noise factors.
- Analyzing the effects of two-step CG on the models.

Graphical abstract and Research highlights will be displayed in online search result lists, the online contents list and the online article, but will not appear in the article PDF file or print unless it is mentioned in the journal specific style requirement. They are displayed in the proof pdf for review purpose only.

Please cite this article as: K. Biswas, S. Biswas and P. Sen, Block size dependence of coarse graining in discrete opinion dynamics model: Application to the US presidential elections, Physica A (2020) 125639. https://doi.org/10.1016/j.physa.2020.125639

UGC-DAE Consortium for Scientific Research
विश्वविद्यालय अनुदान आयोग - परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
(An autonomous institution of UGC, New Delhi)
(विश्वविद्यालय अनुदान आयोग, नई दिल्ली द्वारा स्थापित स्वशासी संस्थान)
(Formerly Inter University Consortium for DAE Facilities; IUC-DAEF)

Kolkata Centre
कोलकत्ता केन्द्र

UGC-DAE-CSR-KC/CRS/19/NP12/ 0923 Date: 10th May 2019

To
The Principal
Victoria Institution (College),
78-B, A P C Road,
Kolkata - 700009.

Sub: UGC-DAE CSR,KC Collaborative Research Schemes (Research Project) entitled ***"Role of intruder orbitals for generation of high spin states in mass 190 region"*** of *Dr. Shinjinee Das Gupta , Department of Physics, Victoria Institution (College), Kolkata-700009*

Dear Sir / Madam,

This is to inform you that based on recommendations of the User Committee, UGC-DAE Consortium for Scientific Research, Kolkata Centre has approved the aforecaptioned proposal for **full support** (research scholar, contingency, consumables and travel) as a **C**ollaborative **R**esearch **S**cheme (CRS) **w.e.f. 1st June 2019. However, support for student is recommended subject to production of University registration as a Ph.D supervisor of the PI.**

It is envisaged that the research activities under this scheme be based on active academic collaboration with the respective in-house group(s) and is undertaken using the facilities outlined in the original proposal.

Terms and conditions of the sanction are outlined in Annexure-I. The other guidelines or rules stipulated by the UGC, if any, will be intimated to you accordingly.

All correspondences related to the CRS from the PI, be communicated to the respective Research Co-ordinator(s) mentioned below.

Yours sincerely,

10/5/19

M K Chakraborty,
Administrative Officer –I (Personnel),
Kolkata Centre of UGC DAE CSR

Copy to :

- Dr. Shinjinee Das Gupta , Department of Physics, Victoria Institution (College), Kolkata-700009
- Shri. R P Chattopadhay, Administrative Officer –I (Accounts), Kolkata Centre of UGC DAE CSR.
- Dr. R Raut, Research Coordinator, Kolkata Centre of UGC DAE CSR

Kolkata Centre
कोलकाता केन्द्र

UGC-DAE Consortium for Scientific Research
विश्वविद्यालय अनुदान आयोग - परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
(An autonomous institution of UGC, New Delhi)
(Formerly Inter University Consortium for DAE Facilities, IUC-DAEF)

Ref: UGC-DAE,CSR/PROJECT/ACCT/2020/0043 Date: 13/01/2020

To
The ~~Registrar~~ Principal
~~University of~~
Victoria Institution (college)
78-B. A.P.C - Road
Kol - 700009

Sub: UGC-DAE, CSR Research Project to
Prof. / Dr. Shinjinee Das Gupta

Sir,

With reference to above subject amount Rs. 2,53,320/-

(Rupees Two Lakhs fifty three thousand three hundred twenty only only) Vide DD on UTR No IOBAN 20009100695 No - Dtd. - May please be found enclosed towards the 1st installment.

The details of the same are as follows:-

a) 1st Installment — contingency + consumable 15000/- + 30,000 Rs. 45,000/-
HRA 23% Rs. 10,320/-
Rs. 1,68,000/-

b) JRF Scholarship Mr. / Ms.

(w.e.f. _____ to _____)

(Rs. Two Lakhs fifty three thousand three hundred twenty only.)

Total Rs. 2,53,320/-

This may please be acknowledged.

Yours Sincerely,

Centre Director
UGC-DAE CSR Kolkata Centre
Administrative Officer-I (Acct. & F)
UGC-DAE Consortium
for Scientific Research
Kolkata Centre

Enclosed: as above.
Copy to : Prof. / Dr. Shinjinee Das Gupta
Dept. of Physics
University of
Victoria Institution (college)
78-B, A.P.C. Road, Kol- 700009

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.57492076173686,
88.3732529745284
15.03.2024 09:05

Gmail shinjinee dasgupta <shinjinee14@gmail.com>

Recognition as Supervisor.

1 message

Registrar, University of Calcutta <phdcaluni@yahoo.co.in> Fri, Jul 5, 2019 at 4:40 PM
Reply-To: "Registrar, University of Calcutta" <phdcaluni@yahoo.co.in>
To: Shinjinee Das Gupta <shinjinee14@gmail.com>

From:
Registrar
University of Calcutta,
Senate House, 87/1, College Street, Kolkata - 700 073, India.
Fax : +91-33-2241-3222/88
eMail : phdcaluni@yahoo.co.in

To
Dr. Shinjinee Das Gupta
Dept. of Physics,
Victoria Institution (College),
78B, A.P.C.Road, Kolkata-700009.

Subject : Recognition as Supervisor.

Dear Sir / Madam,
This is to inform you that you are enlisted to act as Supervisor for the following Subject(s):
Physics (Experimental)
Your details as recorded in the database are given below for your kind perusal:

Full Name : Dr. Shinjinee Das Gupta
Designation : Assistant Professor, Victoria Institution (College). Kolkata.
Office Address : Dept. of Physics,
Victoria Institution (College),
78B, A.P.C.Road, Kolkata-700009.
Residential Address : 137, M.C.Garden Road,
PS-Dum Dum, Dist.-24Pgs(N), Kolkata-700030.
eMail-ID(s) : shinjinee14@gmail.com
Fax(es) :
Phone(s) : 9433136758
Remarks : SUPERVISOR

If any correction is required, kindly inform us.

With regards,
Yours faithfully,
Sd/-
Registrar, C.U.

This is a system generated mail, no Signature is required.

VICTORIA INSTITUTION (COLLEGE)

78-B, Acharya Prafulla Chandra Road, Kolkata-700 009
Phone : 91-33-2350 1959 ■ Fax : 91-33-2360 0046
Website : www.victoriacollege.co.in

Ref. No. 89/VIC/Project Fellow/19 Date 27/9/19

To,
Piyush Pallav

BD 120, Rabindrpally , Kestopur,
Kolkata, 7000101

Contact Number: 7004742542
Email: - ppallav2014@gmail.com

Date: 27/09/2019

Sub.: Offer Letter for joining as Project Fellow under UGC DAE CSR funded project

With reference to your interview held on 23rd Sep, 2019, I am pleased to offer you the post of **Project Fellow** under the project entitled **"Role of intruder orbitals for generation of high spin states in mass 190 region"** (Sanction Order No.: UGC-DAE-CSR-KC/CRS/19/NP12/0923; Dated : 10.05.2019) funded by UGC-DAE Consortium for Scientific Research, Kolkata Centre in the Department of Physics, Victoria Institution (College). You shall receive a monthly stipend amount of **Rs. 14,000/- + HRA (24% of the stipend)** for an initial period of one year, extendable up to three years or termination of the project. This appointment is purely temporary in nature and will terminate automatically on termination of the research project. You will have no claim of appointment/absorption in the Victoria Ins itution (College) and the UGC DAE CSR.

After the completion of two years as **Project Fellow**, if your research work is found satisfactory based upon the assessment of the expert committee then your monthly fellowship amount will be enhanced to **Rs. 16,000/- + HRA (24% of the fellowship).**

It should also be noted that, the monthly fellowship will be disbursed only after receiving the appropriate fund from the funding agency, in this case, UGC DAE CSR, Kolkata Centre and no claim whatsoever, will be contemplated before the materialization of such fund.

If you are willing to accept the offer, please report yourself for the duty to the Project in charge, **Dr. Shinjinee Das Gupta** at your earliest but no later than **1st Oct, 2019**.

Received
Piyush
27/09/19

Dr. Nibedita Chakrabarti
(Principal)
Victoria Institution (College)
Principal
VICTORIA INSTITUTION
(College)

Copy to:

1. Dr. Shinjinee Das Gupta (PI of the project)
2. Director, Kolkata Centre of UGC DAE CSR
3. Administrative Officer – I (Personnel), Kolkata Centre of UGC DAE CSR
4. Administrative Officer – I (Accounts), Kolkata Centre of UGC DAE CSR

To,

Dr. Nibedita Chakrabarti

Principal

Victoria Institution (College)

Date: 1st oct 2019

Sub: Application for accepting the post of project fellow under UGC DAE CSR funded Project.

Respected mam,

In against of application (ref no. : 89/VIC/Project Fellow/19) I want to say that I Piyush Pallav pass out Department of Physics, Central University of Jharkhand, Ranchi, Jharkhand joining the post of project fellow under UGC DAE CSR funded Project ("Role of intruder orbitals for generation of high spin states in mass 190 region") from 1st October 2019 at Victoria Institution (College) under Dr. Shinhinee Das Gupta (PI of the Project).

I confirm my joining and I shall be working in your institution. Thanks for considering me for the post.

Yours Obedient

Piyush 01/10/19

Piyush Pallav

C.GHOSH & ASSOCIATES
Chartered Accountants

UGC-DAE Consortium for Scientific Research
Kolkata Centre
Sector – III Block-LB, Plot-8, Bidhan Nagar
Kolkata - 700106

UTILIZATION CERTIFICATE

This is to certify that the Grant received by **Victoria Institution (College), 78-B, Acharya Prafulla Chandra Road, Kolkata-700009**, amounting to Rs. 2,53,320/- (Rupees Two Lakh Fifty three thousand and three hundred twenty only) for **"Role of intruder orbitals for generation of high spin states in mass 190 region" of Dr. Shinjinee Das Gupta, Department of Physics** Substitute Teacher Salary **Vide Memo No. UGC-DAE-CSR-KC/CRS/19/NP12/0923/0964 dated 10th May, 2019 from University Grants Commission-DAE Consortium for Scientific Research, Kolkata Centre, Sector – III, Block- LB, Plot – 8, Bidhan Nagar, Kolkata – 700106.**

This is further certified that out of the aforesaid grant the Institution has incurred the total expenditure amounting to Rs. 1,44,129/-(Rupees One lakh forty four thousand one hundred and twenty nine only) for the purpose for which it was sanctioned, the details of which are enclosed in annexed statement with this certificate, it is further certified that Rs. 1,09,191/- (Rupees One Lakh Nine thousand one hundred and ninety one only) has been unutilized till 31St May, 2020.

Date:- 07.11.2020

Place:- Howrah

For C. Ghosh & Associates
Chartered Accountants
Firm Registration No.: 313172E

(C. Ghosh)
Partner
Membership No.: 051302
UDIN:- 20051302AAAACG4249

Shinjinee Das Gupta
SIGNATURE OF THE PRINCIPAL INVESTIGATOR

PRINCIPAL
(Seal)

Principal
VICTORIA INSTITUTION
(College)

C. GHOSH & ASSOCIATES CHARTERED ACCOUNTANTS

HEAD OFFICE:-DULAL SEN MARKET, 4TH FLOOR 27/3 G.T. ROAD (S) HOWRAH-711 101, WEST BENGAL, INDIA
BRANCH OFFICE:-157/9, KISHANGARH, BLOCK-C, 2ND FLOOR, VASANT KUNJ, NEW DELHI – 110 070, INDIA
PHONES: 2641-2306/5785 MOBILE: 9830768291
E-mail: chittaghoshranjan@gmail.com

UGC-DAE Consortium for Scientific Research
विश्वविद्यालय अनुदान आयोग - परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
(An autonomous institution of UGC, New Delhi)
(विश्वविद्यालय अनुदान आयोग, नई दिल्ली द्वारा स्थापित स्वशासी संस्थान)
(Formerly Inter University Consortium for DAE Facilities; IUC-DAEF)

Kolkata Centre
कोलकत्ता केन्द्र

UGC-DAE-CSR-KC/CRS/19/NP12/0499/A

Date :15/10/2020

To
The Principal,
Victoria Institution (College),
78-B, A. P. C Road,
Kolkata-700009

Sub: UGC-DAE CSR, KC Collaborative Research Scheme (Research Project) entitled "***Role of Intruder Orbitals for Generation of High Spin states in mass190 region***", of *Dr. Shinjnee Das Gupta, Department of Physics, Victoria Institution (College), Kolkata-700009*

Dear Madam

This is to inform, that based on the recommendations of the Project Review Committee, on evaluation of the progress report submitted by the PI, UGC-DAE Consortium for Scientific Research Kolkata Centre, **has extended the aforementioned CRS, for full support** (research scholar, contingency, consumables and travel) for the second year **w.e.f 1st June 2020**.

It is requested that Utilization certificate, for the last year, if not submitted earlier, and the claim for the second year with filled TR42 form (enclosed herewith) may please be sent at the earliest for further financial processing at the Centre.

Please note that the fellowship of Project Associate I and Project Associate II have been revised **w.e.f 1st June 2019**, *from Rs. 25,000/- and Rs. 2,8000/- to Rs 31,000/ and Rs 35,000/-, respectively with admissible HRA. There have not been any changes in other categories (fellowship details attached).*

All communications pertaining to the CRS are to be made to the undersigned.

Yours sincerely,

Dr. R Raut,
Research Co-ordinator

Copy to:

- Dr. Shinjnee Das Gupta, Department of Physics, Victoria Institution (College), 78-B, A. P. C Road, Kolkata-700009
- Administrative Officer –I. (Accounts), UGC –DAE CSR, Kolkata Centre

Kolkata Centre
कोलकत्ता केन्द्र

UGC-DAE Consortium for Scientific Research
विश्वविद्यालय अनुदान आयोग · परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
(An autonomous institution of UGC, New Delhi)
(विश्वविद्यालय अनुदान आयोग, नई दिल्ली द्वारा स्थापित स्वायत्त संस्थान)
(Formerly Inter University Consortium for DAE Facilities, IUC-DAEF)

Ref: UGC-DAE,CSR/PROJECT/ACCT/2021/~~2019~~/0063 Date: 18/02/24

To
The ~~Registrar~~ Principal
University of
Victoria Institution (College) 78-B A.P.C Road
Kol-Centre

Sub: UGC-DAE, CSR Research Project to Prof. / Dr. Shinjini Das Gupta

Sir,

With reference to above subject amount Rs. 2,53,320/-

(Rupees Two Lakh fifty three thousand three hundred twenty only) Vide DD on Pay. Advice No. CO22112794188 No PFMS Dtd. 21/2/24 May please be found enclosed towards the 2nd installment.

The details of the same are as follows:-

a) 2nd Installment	Contingency + Consumable	Rs.	45000/-
	HRA		40320/-
b) JRF Scholarship Mr. / Ms. TR-42	Fellowship	Rs.	168000/-

(w.e.f. _____ to _____)

(Rs. Two Lakh fifty three thousand three hundred twenty only.

Total Rs. 253,320

This may please be acknowledged.

Yours Sincerely,

Centre Director
UGC-DAE,CSR,Kolkata Centre

Enclosed: as above.
Copy to : Prof. / Dr. Shinjini Das Gupta
Dept. of Physics
University of Victoria Institution (College)
78-B, A.P.C Road
Kolkata Centre

Administrative Officer-I (Accounts)
UGC-DAE Consortium
for Scientific Research
Kolkata Centre

Block - LB, Plot - 8, Sector-III, Bidhan Nagar, Kolkata-700 098, West Bengal, India
Phone : 2335-6541 / 1866 / 8035, Fax : 91-33-2335-7008 / 6542

UGC-DAE Consortium for Scientific Research
Kolkata Centre
Sector – III Block-LB, Plot-8, Bidhan Nagar
Kolkata - 700106

UTILIZATION CERTIFICATE

This is to certify that the grant received by **Victoria Institution (College), 78-B, Acharya Prafulla Chandra Road, Kolkata-700009**, amounting to **Rs. 2,53,320.00 (Rupees Two Lakh Fifty Three Thousand Three Hundred Twenty and Zero paise only)** being the 2nd Installment of the grant, utilized towards the research project named **"Role of intruder orbitals for generation of high spin states in mass 190 region"** of **Dr. Shinjinee Das Gupta, Department of Physics, Victoria Institution (College)** vide memo no. **UGC-DAE-CSR-KC/CRS/19/NP12/0499A dated 15th October, 2020 from University Grants Commission, DAE Consortium for Scientific Research, Kolkata Centre, Sector – III, Block- LB, Plot – 8, Bidhan Nagar, Kolkata – 700106.**

It is further being certified that this said institution had grant unutilized as on 01.06.2020 amounting to **Rs. 1,09,191.00 (Rupees One Lakh Nine Thousand One Hundred and Ninety One and Zero paise only)**. During the period under review, this institution has incurred **Rs. 2,08,320.00 (Rupees Two Lakh Eight Thousand Three Hundred and Twenty and Zero paise only)** out of the total grants-in-hand, details of which is enclosed herewith in a separate statement Vide Annexure -1.

A statement showing reconciliation of UGC grant as on 31.05.2021 is as follows:

Particulars	Amount(Rs.)
Unutilized grant brought forward (Balance as on 01.06.2020)	**1,09,191.00**
Add: Grant Received during the period vide memo no.-UGC-DAE-CSR/KC/CRS/19/NP12/0499A dated15th Oct, 2020	2,53,320.00
Total Grant in hand	**3,62,511.00**
Less: Grant utilized towards specified purpose	2,08,320.00
Unutilized grant carried forward(Balance as on 31.05.2021)	**1,54,191.00**

Date: 31.07.2021

Place: Howrah

For C Ghosh & Associates
Chartered Accountants
Firm Registration No.: 313172E

(C. Ghosh)
Partner
Membership No.: 051302

UDIN:21051302AAAABZ2735

Shinjinee Das Gupta
SIGNATURE OF THE PRINCIPAL INVESTIGATOR

PRINCIPAL
(Seal)
Principal
VICTORIA INSTITUTION
(College)

C. GHOSH & ASSOCIATES CHARTERED ACCOUNTANTS

2021-2022

UGC-DAE Consortium for Scientific Research
विश्वविद्यालय अनुदान आयोग - परमाणु ऊर्जा विभाग वैज्ञानिक अनुसंधान संकुल
(An autonomous Institution of UGC, New Delhi)
(विश्वविद्यालय अनुदान आयोग, नई दिल्ली द्वारा स्थापित स्वशासी संस्थान)
(Formerly Inter University Consortium for DAE Facilities; IUC-DAEF)

olkata Centre
कोलकाता केन्द्र

UGC-DAE-CSR-KC/CRS/19/NP12/0388 Date :25/10/2021

To
The Principal,
Victoria Institution (College),
78-B, A. P. C Road,
Kolkata-700009

Sub: UGC-DAE CSR, KC Collaborative Research Scheme (Research Project) entitled "***Role of Intruder Orbitals for Generation of High Spin states in mass190 region***", of *Dr. Shinjnee Das Gupta, Department of Physics, Victoria Institution (College), Kolkata-700009*

Dear Madam

This is to inform, that based on the recommendations of the Project Review Committee, on evaluation of the progress report submitted by the PI, UGC-DAE Consortium for Scientific Research Kolkata Centre, **has extended the aforementioned CRS, for full support** (research scholar, contingency, consumables and travel) for the third year **w.e.f 1st June 2021**.

It is recommended that PIs update the status of publication (where there was no publication or manuscript was at the stage of communication / preparation) arising out of the CRS in SCI journal, if any, within 06 months of the date of the last report.

It is requested that Utilization certificate, for the last year, if not submitted earlier, and the claim for the third year with filled TR42 form (enclosed herewith) may please be sent at the earliest for further financial processing at the Centre.

Kindly note that the HRA has been revised with effect from 1st July 2021 and the enhanced rate of HRA is 27%, 18% and 9% as applicable.

Yours sincerely,

Dr. R Raut,
Research Co-ordinator

Copy to:

- Dr. Shinjnee Das Gupta, Department of Physics, Victoria Institution (College), 78-B, A. P. C Road, Kolkata-700009
- Administrative Officer –I. (Accounts), UGC –DAE CSR, Kolkata Centre

ब्लोक-एल बी, प्लोट - ८, सेक्टर - बिधाननगर, कोलकाता-७०० १०६,इंडिया
Block-LB, Plot-8, Sector-III, Bidhan Nagar, Kolkata-700 106,India
Phone : 91 33-2335-8541 / 1866 / 8035 Fax : 91-33-2335-7008 / 6543

UGC-DAE Consortium for Scientific Research

Kolkata Centre

कोलकाता केन्द्र

Ref: UGC-DAE CSR PROJECT A/C No. CRS/2022/0599 Date 21/01/22

To
The Principal
Victoria Institution (college)
78-B, A.P.C Road
Kolkata-700009

Sir

With reference to above subject amount Rs 2,58,360/-

Rupees Two Lakh fifty eight thousand three hundred sixty

Payment Advice No. CO12219473195 Dtd PFMS Dtd 07/01/22

Being the 3rd instalment of the project entitled "3rd

The details of the same are as follows

Instalment		
TR-92	Fellowship —	1,68,000/-
	ITRA — Rs	45,360/-
	Contigency	45000/-
		2,58,360/-

Two Lakh fifty eight thousand three hundred sixty only.

2,58,360/-

This may please be acknowledged

Administrative Officer-I (Accounts)
UGC-DAE Consortium for Scientific Research
Kolkata Centre

Despatch No. 0600 dt. 24.01.22

Enclosed as above

Copy to Dr Shinjini Das Gupta

Dept of Physics

Victoria Institution (college)

78B, A.P.C Road

Kolkata-700009

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.574920761731686,
88.3732529745284
15.03.2024 09:05:

M. Chattopadhyay & Co
CHARTERED ACCOUNTANTS

camschatterjee@gmail.com
105/2, Rabindra Nagar Dankuni
Hugli 7123111, M. 9830012630

UGC-DAE Consortium for Scientific Research
Kolkata Centre
Sector - III Block-LB, Plot-8, Bidhan Nagar
Kolkata – 700106

Utilization Certificate

This is to certify that the grant received by Victoria Institution (College), 78B, A. P. C. Road, Kolkata-700009, amounting **Rs. 2,58,360.00** as 3rd installment from the **UGC-DAE CSR, KC** under the scheme of support for **UGC-DAE CSR, KC COLLABORATIVE RESEARCH SCHEMES (RESEARCH PROJECT) (project title "Role of intruder orbital for generation of high spin states in mass 190 region")** of Dr. Shinjinee Das Gupta, Dept. of Physics, Victoria Institution (College) vide **memo No. UGC-DAE-CSR-KC/CRS/19/NP12/0388 dated 25th Oct, 2021** and **UGC-DAE,CSR/PROJECT/ACCT/2022/0599 dated 21st Jan, 2022** along with the unutilized amount of **1,54,191/-** of previous years (June, 2019 - May, 2021) As per UC dated 31.07.2021(UDIN21051302AAAABZ2735) has been utilized for the purpose for which it was sanctioned in accordance with the terms and conditions laid down by the UGC-DAE-CSR.
. During the period under review, this Institution incurred Rs. **2,84,060/-** out of the total grants-in-hand, details of which is enclosed herewith in a separate statement Vide Annexure-I.
It is further certified that this said Institution had unutilized grant as on **30.09.2022** amounting to **Rs. 1,28,491/-**

A statement showing reconciliation of UGC grant as on **30.09.2022**is as follows:

Particulars	Amount (Rs.)
Unutilized grant brought forward (Balance as on 01.06.2021)	**1,54,191/-**
Add: Grant received during the period vide memo no UGC-DAE-CSR-KC/CRS/19/NP12/0388 dated 25th Oct, 2021 and UGC-DAE,CSR/PROJECT/ACCT/2022/0599 dated 21st Jan, 2022	**2,58,360/-**
Total grant in hand	**4,12,551/-**
Less: Grant utilized towards specified purpose	**2,84,060/-**
Unutilized grant (Balance as on 30.09.2022)	**1,28,491/-.**

M. CHATTOPADHYAY & CO. DANKUNI FRN-332730E Chartered Accountants

MADHU SUDAN CHATTOPADHYAY
M.NO 052020
Name and Signature of the Chartered Accountant
(With seal and Regd. No. of CA)
UDIN **23052020BGWILA4509**

18/03/2023

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.574920761731886,
88.3732529745284
15.03.2024 09:05:

Annexed

UGC-DAE Consortium for Scientific Research
Kolkata Centre
Sector - III Block-LB, Plot-8, Bidhan Nagar
Kolkata – 700106

STATEMENT OF EXPANDITURE IN RESPECT OF UGC-DAE CSR, KC COLLABORATIVE RESEARCH SCHEMES (RESEARCH PROJECT)

1. Name of the Principal Investigator: Dr. Shinjinee Das Gupta

2. Department of PI: Department of Physics
Victoria Institution (College)
78-B, A.P.C. Road, Kolkata 700009

3a. Project Approval Letter No. And Date: UGC-DAE-CSR-KC/CRS/19/NP12/0388
Date: 25th Oct, 2021
UGC-DAE,CSR/PROJECT/ACCT/2022/0599
dated 21st Jan, 2022

4. Title of the Research Project: Role of intruder orbitals for generation of high spin states in mass 190 region

5. Effective date of starting the Project: 01st June, 2019

6. a. Period of Expenditure: From 01st June, 2021 to 30th Sep, 2022

b. Details of Expenditure

SL. No.	Item	Amount Approved (Rs.)	Expenditure Incurred (Rs.)
i.	Fellowship	Fellowship (1,68,000/-) + HRA (45360/-) = 2,13,360/-	Fellowship (1,68,000/-) + HRA (45360/-) = 2,13,360/- [Oct,21-Sep, 22]
ii.	Consumables	30,000/-	0
iii.	Contingency	15,000/-	0
iv.	Unutilized amount (June 2019-May,2021)	1,54,191/-	Fellowship +HRA of [June,21-Sep,21] = 70,700/-
	Total (Rs.)	**4,12,551/-**	**2,84,060/-**

7. if as a result of check or audit objection some irregularly is noticed at later date, action will be taken to refund, adjust or regularize the objected amounts.

8. It is certified that **Rs. 2,84,060.00 (Rupees Two Lakh Eighty Four Thousand Sixty)** out of the grant of **Rs. 2,58,360.00** as 3rd installment received from the **UGC-DAE CSR, KC** under the scheme of support for **UGC-DAE CSR, KC COLLABORATIVE RESEARCH SCHEMES (RESEARCH PROJECT)** vide **letter No. UGC-DAE-CSR-KC/CRS/19/NP12/0388 dated 25th Oct, 2021** and **UGC-DAE,CSR/PROJECT/ACCT/2022/0599 dated 21st Jan, 2022** along with the unutilized amount of **1,54,191/-** of previous years (June, 2019 - May, 2021) (UC dated 31.07.2021) has been utilized for the purpose for which it was sanctioned and accordance with the terms and conditions laid down by the UGC-DAE-CSR.

Shinjinee Das Gupta

(Dr. Shinjinee Das Gupta)
(PRINCIPAL INVESTIGATOR)

M. CHATTOPADHYAY & CO. Chartered Accountants DANKUNI FRN-332730E

Uma Ray Srinivasan

(Dr. Uma Ray Srinivasan)
(Teacher - In - Charge)
(Seal)
Teacher-in-Charge
VICTORIA INSTITUTION
(College)

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.57492076173686,
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(An autonomous institution of UGC, New Delhi)
(विश्वविद्यालय अनुदान आयोग, नई दिल्ली द्वारा स्थापित स्वशासी संस्थान)
(Formerly Inter University Consortium for DAE Facilities; IUC-DAEF)

Kolkata Centre
कोलकत्ता केन्द्र

TO WHOM IT MAY CONCERN

This is to certify that **Dr. Shinjinee Das Gupta,** of **Department of Physics, Victoria Institution (College),** was the Principal Investigator of the project (Ref No. **UGC-DAE-CSR-KC/CRS/NP12**), under Collaborative Research Scheme (CRS) of the Kolkata Centre, titled "Role of intruder orbitals for generation of high spin states in mass 190 region" that was supported from **1st June, 2019** to **31st May, 2022.**

The project is duly **completed.**

Sandeep · G

[Sandeep S. Ghugre]

डॉ. संदीप एस. घुगरे / Dr. Sandeep S. Ghugre
केंद्र-निर्देशक / Centre-Director
यूजीसी-डीएई कंसोर्टियम फॉर साइंटिफिक रिसर्च, कोलकाता केंद्र
UGC-DAE Consortium for Scientific Research, Kolkata Centre
ब्लाक-एल.बी.-८ बिधाननगर / Block-LB-8, Bidhannagar
कोलकाता (प.बं.)-७०० १०६ / Kolkata (W.B.)-700106

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Yrast and non-yrast spectroscopy of ^{199}Tl using α-induced reactions

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(Received 28 March 2018; revised manuscript received 21 August 2018; published 11 October 2018)

The excited states of the ^{199}Tl nucleus have been studied by using the light ion induced fusion evaporation reaction ^{197}Au$(\alpha, 2n)^{199}$Tl at 30 MeV of beam energy by γ-ray spectroscopic methods. VECC Array for NUclear Spectroscopy (VENUS) has been used to detect the prompt γ rays. Level scheme of ^{199}Tl has been significantly improved and extended with the placement of 53 new transitions. The yrast $\pi h_{9/2}$ band has been extended in this nucleus beyond the band crossing. Several new near- and non-yrast band structures have also been identified. It has been observed that in case of the three-quasiparticle structures, a different configuration involving negative parity neutron orbitals becomes yrast for heavier Tl isotopes with $N \geqslant 118$ in contrast to the involvement of the neutron $i_{13/2}$ orbital for lighter Tl isotopes. It was possible to identify both the yrast and the non-yrast states corresponding to these configurations in the present work. The observed band structures have been interpreted in light of the systematics of the neighboring odd mass Thallium nuclei. Total Routhian surface calculations have been performed to study the deformation and shape changes as a function of rotational frequency in this nucleus.

DOI: 10.1103/PhysRevC.98.044311

I. INTRODUCTION

Thallium isotopes, with only one proton below the $Z = 82$ shell closure, are the most appropriate candidates to extend our knowledge on the polarizing effect of the high-j proton intruder orbitals (e.g., $\pi h_{9/2}$, $\pi i_{13/2}$) or high-j neutron orbitals (e.g., $\nu i_{13/2}$) on the shape of a nucleus, which are otherwise near-spherical at their ground state. Several interesting and exotic phenomena, like magnetic rotational bands [1] and chiral bands [2–4] have been reported in the thallium isotopes around the $A \sim 200$ mass region. It is, therefore, interesting to investigate the interplay of the single particle structures (involving high-j orbitals) and the collectiveness of the underlying core that generates the above exotic phenomena, below the $Z = 82$ shell closure region [5–7]. It is known that the high-j orbitals, specially, $\pi h_{9/2}$ and $\nu i_{13/2}$, induce oblate shape in the nuclei in this region [8]. In the case of the odd-A Tl nuclei, a wide diversity of shapes and structures have been observed from superdeformed structures in neutron deficient ^{191,193,195}Tl [9–11] to weakly deformed oblate band structures in ^{191,193,195,197,201}Tl [12–15], depending on the neutron Fermi level and the excitation energy. In the heavier isotope ^{205}Tl, which is close to the doubly magic ^{208}Pb nucleus, excited states corresponding to the octupole core excitation was also observed [16]. Although deformed shapes based on the $\pi i_{13/2}$ intruder orbital have been observed for the lighter Tl isotopes, no such band structure has been reported in heavier odd-mass thallium isotopes. A survey of the excitation energies of these states in the heavier isotopes indicates that it becomes more and more non-yrast with the increase in neutron number [17]. In the neighboring isotope ^{197}Tl, an excited state corresponding to the $\pi i_{13/2}$ orbital has been reported but no band structure was observed on top of this state [18].

It is interesting to note that the shape polarizing effect of the $\pi h_{9/2}$ orbital continues to generate deformed band structures for the isotopes ^{200,201}Tl, as reported in our previous work [15,19]. However, the three-quasiparticle configuration, observed after the band crossing of the $\pi h_{9/2}$ oblate band, in the $N = 120$ isotope ^{201}Tl was observed to be different with smaller gain in aligned angular momentum compared to the other lighter isotopes. This is possibly because of the fact that the neutron Fermi level moves up and away from the $\nu i_{13/2}$ orbital with the increase in neutron number. For spherical shape, the neutron Fermi level is expected to be situated around the $3p_{3/2}$ orbital above the $i_{13/2}$ orbital for $N \geqslant 114$. However, for oblate deformation, as it is the case for the Tl isotopes, it would move up to lie close to the $2f_{5/2}$ orbital for $N \geqslant 118$. Therefore, it is important to study the band crossing behavior of ^{199}Tl to understand the relative position of the $\nu i_{13/2}$ orbital.

The available information on the excited states in ^{199}Tl is very scarce and limited to a few low-lying states which precludes one to get any idea about the $\nu i_{13/2}$ alignment. One of the first measurements of the excited states in ^{199}Tl was performed way back in 1970 by Newton *et al.* [20], with a few Ge(Li) detectors. Although only a few states could be identified in that work, but importantly, the deformed nature

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[13] J. O. Newton, F. S. Stephens, and R. M. Diamond, Nucl. Phys. A **236**, 225 (1974).
[14] R. M. Lieder *et al.*, Nucl. Phys. A **299**, 255 (1978).
[15] S. DasGupta, S. Bhattacharyya, H. Pai, G. Mukherjee, S. Bhattacharya, R. Palit, A. Shrivastava, A. Chatterjee, S. Chanda, V. Nanal, S. K. Pandit, S. Saha, J. Sethi, and S. Thakur, Phys. Rev. C **88**, 044328 (2013).
[16] J. Wrzesiński *et al.*, Eur. Phys. J. A **20**, 57 (2003).
[17] R. B. Firestone *et al.*, *Table of Isotopes* (John Wiley and Sons, New York, 1999).
[18] H. Pai, G. Mukherjee, S. Bhattacharya, C. Bhattacharya, S. Bhattacharyya, T. Bhattacharjee, S. Chanda, S. Rajbanshi, A. Goswami, M. R. Gohil, S. Kundu, T. K. Ghosh, K. Banerjee, T. K. Rana, R. Pandey, G. K. Prajapati, S. R. Banerjee, S. Mukhopadhyay, D. Pandit, S. Pal, J. K. Meena, P. Mukhopadhyay, and A. Choudhury, Phys. Rev. C **88**, 064302 (2013).
[19] S. Bhattacharya *et al.*, Phys. Rev. C **95**, 014301 (2017).
[20] J. O. Newton *et al.*, Nucl. Phys. A **148**, 593 (1970).
[21] R. E. Doebler and Wm. C. McHarris, Phys. Rev. C **2**, 2422 (1970).
[22] N. Marginean *et al.*, Eur. Phys. J. A **46**, 329 (2010).
[23] S. Bhattacharya *et al.*, DAE-BRNS Symp. Nucl. Phys. **61**, 98 (2016).
[24] http://www.tifr.res.in/∼pell/lamps.html
[25] R. K. Bhowmik, S. Muralithar, and R. P. Singh, Proc. DAE Symp. Nucl. Phys. **44B**, 422 (2001).
[26] D. C. Radford, Nucl. Instrum. Methods Phys. Res. A **361**, 297 (1995).
[27] A. Kramer-Flecken *et al.*, Nucl. Instrum. Methods Phys. Res. A **275**, 333 (1989).
[28] K. Starosta *et al.*, Nucl. Instrum. Methods Phys. Res. A **423**, 16 (1999).
[29] Ch. Droste *et al.*, Nucl. Instrum. Methods Phys. Res. A **378**, 518 (1996).
[30] B. Singh, Nucl. Data Sheets **108**, 79 (2007).
[31] R. M. Diamond and F. S. Stephens, Nucl. Phys. A **45**, 632 (1963).
[32] C. Günther *et al.*, Phys. Rev. C **15**, 1298 (1977).
[33] K. H. Hicks, T. E. Ward, J. Wiggins, C. A. Fields, and F. W. N. deBoer, Phys. Rev. C **25**, 2710 (1982).
[34] L. L. Collins *et al.*, Diss. Abst. Int. **39B**, 3834 (1979).
[35] M. G. Slocombe, J. O. Newton, and G. D. Dracoulis, Nucl. Phys. A **275**, 168 (1977).
[36] D. Royer *et al.*, Nucl. Phys. A **158**, 516 (1970).
[37] J. A. Becker, R. G. Lanier, L. G. Mann, G. L. Struble, K. H. Maier, L. E. Ussery, W. Stoffl, T. W. Nail, R. K. Sheline, J. A. Cizewski, B. H. Erkkila, and J. Blomqvist, Phys. Rev. C **29**, 1268 (1984).
[38] H. Beuscher, P. Jahn, R. M. Lieder, and C. Mayer-Boricke, Z. Phys. **247**, 383 (1971).
[39] Z. Plajner, J. Frana, I. Rezanka, A. Spalek, and M. Fiser, Z. Phys. **233**, 122 (1971).
[40] K. Farzine and H. V. Buttlar, Z. Phys. **270**, 155 (1974).
[41] A. J. Haverfield, H. T. Easterday, and J. M. Hollander, Nucl. Phys. A **64**, 379 (1965).
[42] W. Nazarewicz *et al.*, Nucl. Phys. A **435**, 397 (1985).
[43] W. Nazarewicz *et al.*, Nucl. Phys. A **512**, 61 (1990).
[44] J. Dudek, Z. Szymanski, and T. Werner, Phys. Rev. C **23**, 920 (1981).
[45] G. Mukherjee *et al.*, Nucl. Phys. A **829**, 137 (2009).

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J. Phys. G: Nucl. Part. Phys. **46** (2019) 055102 (36pp) https://doi.org/10.1088/1361-6471/ab0573

Spectroscopy of a tetrahedral doubly magic candidate nucleus $^{160}_{70}Yb_{90}$

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Abstract

The decay scheme of ^{160}Yb nucleus populated in the ^{148}Sm(^{16}O, 4n)^{160}Yb reaction at 90 MeV has been studied. The gamma-coincidence data have been collected by using Indian National Gamma Array (INGA) composed of twenty

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[38] Droste C, Rohoziński S G, Starosta K, Morek T, Srebrny J and Magierski P 1996 *Nucl. Instrum. Methods* A **378** 518
[39] Starosta K *et al* 1999 *Nucl. Instrum. Methods* A **423** 16
[40] Jones P M, Wei L, Beck F A, Butler P A, Byrski T, Duchêne G, de France G, Hannachi F, Jones G D and Kharraja B 1995 *Nucl. Instrum. Methods* A **362** 556
[41] Bhattacharjee T *et al* 2008 *Phys. Rev.* C **78** 024304
[42] Reich C W 2005 *Nucl. Data Sheets* **105** 557
[43] Experimental Unevaluated Nuclear Data List Search and Retrieval (XUNDL) http://nndc.bnl.gov/ensdf/ensdf/xundl.jsp, (Last updated: 02 February 2018)
[44] Gavron A 1980 *Phys. Rev.* C **21** 230
[45] Campbel D B 2004 Angular Momentum Induced Shape Changes in the Rare-Earth Nuclei 152,153Gd and 159,160Yb *PhD Thesis* unpublished http://diginole.lib.fsu.edu/islandora/object/fsu%3A185022 Florida State University
[46] Saha A *et al* 2018 *Phys. Scr.* **93** 034001
[47] Reviol W *et al* 2006 *Phys. Rev.* C **74** 044305
[48] Zimba G L *et al* 2016 *Phys. Rev.* C **94** 054303
[49] Dudek J, Dedes I, Yang J, Baran A, Curien D, Dickel T, Góźdź A, Rouvel D and Wang H-L 2019 *Acta Phys. Pol.* in print **50**

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Schedule of INGA Experiment at VECC

2 messages

Chandana Bhattacharya <chandana@vecc.gov.in> Fri, Oct 26, 2018 at 6:39 PM
To: r.palit1@gmail.com, somsundarm@gmail.com, ritwika.chakrabarti@gmail.com, sujit.tandel@cbs.ac.in, shinjinee14@gmail.com
Cc: Amitava Roy <amitav@vecc.gov.in>, Prodyut Sankar Chakraborty <prodyut@vecc.gov.in>, Tapas Bandyopadhyay <tapas@vecc.gov.in>, asimananda.goswami@saha.ac.in, Sandeep Ghugre <ssg.iuc@gmail.com>, Sarmishtha Bhattacharya <sarmi@vecc.gov.in>, Gopal Mukherjee <gopal@vecc.gov.in>, Soumik Bhattacharya <soumik@vecc.gov.in>

Dear All,
Please find attached herewith the schedule of your experiment using INGA- facility at VECC.
Please note that the beam time allotted includes radioactivity/ decay run, calibration/efficiency run.
You are requested to send an acknowledgement at the earliest.
Please also note that, for smooth running of the experiment, a local experimental coordinator (LEC) has been assigned for each experiment.
You are requested to send certain information as per attached documents to the LEC, e-mails given below.

LEC:
Dr. Gopal Mukherjee: gopal@vecc.gov.in
Dr. Sarmishtha Bhattacharyya: sarmi@vecc.gov.in
Shri Soumik Bhattacharya: soumik@vecc.gov.in

With best regards
Chandana bhattacharya

Dr.(Mrs.) Chandana Bhattacharya
Head, Experimental Nuclear Physics Division
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3 attachments

- **radiation worker Visitor form (2).pdf** 21K
- **Info_user.pdf** 10K
- **Beamtime_Schedule_8_11_18-7_12_18.pdf** 58K

shinjinee dasgupta <shinjinee14@gmail.com> Sat, Oct 27, 2018 at 3:16 PM
To: chandana@vecc.gov.in

Respected Madam,

Thank you for scheduling the experiment and I want to confirm my participation.

With regards,
Shinjinee

[Quoted text hidden]

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Research Collaboration

Subhendu Chandra <subhendu170975@gmail.com>

Re: special issue on Raman Spectroscopy/joydeep72_c@rediffmail.com

joydeep chowdhury <joydeep72_c@rediffmail.com> Tue, Oct 2, 2018 at 8:06 PM
To: vinod Kumar Rastogi <v_krastogi@rediffmail.com>, subhenduchandra <subhenduchandra@yahoo.com>, subhendu170975 <subhendu170975@gmail.com>

Dear Professsor Rastogi:
Thanks for you email. I am in India now and will see you in Mumbai. Infact, I have given the job of writing the review to my senior student Dr. Subhendu Chandra. Most probably , he has completed the write up and will communicate that to the journal shortly.
My personal regards,
Joydeep

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From: "vinod Kumar Rastogi" <v_krastogi@rediffmail.com>
Sent: Tue, 02 Oct 2018 18:19:14
To: <joydeep72_c@rediffmail.com>
Subject: Re: special issue on Raman Spectroscopy/joydeep72_c@rediffmail.com

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FF-43, Mangal Bazar, Laxminagar, Delhi, India

Dear Dr Joydeep
I do hope all is fine with you and family. Are you in India or abroad ?I am still waiting for your article for Nov 2018 issue.
Expecting a quick response.
Best regards,
Vinod

On Mon, 30 Jul 2018 21:27:07 +0530 "vinod Kumar Rastogi"<v_krastogi@rediffmail.com> wrote
>
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On Mon, 30 Jul 2018 20:45:31 +0530 "joydeep chowdhury" wrote
>
>Respected Sir :
>
> I will try. How much time can I get.
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>Regards,

ap

Asian Journal of Physics
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SERS on all dielectric materials: A brief review

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All-dielectric materials are emerging as a new class of substrates for enhanced Raman scattering. As ohmic losses are reduced in the absence of plasmonic metals, Raman data obtained with dielectrics are very reproducible and reliable. This review summarizes the recent works in the field of all-dielectric/semiconductor resonators designed for Raman purposes. Though the enhancement of non-plasmonic effect in surface enhanced Raman scattering (SERS) is still small in comparison to the metal based plasmonic SERS, the former has drawn significant attention in recent years due to reproducibility, reliability and easy availability of all-dielectric/semiconductor based substrates.In this brief review the importance of non-plasmonic SERS has been discussed.

Keywords: non-plasmonic SERS; all-dielectrics; semiconductors

1 Introduction

Surface enhanced Raman scattering (SERS) is a well-established and highly effective technique that has the potential to record Raman scattering from species present at trace concentrations down to single molecule detection level. Recent developments in the synthesis of SERS active materials and its techniques recommend to outstanding progress not only in detection but also in chemical mapping of single molecules [1] and in molecular imaging [2]. Ever since the accidental discovery of SERS by Fleischmann et al in 1974 [3], it has gone distinct stages of development right from single molecule detection to real state-of-art diagnostic applications[4−8]. Various mechanisms are involved to explain the phenomena of non-plasmonic SERS.Trapping of light and creation of optical resonances in dielectric [9-13], morphology-dependent (Mie) resonances in dielectric[14-20],Microlenses: Photonic Nanojets[21-31], 2Dand 3D Assembly of Dielectric Spheres: Arrays and Photonic Crystals[32-40]etc. techniques are used to describe the phenomena of non-plasmonic SERSin all-dielectric materials.Comparisons of SERS on metals and on all-dielectrics have enabled the scientists to elucidate the chemical stability and reproducibility of organic and inorganic molecules over the years[41, 42].However, the up thrust in this field of research is focussed in three directions: (a) Mechanism behind SERS (b) Looking for new SERS active substrates and (c) Applications in chemical and biological sensing.

2 Mechanism behind SERS

Despite intensive theoretical works [43−48], special issues of scientific journals themed to this phenomenon [49−51] and publications of excellent reviews [52−59], the exact nature of the colossal enhancement in Raman intensity found in SERS is still a matter of controversy. However, it is generally accepted that two enhancement mechanisms, one a long-range electromagnetic (EM) effect and the other a short-range chemical (CHEM) effect, are operative simultaneously. April 5

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Fw: National Seminar 2019

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Subject: National Seminar 2019

Respected Sir,

We would like to inform you that department of Physics and department of Electronics, Behala College is going to jointly organize a national seminar entitled “Emerging Frontiers in Materials Science 2019" **(EFMS 2019)** on **February 15-16, 2019**. The seminar will include invited talks by eminent scientists, oral and poster presentation by participants. We would be greatly honored if you can spare some of your precious time and grace the seminar by participating in it.

We would also earnestly request you to encourage faculty members of science departments to actively participate in this national seminar. The seminar is also open for participation only without any presentation. Thus we would like to invite interested students to take part in this seminar which will enrich them with emerging knowledge of the field of nano-science and technology.

Kindly see the attachment for the details of the seminar. The extended date of full paper submission for oral and poster contribution is open till **January 25, 2019.**

For the updated full program of **EFMS 2019**, please visit the official seminar website:: https://www.behalacollege.in/seminar/

2. X. Liu, Z. Wu and Y. Yin, Chem. Eng. J., 2017, 323, 330-339.

3. G. Xu, Z. Zhang, X. Qi, X. Ren, S. Liu, Q. Chen, Z. Huang, J. Zhong, Ceram. Int., 2018, 44, 120–127.

4. A. K. Singh, D. Sarkar, K. Karmakar, K. Mandal and G. G. Khan, ACS Appl. Mater. Interfaces, 2016, 8, 20786-20792.

PP-02

Study of Surface-enhanced Raman scattering (SERS) and Zeta potential of 5-Methylthio-1, 3, 4-Thiadiazole-2-thiol molecule Adsorbed on Gold Nano Particles

Subhendu Chandra[a], Joydeep Chowdhury[b]

[a]Department of Physics, Victoria Institution (College), Kolkata, India

[b]Department of Physics, Jadavpur University, Kolkata, India

Surface-enhanced Raman scattering (SERS) is a well-established and highly effective technique for observing Raman scattering from species present at trace concentrations down to single molecule detection limit [1-4]. It is an established technique to understand the surface physics and chemistry between the adsorbate molecule and the nanostructured metal surface [5-7]. The Normal Raman (NR) in solid as well as in the solvent of ethyl alcohol has been performed. The comparative study of Fourier transform infrared (FTIR) and NRS in solid and in solution and their complementary behavior has been absolutely established. Surface Enhanced Raman Scattering (SERS) spectra of various concentrations in the state of protonated and de-protonated condition adsorbed on nano colloidal gold surface of biologically and pharmaceutically significant 5-Methylthio-1, 3, 4-Thiadiazole-2-Thiol (5-MTT) molecule has been investigated. The 5-MTT molecule can exist in various tautomeric forms. Considering the relative stabilities of the various tautomeric forms of the molecule as reported elsewhere [8-9], the two stable thiol (MTTL) [Fig. 1a] and the thione (MTTN) [Fig. 1b] forms of the molecule are considered. The optimized molecular structures of the MTTN and the MTTL forms of the molecule are shown in Figure 1a & 1b. The Self Consistent Field (SCF) energies, as estimated

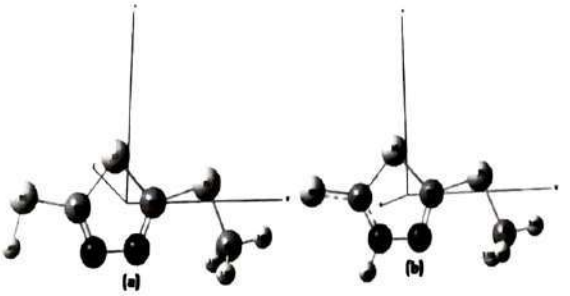


Fig. 1

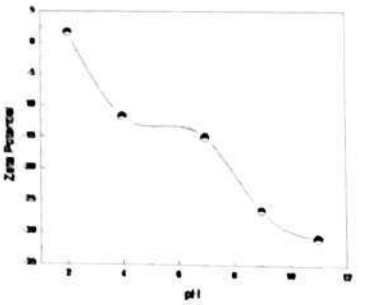


Figure 2

from the Density Functional Theory (DFT) calculations, indicate that the MTTN form is the most stable one, while the MTTL is $\sim$ 47.8 KJ/ mol less stable than the corresponding MTTN form of the molecule. The best experimental SERS spectrum has been observed at the concentration of 10^{-6} M. Significant changes in intensities of different SER bands may be due to the change in the orientation and / adsorbtive site of the probe molecule on nano colloidal surface with concentration. The detail analysis of various contributions of vibrational assignment has been done significantly by DFT calculations using Potential Energy Distribution (PED) and Normal Coordinate Analysis (NCA) technique. We also investigate the electric potential at the boundary of the double layer (zeta potential) of the nanocolloidal silver surface with the concentration as well as various pHs. Zeta potential is negative throughout the concentration and minimum at the concentration 10^{-6} M when the best SER spectra is found. Figure 2 represents the variation of zeta potential with pH of the molecule in the concentration of 10^{-6} M of the molecule where the best spectra have been observed. The detail analysis of the variation of zeta potential with concentration and Fermi-level are also in progress.

References

1 Katrin Kneipp Yang Wang Harald Kneipp Lev T. Perelman , Physical Review Letters 78(9), (1997), 1667

[2 B. Wrzosek, J. Cukras, J. Bukowska, J. Raman Spectrosc. 43, (2012), 1010

[3 Kang Yong Loh and Xiaogang Liu, ACS Cent Sci. (2018), 4(2), 137

[4 Regina Ragan, William Thrift, doi: 10.1117/12.2320297 (2018)

[5 J.R. Lombardi, R.L. Birke, G. Haran, J. Phys. Chem. C. 115, (2011), 4540

[6 Gang Lu,a Guilin Wanga and Hai Li, RSC Adv., 8, (2018), 6629

[7 Manuel Gómez,ab Shima Kadkhodazadeh c and Massimo Lazzari, Chem Commun., 54, (2018) 10638

[8 Esra Düğdü, Yasemin Ünver, Dilek Ünlüer, and Kemal Sancak, Molecules. 19(2), (2014) 2199

[9 Joydeep Chowdhury, Subhendu Chandra, Manash Ghosh, Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy 135C, (2015), 935

भारतीय दार्शनिक अनुसंधान परिषद्
(शिक्षा मंत्रालय, भारत सरकार)
INDIAN COUNCIL OF PHILOSOPHICAL RESEARCH
(Ministry of Education, Government of India)

F. No. 12-6/2022/P&R/ICPR/13
November 3, 2022

SANCTION ORDER

Sanction of the Indian Council of Philosophical Research is hereby accorded for payment of a grant of Rs. 20,000/- (Rupees twenty thousand only) to the **Principal**, Victoria Institution (College), Kolkata- 700 009 for disbursement to Dr. Mina Chakraborty, Associate Professor, Department of Philosophy, Victoria Institution (College), Kolkata- 700 009 in connection with organizing lectures by Scholars under the **Periodic Lecture Scheme, 2022** during the current financial year till **March 31, 2023**.

The grant is subject to the following terms and conditions.

1. Brief Programme Report alongwith 2-3 photos should be sent in English and Hindi in MS Word format, to report.icpr1@gmail.com within 7 days after the programme.
2. The sanctioned amount shall be utilized for the purpose for which it has been sanctioned and **the programme will be organized only on the Topic/Theme which you have mentioned in the application form. In the case of change of Topic/Theme , the organizer may obtain prior approval from ICPR.**
3. The payee shall exercise reasonable economy in spending the sanctioned amount.
4. Regular accounts shall be maintained in respect of expenditure of the sanctioned amount. TDS and GST as applicable may be deducted.
5. Immediately after the programme is over, the payee shall furnish the detailed statement of expenditure duly supported with original vouchers latest by one month after the programme. All documents/papers/vouchers must be self attested, while submitting the account details.
6. The payee shall submit hard copy of all documents i.e. a brief report of the programme as well as 2/3 photographs with the background of banner/back drop etc. with visible logo of ICPR and theme of the event along with a copy of the script of the lectures delivered.
7. Apart from the taxi, an honorarium of **Rs. 3,000/-** for each lecture may be paid to the Resource Person/scholar who deliver the lecture.
8. If the event is not organized before **March 31, 2023 the sanctioned amount may be refunded to the Council forthwith via D.D. in favour of INDIAN COUNCIL OF PHILOSOPHICAL RESEARCH, NEW DELHI.**
9. The organizing departments should invite the staff and students of the department of Philosophy of nearby Universities/Colleges and also those who are interested in Philosophy.

The sanctioned amount shall be paid through **Victoria Institution (College)** through Bank Transfer to **A/c. No. 05310200001489 at UCO Bank, Rajabazar Branch, (IFS Code: UCBA0000531), MICR Code: 700028075.**

The expenditure will be met from the budget of the Council for the financial year **2022-23** and debited to the head of account **Group D, D-VII (C)-Gen.- 2202.80.004.11.00.31-Lectures Periodical.**

(Authority: M.S. approval on note page- 12, dated 26.10.2022).

(Dr. Pooja Vyas)
Director (A)/ (P&R)/I/c.

Director (A&F), ICPR, New Delhi.
Copy to:

1. **Principal**, Victoria Institution (College), Kolkata- 700 009.
2. Dr. Mina Chakraborty, Associate Professor, Department of Philosophy, Victoria Institution (College), Kolkata- 700 009.

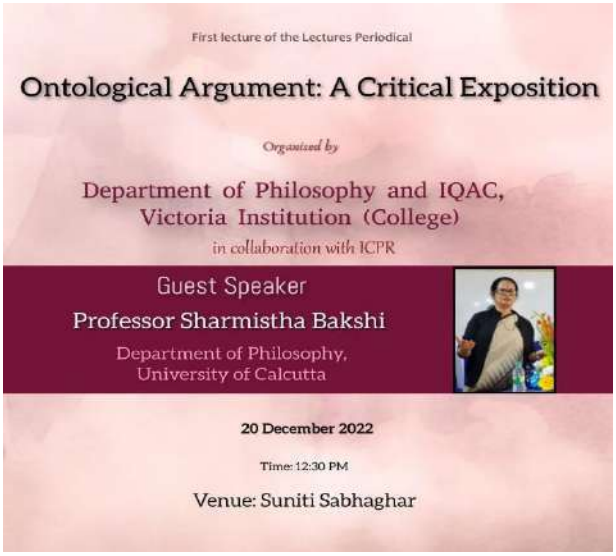
ID: minachakrabortty@gmail.com, Mb: 9830148380

Victoria Institution (College),
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

First lecture of the Lectures Periodical on 20.12.2022

The very first lecture of the Lectures Periodical, delivered by Professor Sharmistha Bakshi of the University of Calcutta, Department of Philosophy; in collaboration with Indian Council of Philosophical Research, organised by the Department of Philosophy and IQAC, Victoria Institution College. The venue was Suniti Sabhaghar, the time was 12:30 pm to 02:00 pm., on 20/12/2022, Tuesday.

The topic was: Ontological Argument: A Critical Exposition.



Ontological Argument is an argument that proceeds from the idea of God to the reality of God. It was first clearly formulated by St. Anselm in his Proslogian, a later famous version is given by Rene Descartes.

Anselm began with the concept of God as that than which nothing greater could be conceived. To think of such a being as existing only in thought and not also in reality involves a conversation, since a being that lacks real existence is not a being than which none greater can be conceived. A yet greater being would be one with the further attribute of existence. Thus the unsurpassably perfect being must exist; otherwise it would not be unsurpassably perfect. This is among the most discussed and contested arguments in the history of thought.

Our Speaker's delivery was mesmerizing. Her study is in - depth, and that was reflected in her speech. The auditorium was full with our students, and they were engrossed in the lecture. At the end of the lecture there was an interactive question answer session like an icing on the cake.

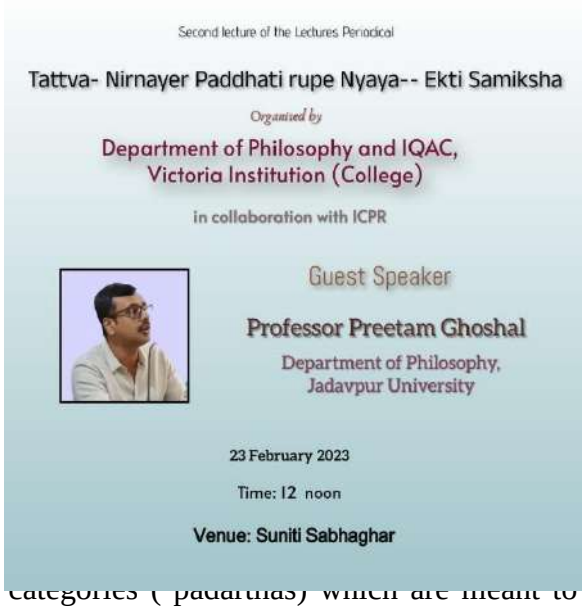
Victoria Institution (College),
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

Second lecture of the Lectures Periodical on 23.02.2023

Lecture no. 2 of the lecture series delivered by Professor Preetam Ghoshal of Jadavpur University, Department of Philosophy, in collaboration with Indian Council of Philosophical Research, organised by the Department of Philosophy and IQAC, Victoria Institution College.

The topic was " Tattva- Nirnayer Paddhati rupe Nyaya-- Ekti Samiksha." The venue was Suniti Sabhaghar, and the time was 12 noon to 2pm.

The Nyaya Darsana is one of the six orthodox Hindu Schools of Philosophy. It is highlighted as essentially being a school of logical thought, debate and reasoning. The word ' Nyaya' itself may be translated as ' right' or ' justice' and therefore it's practice, Nyaya - Sastra translates as " The science of right judgment".



categories (padarthas) which are meant to represent all that can and does exist. These sixteen categories are pramana. Prameya, samasya, prayojana, drstanta, siddhanta, avayava, tarka, nirnaya, vada, Jalpa, bitanda, hetvabhasa, chal, jati, nigrahasthana. This extensive list has, however, been reduced by subsequent commentators on the Nyaya- Sutras to only include the first two categories , pramana and prameya; as pramana pertains to the observer while prameya pertains to that which is observed. Therefore, the investigation of pramana and prameya forms the foundation of the classical Nyaya Darsana.

Professor Ghoshal gave a lucid account of the otherwise difficult topic. The students were very much attentive and listened carefully to his deliberation which was evident in the subsequent interactive question and answer session.

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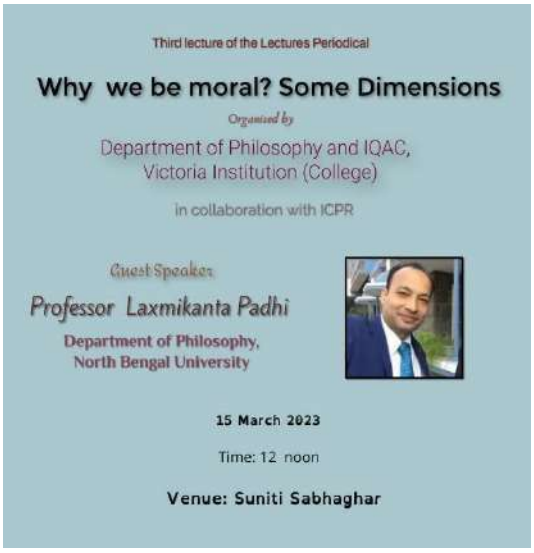
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

Third lecture of the Lectures Periodical on 15.03.2023

Lecture no. 3 of the lecture series delivered by Professor Laxmikanta Padhi of North Bengal University, Department of Philosophy, in collaboration with Indian Council of Philosophical Research, organised by the Department of Philosophy and IQAC, Victoria Institution College. The topic was " Why we be moral? Some Dimensions ". The venue was Suniti Sabhaghar. Time was 12 noon to 2 pm.

Due to some unavoidable circumstances, Professor Padhi could not join us in person, so we had to arrange for a Google Meet. We all gathered in the auditorium, joined in the platform through a common link and took recourse to the headphones to listen to his voice. He appeared in life size in the giant screen of the projector through a computer. It was a unique webinar in all respect.



Justifying why one should behave morally is a surprisingly difficult task. Proposed justifications are found throughout the history of moral Philosophy, but these reasons to be moral remain controversial. The fundamental question -- " Why be moral?" -- still seems in need of a satisfactory answer.

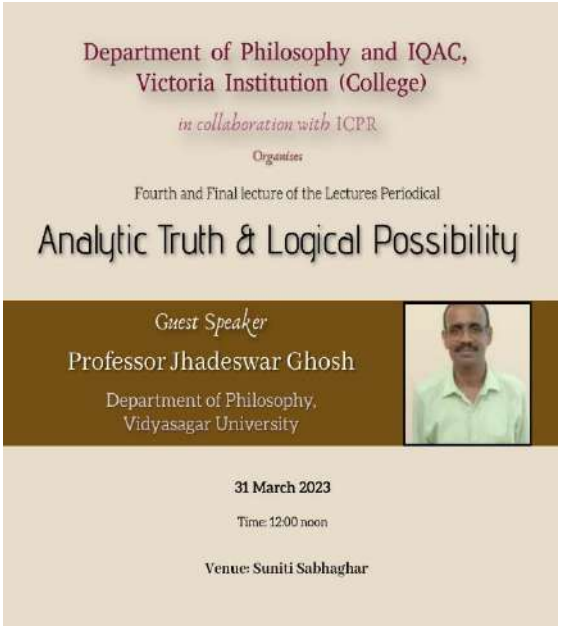
The question can take other forms. Why should I care about morality? Why do moral considerations have normative force? Why are the demands of morality obligatory? However, no matter how it is phrased, it always addresses the foundation of morality -- Why we believe moral considerations should influence how we ought to act. As the demands of morality become more burdensome the question becomes more relevant.

However, our resource person could do justice to the topic. He produced an extensive and thoughtful lecture. Students were highly satisfied. A question answer session followed.

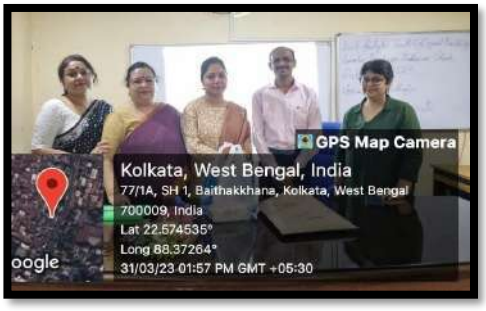
Victoria Institution (College),
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

Fourth lecture of the Lectures Periodical on 31.03.2023

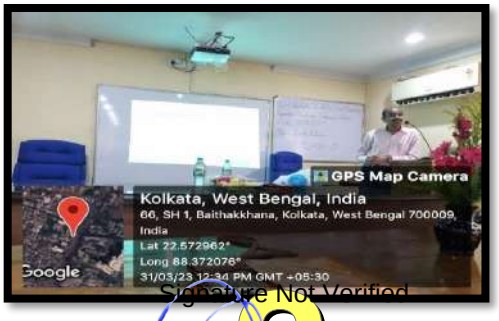
Lecture no. 4 and the concluding session of our ICPR sponsored lecture series was delivered by Professor Jhadeswar Ghosh, Department of Philosophy, Vidya Sagar University, on 31/03/2023, at 12 noon. The venue was Suniti Sabhaghar.



The subject was "Analytic Truth & Logical Possibility."
In one way or other notions of logical or Analytic Truth have played an important role in logic, and hence in philosophy.
Since the time of Aristotle an Analytic Truth is usually described as a statement true in virtue of logic or true in virtue of the meanings of the terms occurring in it. A synthetic Truth is then described as one which depends for its Truth fundamentally upon matters of fact. Another way of stating this is that Analytic Truths are true in " all possible world". (Leibnitz).



Possibility, in logic and metaphysics, implies the absence of contradiction. Possible things or sates of affairs are simply those whose conception involves no contradiction. To determine the empirical Possibility of a thing, it must be ascertained whether the nature of a thing in question conforms to the conditions of actual experience. Some philosophers hold that the actual world together with the infinite number of possible but nonactual words constitutes the realm of " possible worlds".
The were serious and attentive. A question answer session followed.



On the Job Training

Interdisciplinary Seminar On

Two Evergreen Entities:
The Water We Drink and The Air We Breathe

Organized by the Department of Physics in collaboration with IQAC, Victoria Institution (College) and Indian Association of Physics Teachers, RC 15

Date: 24th March, 2023

Time: 12:00 PM to 1:30 PM

Venue: Suniti Sabhaghar, VIC, Kol -09

Resource Person

Dr. Bhupati Chakrabarti

Former Professor,
Department of Physics, City College, Kolkata

Former General Secretary [2013-2018],
Indian Association of Physics Teachers

The consumable items come with a specific shelf life. However, two most essential entities for the support of the life forms on the earth i.e., the water and the air neither get old enough nor reach their expiry dates. Some very important natural cycles keep them usable again and again. What happens in the process is quite interesting and possibly sometimes beyond our usual perception. In this talk the issue will be discussed along with some simple calculations for providing some deeper insight to a subject that in a way all of us more or less know but possibly do not pay much attention to.

Interdisciplinary Seminar on

"Two Evergreen Entities: The Water We Drink And The Air We Breathe"

Department of Physics in collaboration with IQAC, VIC and IAPT, RC 15 on 24.03.2023

An Interdisciplinary Seminar on TWO EVERGREEN ENTITIES:THE WATER WE DRINK AND THE AIR WE BREATHE was organised by Department of Physics in collaboration with IQAC , Victoria Institution (College) and Indian Association of Physics Teachers, RC 15 on 24th March 2023 at Suniti Sabha Ghar . The resource person of this Seminar was an eminent teacher, Dr Bhupati Chakraborty, former Professor in the Department of Physics, City College, Kolkata.

The seminar was attended by Semester 2 students from the Departments of Physics, Chemistry and Mathematics from our College and a few students from neighbouring Colleges. Dr Chakraborty in his presentation highlighted the need for sustainability and conservation of the two basic requirements in our lives : water and air. His talk was thought provoking and was well appreciated by the students . It was followed by a short discussion session.

IQAC coordinator of our College and several dignitaries of IAPT , RC 15 graced the occasion.

Total no of participants (students): 33

Gmail

Victoria Physics <vicphysics1950@gmail.com>

Requesting collaboration for a multidisciplinary seminar for Science students

IAPT RC-15 <iaptrc15@gmail.com> Wed, Mar 1, 2023 at 3:17 PM
To: Victoria Physics <vicphysics1950@gmail.com>

To

Dr Gayatri Pal

Head, Department of Physics
Victoria Institution (College)
Kolkata.

Respected Ma'am,

I would like to extend my heartfelt thanks to you for your interest for organising such an event. As is verbally communicated to Dr Das Gupta, the good name of Dr Bhupati Chakraborty, Ex-HoD of Physics City College and Former General Secretary of IAPT, is recommended for the Seminar encompassing several disciplines of students of Science Faculty of your College to be held on March 24, 2023.

Wish a grand success of the Seminar.

Best regards,
Pradipta Panchadhyayee,
Secretary, RC 15, IAPT.
[Quoted text hidden]

On the Job Training

One Day Seminar on
"Undergraduate Physics Teaching "

Organized by

Calcutta Institute of Theoretical Physics

in Collaboration with

Department of Physics and IQAC, Victoria Institution (College)

Date: 26th Sep, 2022 Time: 12 – 4 PM

Venue : Suniti Sabhaghar, Victoria Institution (College)

The aim of this Seminar is to facilitate in-service College Teachers in keeping themselves abreast of the latest advances in various fields of Physics and to accept the challenges of quality teaching and research.
On the basis of the requests received from different colleges we have planned to focus on the following topics in this seminar.

 # FIBER AND NON-LINEAR OPTICS
 # NANO MATERIALS : APPLICATIONS AND PROPERTIES

Experts of eminence in the subjects will be invited as resource persons. Teacher participants will get an opportunity to exchange experience with their peers and mutually enrich each other. Seminar lectures will be up-loaded to our website: www.citphy.org. For details about CITP and life membership please visit our website.

NO REGISTRATION FEE

Registration Link: https://forms.gle/dCM664uBGSFJPbUq8
[Maximum 40 Participants (on the First Come First Served basis]
Registration closes on 24.09.2022 at 11:00 PM

Certificate of participation will be provided.

Contact: E-mail:-vicphysicswebinar@gmail.com

Program schedule

12.00 Noon **Welcome Address:** **Dr. Susil Kumar Sarkar, CITP**
Dr. Uma Ray Srinivasan, TIC,
Victoria Institution (College)

12.10 pm **Keynote Address:** **Prof. J. K. Bhattacharjee, Director, CITP**
12.25 pm **Vote of Thanks:** **Dr. Dipanwita Pal Ghosh , Coordinator,**
IQAC, Victoria Institution (College)

12.30 pm **Topic : FIBER AND NON LINEAR OPTICS**
Speaker : Prof. Udit Kumar Chatterjee
Department of Physics, B.U.

01.45 pm **TEA BREAK**

02.15 pm **Topic : NANO MATERIALS: APPLICATIOS & PROPERTIES**
Speaker : Prof. Debnarayan Jana
Department of Physics, C.U.

*** Interactive session for 15 minutes after each talk.**

Organizing Committee

Prof. Jayanta Kumar Bhattacharjee, Director, CITP
Dr. Uma Ray Srinivasan, TIC,Victoria Institution (College)
Dr. Dipanwita Pal Ghosh , Coordinator, IQAC, Victoria Institution (College)
Dr. Shinjinee Das Gupta, Jt. Convener, HOD, Physics, VIC
Dr. Susil Kumar Sarkar, Jt. Convener, CITP
Dr. Mrinal Kanti Chakraborti, CITP
Dr. Partha Sarathi Majumdar, CITP
Prof. Dulal Chandra Sanyal, CITP
Dr. Keya Bose, CITP
Prof. Indrani Bose, CITP
Prof. Mridula Kanoria, CITP
Dr. Gayatri Pal, Dept. of Physics, VIC
Dr. Subhendu Chandra, Dept. of Physics, VIC
Ms. Kathakali Biswas, Dept. of Physics, VIC
Smt. Swarnalekha Bandyopadhyay, Dept. of Physics, VIC
Sri. Tapan Poddar, Dept. of Physics, VIC

Report on One Day Seminar on "Undergraduate Physics Teaching "

Dept. of Physics and IQAC, 26.09.2022

Calcutta Institute of Theoretical Physics in Collaboration with Department of Physics and IQAC, Victoria Institution (College) have organized an One Day Seminar on "Undergraduate Physics Teaching " on 26th Sep, 2022 (12 – 4 PM) at Suniti Sabhaghar, Victoria Institution (College). This seminar was well attended by faculties of different colleges. Our departmental students were also present. Total no of participants was 50 approximately. There were two technical session, resource person of the first session was Prof. Udit Kumar Chatterjee of Department of Physics, Burdwan University. He delivered an intensive lecture on Fibre and Nonlinear optics. Prof. Debnarayan Jana of Department of Physics, University of Calcutta was the resource person of the second technical session who delivered an interesting talk on Nano Materials: Applications & Properties. Both topic are based on the Discipline Specific Elective papers of Physics Honours curriculum. This seminar was not only beneficial for the faculties but also for the students.

On the Job Training 2021-2022 Workshop on

Digital INGA@VECC: The Milestones Achieved & The Miles Ahead

organized by

Department of Physics & IQAC, Victoria Institution (College)

78B Acharya Prafulla Chandra Road, Kolkata 700009

in collaboration with

UGC-DAE Consortium for Scientific Research, Kolkata Centre

Sector III, LB-8 Bidhannagar, Kolkata 700106

10th & 11th of March, 2022

The recent campaign of the **Indian National Gamma Array (INGA)**, that was setup at the Room Temperature Cyclotron (RTC) in VECC, Kolkata has been implemented through more than 30 experiments carried out in different phases of the programme. The facility was sustained by **resources** pooled from **VECC, SINP,** and the **Kolkata Centre of UGC-DAE CSR**. The User Groups included those from Institutions, Universities and Colleges across the country such as Victoria Institution (College), Visva Bharati, TIFR, BARC, IIT-KGP, IIEST, University of Delhi, University of Mumbai, CEBS-UM, SINP, VECC, UGC-DAE CSR and others. Results from some of these efforts have already been published in international peer reviewed journals (**Physical Review Letters**, **Physics Letters B**, **Physical Review C**, **Nuclear Physics A**) of repute while some are currently in submission. Data analysis is in progress for some of the projects. The present Workshop proposes to review the accomplishments from the campaign as well address issues that might be impeding the progress of the data analysis endeavors that are presently underway. The forum will deliberate on the modalities for the **next campaign** of INGA at VECC, in the light of several developments that have come up since the previous campaigns. The programme of the Workshop will principally consist of **invited talks** by research scholars who have been working on the analysis of data from the experiments at VECC and by resource personnel associated with the INGA facility at VECC and other accelerator centers in the country. Intent for participating in the Workshop may please be communicated to Dr. Shinjinee Das of Victoria Institution (College) at **ingavecc@gmail.com** by 8th March, 2022.

Workshop on

Digital INGA@VECC: The Milestones Achieved & The Miles Ahead

organized by

Department of Physics & IQAC, Victoria Institution (College)

78B Acharya Prafulla Chandra Road, Kolkata 700009

in collaboration with

UGC-DAE Consortium for Scientific Research, Kolkata Centre

Sector III, LB-8 Bidhannagar, Kolkata 700106

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The online workshop was attended by 30-40 participants and hosted around 20 presentations by research scholars, resource personnel of the INGA facility and other experts in the domain.

Gmail

shinjinee dasgupta <shinjinee14@gmail.com>

Request to Deliver a Talk at the Workshop on INGA@VECC

1 message

INGA VECC <ingavecc@gmail.com> Thu, Mar 3, 2022 at 4:50 PM
To: r.palit1@gmail.com
Cc: ssg.iuc@gmail.com, gopal@vecc.gov.in, sarmi@vecc.gov.in, shinjinee14@gmail.com, rajarshi.raut@gmail.com

Dear Prof. Palit,

Respectful Greetings !

Trust you are doing fine and all is well at your end.

The Local Working Group for the INGA at VECC, is very glad that the facility has been used for several experiments through different phases of the campaign. You'll be happy to know that we're in the process of organizing a workshop, on 10th & 11th of March, 2022, in order to review the status of different measurements that were carried out therein. Please find a poster on the event, attached herewith.

The objective of the Workshop also includes making the community aware of the developments being undertaken at the other accelerator centers that host the INGA setup. In this context, we humbly invite you to deliver a talk on the development of the hybrid array at TIFR along with the allied topics of interest. The presentation will be of 20 minutes followed by around 5 minutes of discussions.

We realize that the event is being organized on a very short notice and profoundly apologize for the consequent inconvenience. We earnestly hope that you'll consider our request favorably and we look forward to having you amongst us for the Workshop.

Best regards,
Shinjinee Dasgupta & Rajarshi Raut
(for the Local Working Group, INGA@VECC)

Poster_INGAWShop_03-2022.pdf
21K

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
15.03.2024 09:05:

On-the-job-training

Phone : (033) 2436 - 0093
2436 - 0104
Fax : (033) 2436 - 0607
E-mail : ercicssr@vsnl.net
icssrerc@gmail.com
Website : www.ercicssr.org

भारतीय सामाजिक विज्ञान अनुसंधान परिषद

(मानव संसाधन विकास मंत्रालय)

पूर्वी क्षेत्रीय केन्द्र

INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH

(Ministry of Human Resource Development)

EASTERN REGIONAL CENTRE

1/R-1, Baishnabghata Patuli Township, Kolkata - 700 094

Ref.: ICSSR-ERC/2019-20/71

Date: 07.11.2019

To
Dr. Nibedita Chakrabarti
Principal
Victoria Institution (College)
78-B, Acharya Prafulla Chandra Road
Kolkata – 700 009

Dear Dr. Chakrabarti,

We refer to your proposal, dated 30.09.2019 requesting funds for organizing the fifth Series of Extension Lectures for Undergraduate Students of Political Science and Allied Social Sciences, by the Department of Political Science, Victoria Institution (College), Kolkata.

We are happy to inform you that a lump sum of Rs.30,000/-(Rupees thirty thousand only) has been sanctioned towards financial support for the series of lectures. We shall now request you to send a formal request for release of the grant of Rs.30,000/- and name of the payee with bank details so that we can send you a cheque for the amount. We shall also require a short report on this programme along with Utilization Certificate for the amount sanctioned soon after it is over.

With regards,

Yours sincerely,

(Saibal Kar)
Hony. Director

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.574920761731686,
88.3732529745284
15.03.2024 09:05

c.c.: Accounts

Report
On

5th Series of Extension Lectures for Students of Political Science and Allied Social Sciences, 2022

Organized by

Department of Political Science

Victoria Institution (College)

Financially Supported by

The Indian Council for Social Science Research – Eastern Regional Centre, Kolkata

INTRODUCTION

The Department of Political Science, Victoria Institution (College) has successfully conducted the Fifth Series of Extension Lecture for Undergraduate Students of Political Science and Allied Social Sciences after the long lockdown and off-campus academic life due to the worldwide pandemic. The series was held after the college resumed its on-campus activities on February 2022 and was completed within May 2022. Certain specific areas of the under graduate CBCS (Honours) syllabus of Political Science, prescribed by the University of Calcutta, were discussed in the lecture series which, according to our understanding, requires an interdisciplinary and critical treatment. Academic calendar-bound teaching imposes certain unavoidable limitations not only upon teaching hours but also on lesson planning. In order to address these issues we have been successfully conducting series of extension lectures for the undergraduate students since 2014. These lectures prove to be highly effective since they serve as a supplementary element to the regular lectures students compulsorily attend. The aim of the programme was not only to enrich the students with the fundamentals of the discipline but also to expose them to the nuanced, critical and interdisciplinary aspects of the subject. Resource persons from various universities not only delivered theme-oriented lectures but also engaged the students in exhaustive discussion sessions.

ACKNOWLEDGEMENTS

We are grateful to the Indian Council for Social Science Research – Eastern Regional Centre, Kolkata for kindly agreeing to support us financially. It would not have been possible for us to conduct the series without the generous support of ICSSR-ERC, Kolkata. We had selected seven topics from the Core and DSE Honours papers from the prescribed syllabus of Calcutta University.

DETAILED ACADEMIC REPORT

The inaugural lecture was delivered on 21.03.2022 by **Prof Dipankar Sinha**, Department of Political Science, Calcutta University. He spoke on the issue of ***Public Administration in the era of Globalization, Liberalization and Privatization.*** He began with the issue that Public Administration, both as an academic discipline and an everyday practice touches every level of the individual's life from the global to the local; hence, it cannot be an exception to the processes of *Globalization, Liberalization and Privatization.* For a long time Public Administration being state-centric, had fulfilled the twin issues of 'public interest' and 'public service'. However, these two functions are increasingly being taken over by the market and the state is losing its monopoly in different areas of public administration. Under the circumstances, public administration apart from focusing on empowerment, public participation, resource development and so on must also explore the potential of Human Choice and Capabilities to become more meaningful and relevant.

Prof.Sobhanlal Dattagupta, Surendranath Chair of Political Science (Retd), University of Calcutta spoke on ***M.N.Roy's Idea of Radical Humanism*** on 04.04.2022. Prof. Dattagupta began by throwing light upon the obscure yet fascinating life and times of M.N.Roy so that his idea of radical humanism could be put in the right perspective. Manabendra Nath Roy, born Narendra Nath Bhattacharya, was an Indian revolutionary, radical activist and political theorist. Roy was the founder of the Mexican Communist Party and the Communist Party of India. Disillusioned with both bourgeois democracy and communism, he devoted the last years of his life to the formulation of an alternative philosophy which he called radical philosophy and of which he wrote a detailed exposition in ***Reason, Romanticism and Revolution***. Roy in his philosophy devised means to ensure human freedom and progress. He worked for the ideal of establishing a social order in which the best in man could manifest. Radical humanism is neither materialism nor idealism, but a scientific philosophy, insisting upon the freedom of the individual. In it human being has been discussed not only in the context of society, but in that of the whole cosmos. Its central theme is the liberty of the individual. Prof Dattagupta also highlighted the duality of remarkable consistency in the thoughts of Roy while undergoing continuous shifts in his political stance. So far as his activities are concerned he had shifted from

one position to the other, never being satisfied that it would lead to an emancipated social system. However, till the last he remained committed to Marxism which to him was not an arbitrary economic doctrine, neither a bundle of social dogmas. As he wrote in the 2nd edition of "*From savagery to Civilization*" Marxism was a complete and comprehensive system of philosophy, science, economics and politics, a revolutionary concept of life in all its branches, an ideology of civilised society.

A lecture on ***India and Her Neighbourhood: A Geopolitical Understanding*** was delivered by **Professor Anindya Jyoti Majumdar** of the Department of international Relations on 25.04.2022 as a part of the series. Professor Majumdar began by discussing the nuances of what foreign policy essentially means; four primary objectives of security, development, autonomy and prestige being central Professor Majumdar harped on the geopolitical determinant being the crux of understanding. Foreign policy dimensions between India and her neighbours were discussed with special reference to the underlying constraints of attitude or perception building, diplomatic skills or their absence, power projection capability – all juxtaposed withing the larger question geopolitical advantages which a state like India enjoys.

The fourth lecture of the series was delivered by **Professor Debi Chatterjee**, former professor at the Department of International Relations, Jadavpur University on ***Views on Social Justice: Contributions of Savitribai Phule &Jyotiba Phule*** on 05.05.2022 over online mode. The lecture was moored on the lack of adequate understanding and appreciation towards their understanding the undeniable contribution of Jyotiba Phule and Savitribai Phule in their resistance against caste and patriarchal atrocities towards women and girl child. Professor Chatterjee began by providing a brief sketch of the life and works of the Phules; how they themselves resisted traditional binds imposed by the Hindu Brahminical society and the institutions of patriarchy; their journey towards setting an example for those who were being marginalized similarly. Both Jyoti and Savitribai had established schools for women and girls hailing from the backward classes, offered employment opportunities to them in those schools and also led their relentless fight against female infanticide by providing asylum to such women who had mothered children outside wedlock. the only way to put up a fight against the unfair

caste discriminatory Brahminical society and patriarchy was education through which awareness and empowerment could be actualized.

The fifth lecture was delivered by **Prof Partha Pratim Basu**, Department of International Relations, Jadavpur University on ***The Electorate and Electoral Behaviour*** in the context of India on 19.05.2022. Prof Basu began by identifying the various issues connected to elections, upon which he focused on the variables which influence voting behaviour. Among these he first focused on caste and class which are not only often overlapping, but are also connected with the rural-urban variable. He cited the research of Nobel Laureate Abhijit Binayak Banerjee in whose opinion upper-caste votes tended to favour rightist parties more while working and lower-caste votes were more in favour of leftist parties. However, the scenario is ever-fluid, where he cited other researches where caste-class equations undergo constant changes. Prof Basu also identified Religion and Gender as other variables influencing voting behaviour. Consequently, the political parties have also changed their stance to enlist the support of voters from different cross-sections of society.

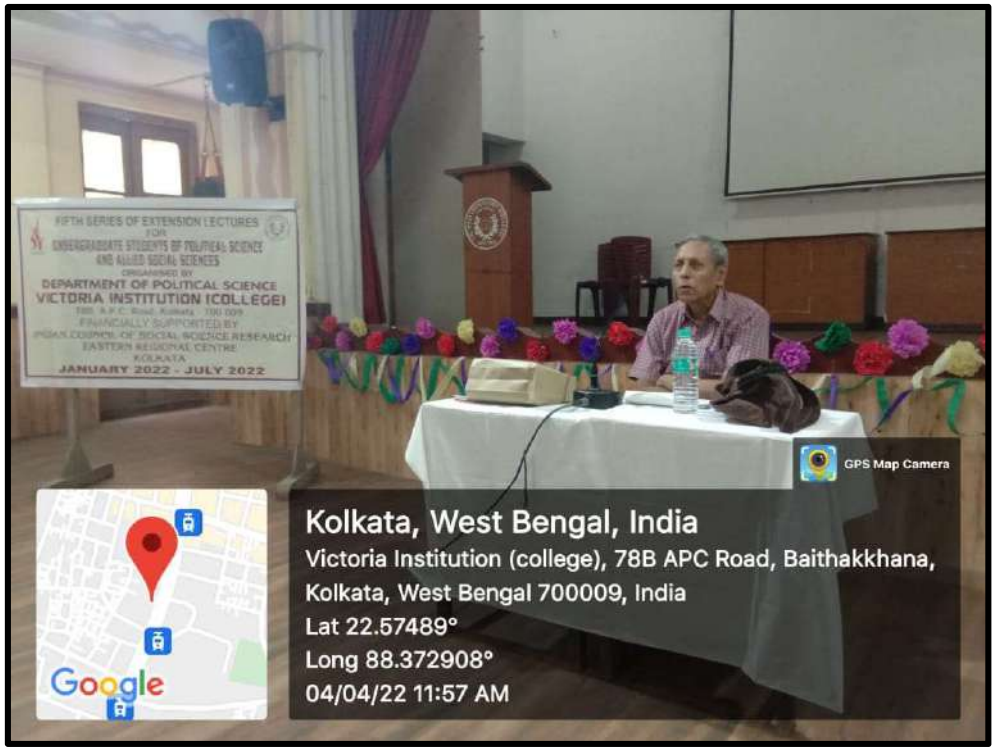
Professor Imankalyan Lahiri of the Department of International Relations, Jadavpur University delivered a lecture on 21.05.2022 on ***Globalisation: The Bhagwati Stiglitz Debate***. This lecture was conducted online owing to the constraints of the university controlled academic calendar which is binding on colleges like ours. Professor Lahiri initiated the lecture by defining the primary contours of the concept and in a very lucid manner elaborated upon the trajectory of international political economy which culminated towards the all encompassing phenomenon of globalization, as we know it today. In the course he highlighted the unfair aspect of structural politics within the institutions of international economy (trade and commerce) and also the practices which ensued. The second phase of his lecture was a discussion on the opposite aspects of globalization which was put forth by Jagdish Bhagwati and Joseph Stiglitz. He provided with a detailed exposition on how free trade as a concept and practice was perceived to the cause of concern for the developing countries; an idea presented by former chairman of IMF Joseph Stiglitz. Jagdish Bhagwati's counter argument supporting free trade as a practice was also discussed in details.

Prof. Sibashish Chatterjee, Department of International Relations, Jadavpur University delivered the last and seventh lecture on 26.05.2022 in the online mode as a Webinar. He spoke

on ***Citizenship: Contemporary Debates***. Prof. Chatterjee traced the history of the concept of Citizenship from the ancient Greek period to the modern period and highlighted two very important debates within the academic circles on the issue. The first debate centers around the Feminist critique which focuses on the inherent inequality and injustice within the Greek and Roman concepts of citizenship. Not only conceptually, inequality and injustice are present in the practical experiences of citizenship as well. The multiculturalist critique is the focal point of the second debate. Here the question is not necessarily of class or gender but of Identity in particular. Groups placed in differential social positions enjoy undifferentiated rights which are not always conducive to enjoyment of facilities arising from citizenship. Finally, citizenship to become a truly uniting force must accommodate the differences prevalent in society as it is not a unilinear.

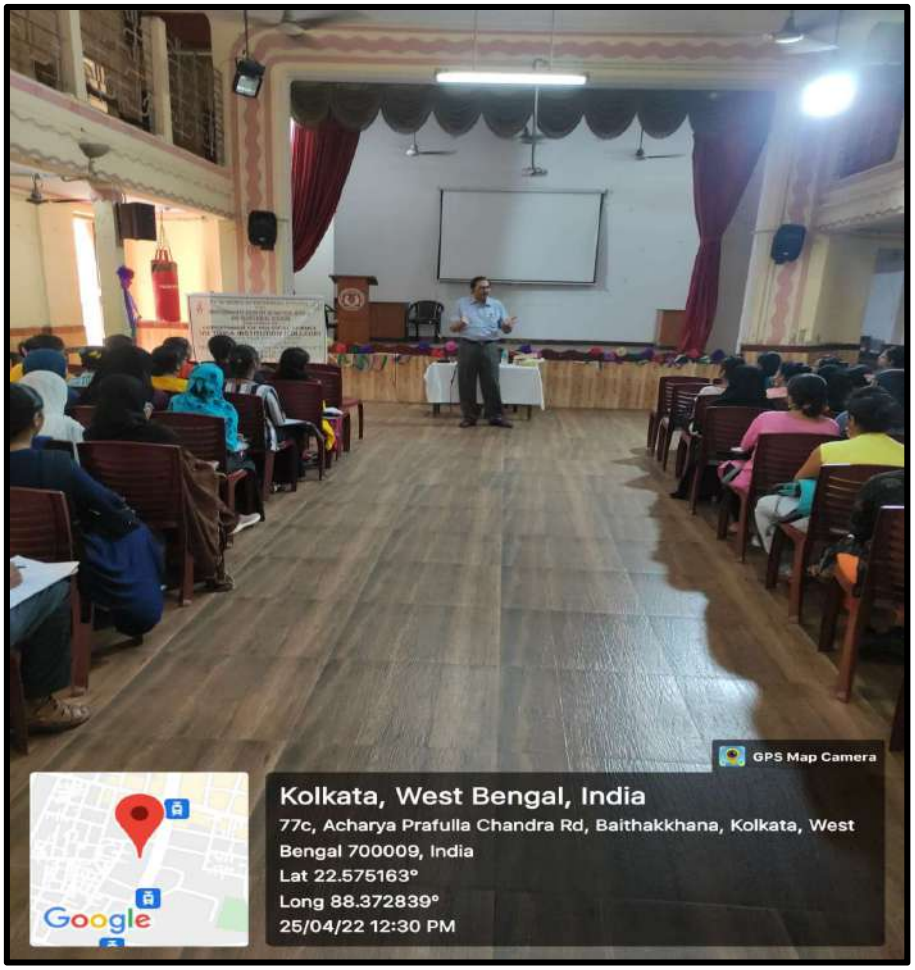
Teacher-in-Charge, Dr. Uma Ray Srinivasan inaugurating the 5th Series of Extension Lectures.

Professor Dipankar Sinha at the first lecture of the series

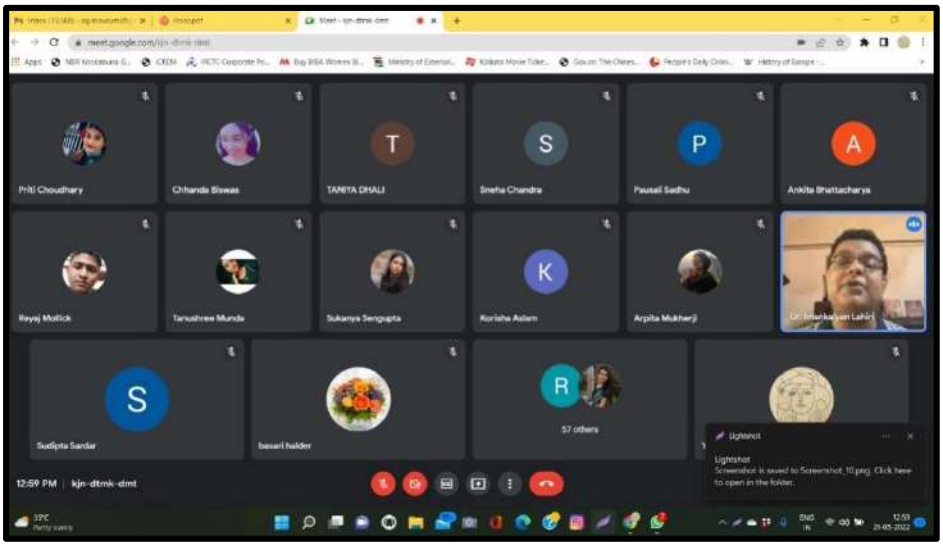


Professor Sobhanlal Dattagupta delivering his Lecture on M.N.Roy

Professor Partha Pratim Basu being introduced by Dr. Basari Haldar, faculty and serving Head of the department of Political Science, Victoria Institution (College)



Professor Anindya Jyoti Majumdar delivering his lecture India and her neighbours



Professor Imankalyan Lahiri delivering his lecture on the Stiglitz Bhagwati debate on Globalisation

On the Job Training

Victoria Institution (College),
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

Seminar on Uniting Talent With Opportunity on 31.03.2022

The Department of Commerce of the Victoria Institution (College) with IQAC and Eastern India Regional Council of the Institute of Company Secretaries of India (ICSI) had arranged a seminar on UNITING TALENT WITH OPPORTUNITY on 31st March 2022 at Keshub Memorial Hall from 9A.M. to 10.30 A.M.

In this seminar we had eminent speaker S. Sreejesh, Assistant Director, ICSI-EIRC. He spoke about the requirement of Company Secretary in different sectors and by passing this course how the students can get more opportunities as per their qualification.

It has been seen that there are many students who want to pursue some course along with graduation but they don't have the idea and guideline to do so. This seminar has been arranged to give the students an opportunity to enhance their needs towards professional field.

We received a huge response from the students as they were able to ask questions and their queries were being solved. It has also been mentioned in the seminar that post Covid also, the opportunities of talented people have not been minimized rather uplifted.

THE INSTITUTE OF
Company Secretaries of India
भारतीय कम्पनी सचिव संस्थान
IN PURSUIT OF PROFESSIONAL EXCELLENCE
Statutory body under an Act of Parliament
(Under the jurisdiction of Ministry of Corporate Affairs)

EASTERN
INDIA
REGIONAL
COUNCIL

Ref 08/CAP/2022 **Date** 03rd January 2022

To,

The Principal,

Victoria Institution,

78B, Acharya Prafulla Chandra Rd,

Baithakkhana, Kolkata 700009

Kind Attn :-Dr Chhotelal Chouhan, Department of Commerce, Victoria Institution (Morning)

Dear Sir,

(Sub:- Request for an Online Career Counselling Session for apprising the students on "Career as a Company Secretary")

The **Institute of Company Secretaries of India (ICSI)** is a premier national professional body incorporated by an **Act of Parliament (Company Secretaries Act, 1980)** working under the jurisdiction of **Ministry of Corporate Affairs, Government of India**. For three decades, the ICSI has been playing a key role in the growth and development of the Indian Corporate Sector by producing a cadre of highly qualified Company Secretaries as corporate managerial professionals for efficiently and professionally managing the administrative, secretarial, legal as well as financial activities, thus enabling the unhindered growth of the corporate sector.

In the above backdrop we are keen to make the students community aware of the course so that they may consider their ideal choice in the selection of their professions from among many.

We will take ½ / 1 hour for an **online career counselling** session and would like to interact with the students and apprise them about the course and profession and the opportunities to the students who complete the course.

We will be using Google Meet for the online Career Counselling session. There are no charges that need to paid by the college authorities for conducting the online session.

We will be highly obliged if you kindly provide a time and date for our session at your college. A line of confirmation can be sent to **Mr S.Sreejesh, Assistant Director,** at his mail id s.sreejesh@icsi.edu or you can contact him on **8820043049/8910267199** for any further details.

March 18, 2021

SANCTION ORDER

Sanction of the Indian Council of Philosophical Research is hereby accorded for payment of a grant of Rs. 30,000/- (Rupees thirty thousand only) to the **Principal, Victoria Institutional (College), 78, B.A.P.C. Road, Kokkata- 700 009** for disbursement to Dr. Saheli Basu & Dr. HinaChak, Department of Philosophy, Victoria Institutional (College), 78, B.A.P.C. Road, Kokkata- 700 009 for organizing the **Indian Philosopher's Day, 2021.**

The grant is subject to the following terms and conditions:

1. Brief Report of the programme in 2/3 page along with 2-3 photos be sent in MS word format, in a single file, on seminar.icpr@gmail.com , and on the link **https://forms.gle/QjPVbi3S73Y7EXGY7** within 7 days after the programme. The same should be submitted in hard-copy.
2. Feedback from the participants is mandatory and be submitted with report.
3. Regular accounts shall be maintained in respect of expenditure of the sanctioned amount.
4. Totall expenditure including Refreshment, TA, Stationery etc., not to exceed the grant amount. Excess expenditure will not be reimbursed.
5. Immediately after the programme, the payee shall furnish the detailed statement of expenditure supported with original vouchers.
6. If the event is not organized before **31st July, 2021**, the sanctioned amount must be refunded to the Council forthwith via D.D. in favour of **INDIAN COUNCIL OF PHILOSOPHICAL RESEARCH, New Delhi.**
7. Apart from the taxi, an honorarium of Rs. 2,000/- for each lecture may be paid to the Resource Person/scholar who deliver the lecture. Four lectures may be organized.
8. The organizing departments should invite the staff and students of the departments of philosophy of nearby Universities/Colleges and those who are interested in Philosophy for the Indian Philosopher's Day, 2021 celebration.

The sanctioned amount shall be paid to **Principal, Victoria Institutional (College) A/c. No. 05310200001489 at UCO Bank, Rajabazar Branch, (IFS Code: UCBA0000531), MICR Code: 700028075.**

The expenditure will be met from the budget of the Council for the financial year 2020-21 and debited to the head of account **Group D D-VII (A)-Gen. 2202.80.004.11.00.31- Lecture-National.**

(Authority : Member Secretary financial approval on main file at note page- 10, dated 13.3.2021).

(Saroj Kant Kar)
Programme Officer (P&R)

Director (A&F), ICPR, New Delhi.
Copy to:

1. **Principal, Victoria Institutional (College), 78, B.A.P.C. Road, Kokkata- 700 009.**
2. Dr. Saheli Basu & Dr. Hina Chak, Department of Philosophy, Victoria Institutional (College), 78, B.A.P.C. Road, Kokkata- 700 009.

ID: saheliday@hotmail.com, Mb: 8584083455

On the Job Training

Lectures for the Celebration
Of
Indian Philosopher's Day

Department of Philosophy
Victoria Institution (College)
Affiliated to University of Calcutta
Re-accredited by NAAC (2nd cycle) B+
78B, APC Road, Kolkata-700009

Sponsored by ICPR (Govt. of India)

Organizes
a series of lectures on

"Morality and values embedded in Indian Culture"

Online Platforms of Lecture series:
Google meet with live streaming on YouTube

Date:16.07.21 **Time:4:00 pm to 6:30pm**
Date: 17.07.21 **Time:4:00 pm to 6:30pm**

About the Lecture: **The organizing committee cordially invites you to commemorate the Indian Philosopher's Day, 2021, with the National level Online Lecture series on "Morality and Values embedded in Indian Culture", scheduled to be held on the 16th and 17th of July, 2021, sponsored by ICPR. Mankind is passing through a grave situation. The aim of the conference is to gain moral insight regarding the adversities facing humanity from the prudent scholars and mentors.**

- No Registration Fees.
- **Registration Link:** https://forms.gle/r9AAN44S3i5o769bA
  Last date of registration 15.07.21.
- **YouTube Link:**
  Day-1: https://youtu.be/zQNmVrvfbRY
  Day-2: https://youtu.be/Y2Z6Mo-01cM
- **E-Certificate will be provided only after filling up Feedback Link after Program.**
- **It is Necessary to fill up the Feedback Link for e-Certificate.**

Chief Patron:

Dr. Nibedita Chakrabarti
Principal
Victoria Institution(College)

Day 1
(16.07.21)

Resource Person:

Prof. D.N. Tiwari
Former HOD, Dept. of Philosophy and religion, Banaras Hindu University
Title of Presentation:: "Morality and Values embedded in Indian culture"

Day 2
(17.07.21)

Resource Person:

Prof. Raghunath Ghosh
Senior Fellow, ICPR,
New Delhi
Title of Presentation:: "Erosion of Human Values and its Remedies"

Resource Person:

Prof. Bala Ganapathi Devarakonda
HOD, Dept. of Philosophy,
Delhi University

Title of Presentation:: "Ethics, Health and Pandemic"

Resource Person:

Prof. Sarat Panigrahi
Former Prof. and HOD,
P.G. Dept. of Philosophy,
Utkal University, Bhubaneswar

Title of Presentation:: "Purusarthas: the basic values of Indian culture"

Resource Person:

Dr. Laxmikanta Padhi
HOD, Dept. of Philosophy,
University of North Bengal

Title of Presentation:: "What Makes a Human Being Valuable ?"

Resource Person:

Dr. Pralayankar Bhattacharyya
Associate Professor,
Dept. of Philosophy,
University of Calcutta

Title of Presentation:: "Free Will, Morality and the Throw of the Dice: An Exposition after Mahabharata"

- **Convenor:**
  Dr. Saheli Basu Dey
  Associate Professor,
  Dept. of Philosophy
- **Joint-Convenor:**
  Smt. Mina Chakraborty
  Associate Prof. , HOD,
  Dept. of Philosophy

For any information:
E-mail id:
vicphilo1932@gmail.com
Contact:
8584083455/9830148380

:Program Schedule:

- **Welcome Address by Smt. Mina Chakraborti. 16th July, 4:00 pm.**
- **Inaugural Address by Hon'ble Principal, Victoria Institution (College). 16th July, 4:05pm.**
- **Introductory Speech by Dr. Kasturi Majumdar. 17th July, 4:00 pm.**

Technical session

Day	Time	Speaker
Day 1 (16.07.21)	4:15 pm -5:00 pm	Prof. D.N. Tiwari
	5:00 pm -5:45 pm	Prof. Bala Ganapathi Devarakonda
	5:45 pm -6:25 pm	Dr. Laxmikanta Padhi
Day 2 (17.07.21)	4:15 pm -5:00 pm	Prof. Raghunath Ghosh
	5:00 pm -5:45 pm	Prof. Sarat Panigrahi
	5:45 pm -6:25 pm	Dr. Pralayankar Bhattacharyya

- **Concluding remarks for the day by Smt. Indrani Mukherjee. 16th July, 6:25 pm.**
- **Vote of thanks by Dr. Saheli Basu Dey, Convener of the Program. 17th July, 6:25pm.**

Organizing Committee:

- **Dr. Kasturi Majumder**
  Associate Professor,
  Dept. of Philosophy
- **Smt. Aditi Mistri**
  Asst. Professor,
  Dept. of Philosophy
- **Smt. Indrani Mukherjee**
  Asst. Professor,
  Dept. of Philosophy
- **Sri Arindam Malakar**
  SACT,
  Dept. of Philosophy

On the Job Training

Online Workshop On

Undergraduate Physics Experiments

Organized by

Department of Physics, Victoria Institution (College)

in Collaboration with

Indian Association of Physics Teachers, Regional Council 15

Date: 27th , 28th Nov & 2nd Dec, 2021

We feel concerned that regular practical classes could not be held for the last eighteen months due to the pandemic. To partly compensate for this loss VIC is going to organize an Online Workshop on Undergraduate Physics Experiments in collaboration with IAPT, RC 15. This workshop is dedicated to the memory of *Late Prof. D. P. Khandelwal*, founder of the IAPT.

Our aim is to enhance the ability of the students to perform experiments using simple and easily accessible equipments. Through demonstrations and discussions, resource persons will explain possible ways of performing the experiments. This will enable students to carry out most of these experiments, EVEN AT HOME. Students will thus be better equipped to learn the subject through direct experience.

Registration Link: https://forms.gle/MBQU82DLhBbPJgzX6

Registration closes on 24/11/2021 at 1:00 PM

E-certificate of participation will be provided.

Contact: E-mail:-vicphysicswebinar@gmail.com

Sample Experiments

1) Young's Modulus of a steel ruler by the method of flexure.

2) Determination of the focal length and radius of curvature of an equiconvex lens using the lens as a concave mirror.

3) Velocity of sound by the resonance air column method.

4) Determination of
   a) an unknown resistance and
   b) an unknown current in a circuit by a potentiometer.

5) Dispersion of light in a lens using LED's of different colors.

Program schedule

27th Nov, 2021: 6PM
28th Nov, 2021: 4PM
2nd Dec, 2021: 7PM

Patrons

Dr. Nibedita Chakrabarti
Principal
Victoria Institution (College)

Prof. Gour Prasad Das
President, IAPT, RC15
Distinguished Visiting Faculty,
Department of Physics,
St Xavier's College, Kolkata

Convenor

Dr. Surajit Chakrabarti
Associate Professor of Physics (Retired),
Maharaja Manindra Chandra College.
Currently Guest Faculty :
Ramakrishna Mission Vidyamandira, Belur Math

Co-Convenor

Dr. Shinjinee Das Gupta
Head, Department of Physics,
Victoria Institution (College)

A Report on the

Online Workshop On UndergraduatePhysics Experiments

Organized by the Department of Physics, Victoria Institution (College), Kolkata

in Collaboration with the Indian Association of Physics Teachers, Regional Council 15

(Dedicated to the memory of Late Prof. D. P. Khandelwal, Founder of IAPT)

Educational system has suffered enormously during the pandemic. Practical based subjects have suffered the most as experiments can hardly be done in online mode. In order to partly compensate this loss, a three-day**Online Workshop On UndergraduatePhysics Experiments was organized by the Department of Physics, Victoria Institution (College), (VIC) in Collaboration withthe Indian Association of Physics Teachers, Regional Council 15 (IAPT, RC 15).** The workshop was held on 27th , 28th Nov & 2nd Dec, 2021. Resource persons delivered online talks on several experimentsat the undergraduate 1st and 2nd year levels with demonstrations and videos.The experiments were so designed that **the students could perform them using simple and easily accessible equipments even at their homes.**

The welcome address in the Inaugural session was delivered by Dr. Pratibha Pal, Associate Prof, Dept. of Physics, VIC . This was followed by an introduction of IAPT byDr. Bhupati Chakrabarti. The motivation for organizing this workshop was highlighted byDr. SurajitChakrabarti, a senior member of IAPT.

Dr. Bhupati Chakrabarti,Ex-Professor, City College, Kolkata and former General Secretary of IAPT, the resource person of the first technical session, discussedthe method to determinethe Young's Modulus of a long wooden ruler in the form of cantilever by observing of its free end oscillationand also verification of Newton's Law of cooling by measuring the heat loss by a glass of water using a digital thermometer.Mr. Soumen Sarkar, Assistant Teacher of Physics, Karui P.C. High School, Hooghly, WBdemonstrated the measurement of the focal length of a biconvex lens, focal length of a concave lens by the method of combinationusing the torch of a mobile phone as a source of light. He then explained how to find the refractive index of water kept in a bucket with a plastic ruler immersed in it. The idea of parallax was explained with a video demonstration byDr. Surajit Chakrabarti, Ex-Professor, Maharaja Manindra Chandra College. He also enlightened the participantson the measurement of the focal length of an equiconvex lens and its radius of curvature using the lens as a concave mirror without the use of a spherometer.

On second day Dr. Makhan Lal Nanda Goswami,Associate Professor of Physics, Midnapore College, Medinipur, gave a lecture on the measurement of horizontal component of earth's magnetic field and magnetic moment of a bar magnet using a magnetic needle. .Dr . Surajit Chakrabarti explained how to measure the velocity of sound by the method of resonant air column in a 250 ml semi-transparent measuring cylinder partially filled with water. He used the source of sound from the PHYPHOX app, which can be downloaded free on a smart phone. Dr. Makhan Lal Nanda Goswami then explained how the traditional potentiometric and meter bridge experiments could be easily performed from home

replacing the potentiometer by a handy small 10 turn 100-ohm pot.The theoretical basis of a potentiometer was explained by Dr. Surajit Chakrabarti. . Resource person of the last session of this day, Mr. Deep Narayan Ghosh, Assistant Teacher of Physics, Vidyasagar Shishu Niketan, H.S. school, Medinipur spoke about home experiments using a thermistor.

The thirdday started with the demonstrationof Mr. Sanjoy Kumar Pal, an Assistant Teacher of Physics, Anandapur H.S. School, Paschim Medinipur on the study of charging and discharging of a capacitor through a resistorusing the mobile phone charging adaptor instead of a conventional dc power source.The last presentation of the workshop was by Dr.Syed Minhaz Hossain, Associate Professor at the Department of Physics, IIEST, Shibpur. He spoke on the principle of Light Emitting Diode using band diagram: I-V characteristics and emission spectra and also a method of determining Planck's constant..

A small kit which contained lenses, measuring cylinder, bar magnets along with a magnetic needle, one digital thermometer,one multi turn pot, few resistances, capacitances etc. were provided by IAPT, RC15 to the 1st and 3rd Sem. Physics Hons. students of VIC so that they could carry out most of these experimentsat home.

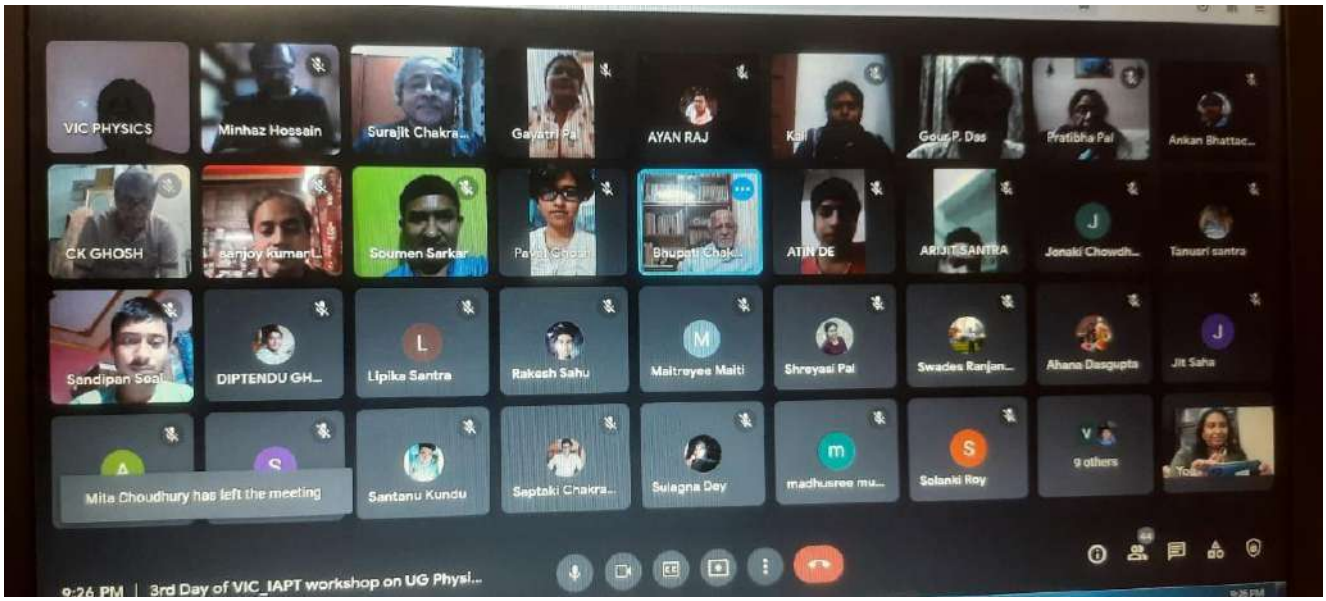
About 50 students participated in this workshop from various colleges of West Bengal as well as from other states of India. Most of them responded positively and are showing interest in carrying out the experiments at home. A post workshop discussion WhatsApp group has been created where the students are posting their results and communicating with the resource persons. It is very heartening to find students performing the experiments from home even after a month of the formal presentations. There is a plan for a follow up program, where the students will give short presentations ontheir experiences of performing the experimentsat home.

Faculty members of the Dept. of Physics, VICconveyed their sincere thankstowards the resource persons, who took this challenging job of designing these experimentsand demonstrating them online and also to the members of IAPT, RC 15 for providing the experimental kits.

Dr. Nibedita Chakrabarti , Principal. VIC and Prof. Gour Prasad Das, President, IAPT, RC15 and Distinguished Visiting Faculty, Department of Physics, St Xavier's College, Kolkata were the patrons of this workshop. Dr. Surajit Chakrabarti and Dr. Shinjinee Das Gupta, HOD, Dept. of Physics, VIC were the convenor and co-convenor of this online workshop respectively. Technical support was provided by Smt. Kathakali Biswas, SACT, Dept. of Physics, VIC. Dr. Gayatri Pal, Smt. Swarnalekha Bandyopadhaya senior teachers in the Dept. of Physics, VIC and the members of IAPT RC 15 provided the crucial support for this endeavour. The concluding remarks were given by the President of IAPT, RC15 Prof. G.P. Das and the vote of thanks was delivered by Dr. Subhendu Chandra, Assistant Prof., Dept. of Physics, VIC. The whole programme was conducted online by Dr. Shinjinee Das Gupta.
The summary of the various user feedback could be collated almost instantaneously, and a representative report is illustrated below. The feedback form was prepared by Dr. Shinjinee Das Gupta and Dr. Chinmoy Kumar Ghosh, a senior member of IAPT.

r

Shinjinee Das Gupta , SurajitChakrabarti



A screenshot of the online program

Company Secretaries of India
भारतीय कम्पनी सचिव संस्थान
IN PURSUIT OF PROFESSIONAL EXCELLENCE
Statutory body under an Act of Parliament
(Under the jurisdiction of Ministry of Corporate Affairs)

INDIA
REGIONAL
COUNCIL

On the Job Training 2020-2021

Ref 08/CAP/2021 **Date** 01st February 2021

To,

The Principal,

Victoria Institution,

78B, Acharya Prafulla Chandra Rd,

Baithakkhana, Kolkata 700009

Kind Attn :-Dr Chhotelal Chouhan, Department of Commerce, Victoria Institution (Morning)

Dear Sir,

(Sub:- Request for an Online Career Counselling Session for apprising the students on "Career as a Company Secretary")

The **Institute of Company Secretaries of India (ICSI)** is a premier national professional body incorporated by an **Act of Parliament (Company Secretaries Act, 1980)** working under the jurisdiction of **Ministry of Corporate Affairs, Government of India**. For three decades, the ICSI has been playing a key role in the growth and development of the Indian Corporate Sector by producing a cadre of highly qualified Company Secretaries as corporate managerial professionals for efficiently and professionally managing the administrative, secretarial, legal as well as financial activities, thus enabling the unhindered growth of the corporate sector.

In the above backdrop we are keen to make the students community aware of the course so that they may consider their ideal choice in the selection of their professions from among many.

We will take ½ / 1 hour for an **online career counselling** session and would like to interact with the students and apprise them about the course and profession and the opportunities to the students who complete the course.

We will be using the online webinar licensed software of either Cisco Webex/Google Meet for the online Career Counselling session. There are no charges that need to paid by the college authorities for conducting the online session.

We will be highly obliged if you kindly provide a time and date for the session at your school. A line of confirmation can be sent to **Mr S.Sreejesh, Assistant Director,** [illegible] id s.sreejesh@icsi.edu or you can contact him on **8820043049/8910267199** for any further details.

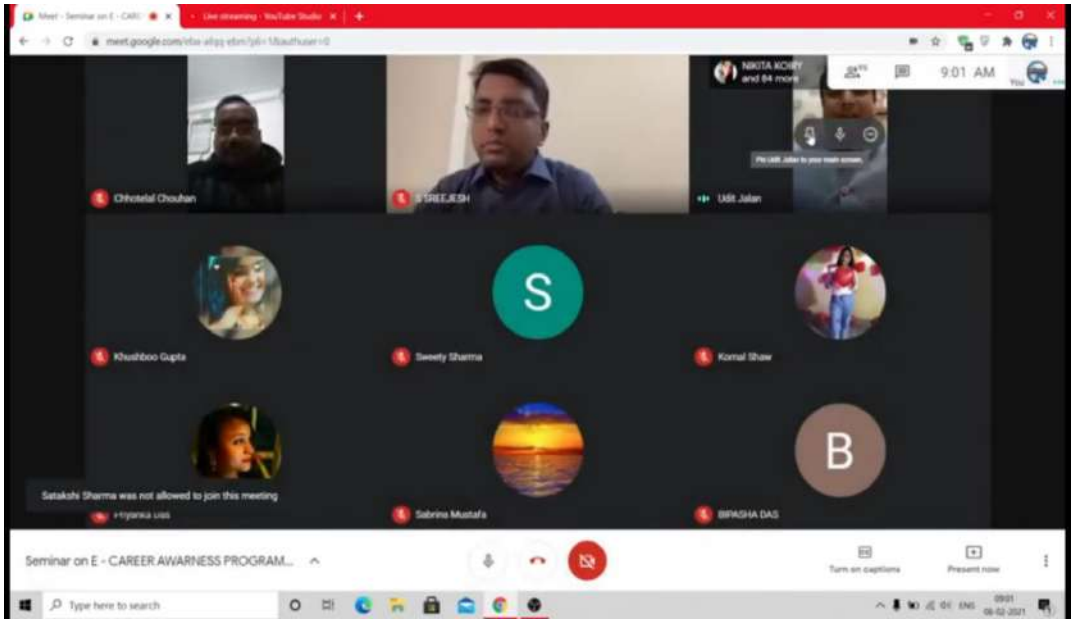
Victoria Institution (College),
78-B, Acharya Prafulla Chandra Road, Kolkata-700009

E – Career Awareness Programme on 8.02. 2021 (Time – 9 A.M. to 10 30 A.M.)

An E – Career Awareness Programme was conducted by Institute of Company Secretaries of India in collaboration with Dept. of Commerce on 8th February, 2021.

The Webinar has been conducted by Institute of Company Secretaries of India regarding the career growth of the student as a company secretary. A company secretary can also treat as corporate lawyer and his job is to supervise all the legal matters of the organisation and to maintain strong administration within the firm.

In this COVID – 19 situation when students are really depressed regarding their career goal, in that particular time this webinar conducted by ICSI has motivated them to get a new path in their life. A motivational speech has been delivered by has been delivered by GST Expert Udit Jalan in this webinar. He has mentioned in his speech that students must not think that this pandemic is going to ruin their future permanently rather they should think that they are getting more time to shape up their career aspects and meet up the requirement as per their vision.

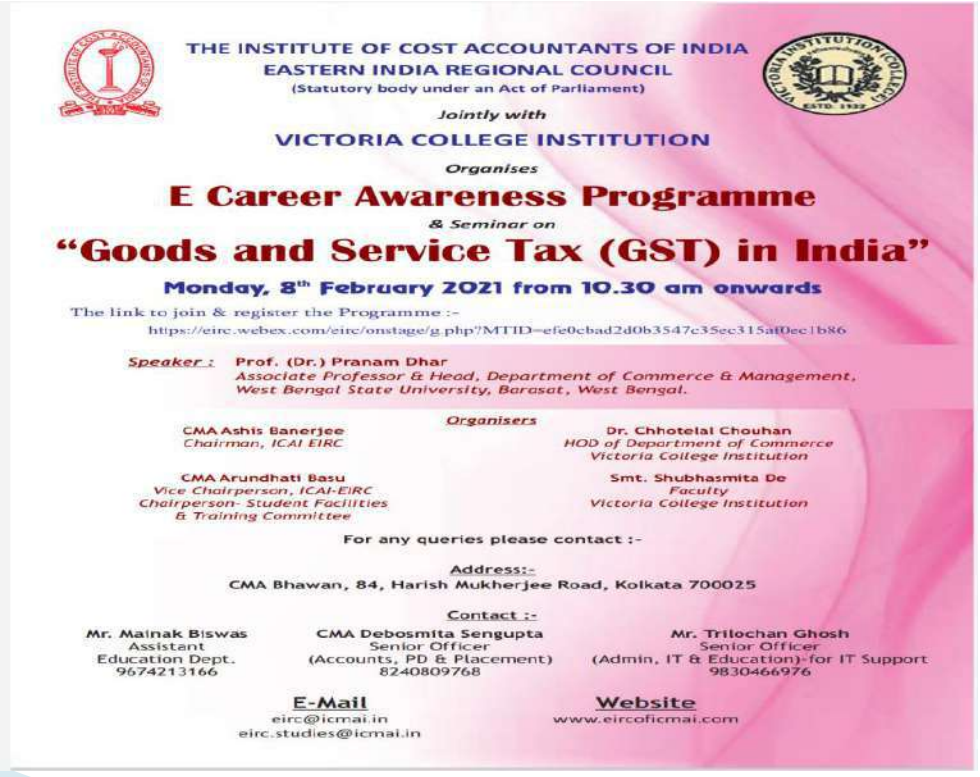


E – Career Awareness Programme on 8.02. 2021 (Time – 10 30 A.M. to 12 Noon.)

Another E Career Awareness Programme and GST in India organized by the Dept. of Commerce in collaboration with the Institute of Cost and Management Accountant of India on 8th February, 2021.

The Institute of Cost and Management Accountant of India has shown a path towards developing the career of the students. While doing graduation they can get the idea regarding then future scenario of job aspects. Sometime the students get confused that can they do something apart from graduation to enhance their career? So, ICMA has provided that guidelines to the students which help them to access the right area for their future.

The programme also being conducted by considering discussion related with a topic. The speaker for the topic was the Associate Professor and Head of WBSU, Dr. Pranam Dhar. He has highlighted the different elements of GST and how this GST has been calculated while filing indirect tax. The student does not have huge idea about GST so this webinar has helped them a lot to grab this new area of Taxation system. The Speaker has also told about how the students can consider this GST aspect as their career opportunity.



Web Based Workshop on

Teaching Physics at the UG & PG Level using Python

On the Job Training *Organized by*

Department of Physics, Victoria Institution (College),

78 B, A P C Road, Kolkata-700009

In collaboration with

UGC-DAE Consortium for Scientific Research, Kolkata Centre

Sector III, LB-8, Bidhannagar, Kolkata 700 106

July 6th – 10th 2020

Learning Physics through Python.

UGC-DAE Consortium for Scientific Research, Kolkata Centre, is in the process of developing a range of innovative, low cost teaching tools based on the routinely available resources for the undergraduates. These tools are expected to be illustrative and contribute in their understanding of the basics of the subject, apart from rejuvenating the fun factor in the learning process. And all this with an accompanying rigor on the extracted numbers ! The Kolkata Centre of the Consortium, has been hosting and supporting such innovative endeavors for College and University community across the country.

The Python Language has emerged as an efficient tool in the practice of science teaching at different levels. The solution to problems along with visual representations of the same is believed to effectively articulate the associated methodologies and has been an impetus to the widespread usage of this tool. In this light, the Victoria Institution (College), Kolkata, in collaboration with the UGC-DAE CSR, Kolkata Centre, intends to host a workshop on Python, on a digital platform, during July 6th - 10th 2020. The E-Workshop will focus on the application of Python, to complement the conventional classroom teaching at the UG & PG level, particularly in the context of the topics such as Mathematical Methods, Statistical Physics and Quantum Mechanics, along with others, that are typically covered in the Physics curriculum at the UG / PG level. The workshop is envisaged to provide a brief introduction to Python, starting from its installation and followed by specific applications of this tool in solving problems that are routinely encountered in the teaching of the subject. It is envisaged to have two lectures (around 45 minutes duration) per day.

The target audience primarily would be a group of selected faculty members / students, from colleges and the objective would be to create a sustained culture for such innovative teaching methodology.

The participation to this workshop is by nomination. The Head of the Department / Institution may recommend the names of few faculty members / students from UG / PG section (previous & final year) for the purpose. An order of preference may please be indicated against the names of the recommended participants. Owing to very limited resources, we are apologetic that it might not be possible to honour all the recommendations. Kindly include the contact details (mobile & email) of the recommended participants in the communication.

The recommendations may please be sent (electronically) at the earliest (on or before July 1st 2020) to, Dr, Subhendu Chandra, Convenor. The exact platform for hosting the lectures and the resources along with other details shall be eventually communicated to the registered participants.

Dr. Sandeep S Ghugre
(Convenor)
UGC-DAE CSR, KC
Email : ssg@alpha.iuc.res.in
Mobile No: +91-9831037171

Dr. Subhendu Chandra
(Convenor)
Victoria Institution (College)
Email:subhendu170975@gmail.com
Mobile No: +91- 9433288395

Dr. Shinjinee Das Gupta
(Co-Convenor)
Victoria Institution (College)
Email : shinjinee14@gmail.com
Mobile No: +91-9433136758

Patrons

Dr. Nibedita Chakrabarti, Principal, Victoria Institution (College)

Dr. A K Sinha, Director, UGC DAE CSR, Indore

Dr. Abhijit Saha, Centre Director, UGC DAE CSR, Kolkata

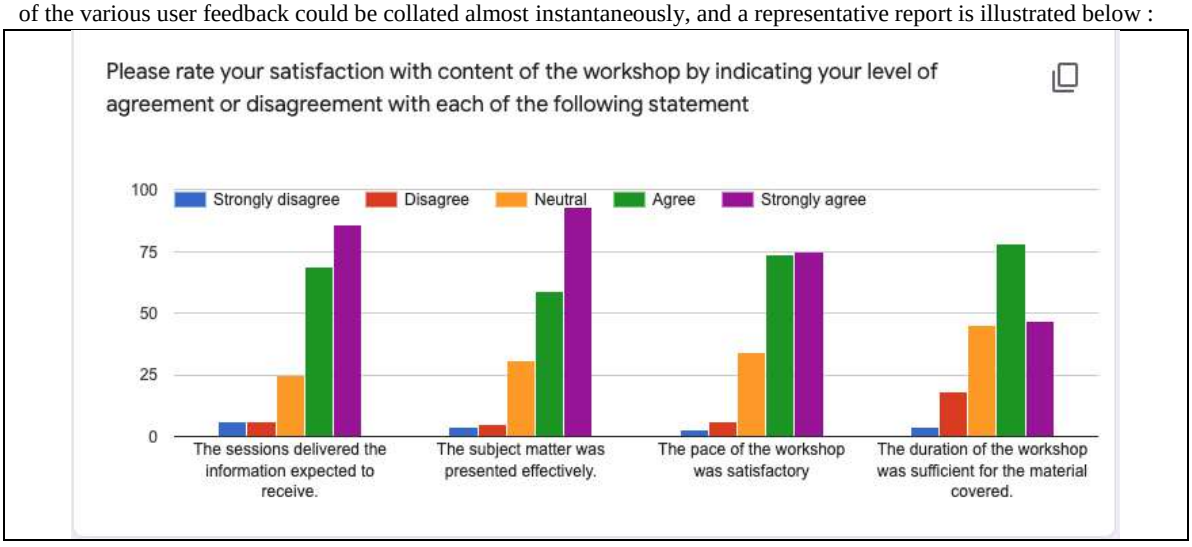
Web Based Workshop on
Teaching Physics at the UG & PG Level using Python
Organized by
Department of Physics, Victoria Institution (College),
In collaboration with
UGC-DAE Consortium for Scientific Research, Kolkata Centre
July 6th – 10th 2020

The Python Language has emerged as an efficient tool in the practice of science teaching at different levels. The solution to problems along with visual representations of the same is believed to effectively articulate the associated methodologies and has been an impetus to the widespread usage of this tool. In this light, the Victoria Institution (College), Kolkata, in collaboration with the UGC-DAE CSR, Kolkata Centre, organized a workshop on Python, on a digital platform, during July 6th - 10th 2020. The E-Workshop highlighted the application of Python, to complement the conventional classroom teaching at the UG & PG level, particularly in the context of the topics such as Mathematical Methods, Statistical Physics and Quantum Mechanics, along with others, that are typically covered in the Physics curriculum at the UG / PG level.

The workshop was attended by about 180- participants, comprising of both students as well as faculty members, from regions across the country (Maharashtra, Gujrat, Assam, Telangana, Andhra Pradesh, Tamil Nadu, Kerela, Madhya Pradesh and West Bengal). The inaugural session was addressed by the following dignitaries, Dr. Nibedita Chakrabarti, Principal, Victoria Institution, College, Dr. A K Sinha, Director, UGC DAE CSR, Indore and Dr. Abhijit Saha, Centre Director, UGC DAE CSR, Kolkata Centre. Prof. Amitava Raychaudhuri, Professor Emeritus , University of Calcutta, delivered the key note address, which highlighted the relevance of numerical computations in various branches of Physics, and its evolution since it's inception.

The workshop was preceded with a pre-workshop session on 4th July 2020, wherein support was extended to the participants to get Python installed on their respective systems. Besides ensuring that majority of participants had a working Python toolkit on their systems, this efforts to a large extent helped identify and address the technical issues with this novel digital platform, which resulted in a glitch free running of the entire workshop. The workshop was conducted daily in to two sessions of about an hour each, which were complimented by discussions on the digital platform, to address the queries and concerns of the participants. First two sessions were primarily devoted towards a whirlwind introduction of Python to the participants. The subsequent sessions were centered around the applications of Python especially problem solving methods in the domain of Mathematical Method, Statistical Physics and Quantum Mechanics. The presentations were complimented with lecture notes as well as the codes, which were shared with all the participants, an unique feature, of this workshop, which was based on the spirit of Open Source philosophy. The concluding session was conducted by Dr Pratibha Pal.

The resource personnel for this workshop were Dr S S Ghugre, UGC DAE CSR, KC and Ms Kathakali Biswas, Victoria Institution (College). Dr Subhendu Chandra, Dr Shinjinee Das Gupta and Dr G Pal, provided the crucial support for this endeavor. Following the efforts of our colleagues from Victoria College, especially Dr Shinjinee Das Gupta, the summary of the various user feedback could be collated almost instantaneously, and a representative report is illustrated below :



The entire Nuclear Physics Group of UGC DAE CSR and the Department of Physics, Victoria Institution (College) were involved in the organization of this workshop, besides participating in the same .

Dr S S Ghugre, Dr R Raut, Dr P V Rajesh, Shri Kaushik Basu, Shri Mukesh Kaul, [illegible] UGC DAE CSR, KC
Dr S Chandra, Dr G Pal, Dr S Das Gupta, Ms K Biswas, Dr P Pal, Victoria Institution (College)

Phone : (033) 2436 0093
2436 0104
Fax : (033) 2436 0607
e.mail : ercicssr@vsnl.net
icssrerc@gmail.com
Website: www.ercicssr.org

भारतीय सामाजिक विज्ञान अनुसंधान परिषद

(मानव संसाधन विकास मंत्रालय)

पूर्वी क्षेत्रीय केन्द्र

INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH

(Ministry of Human Resource Development)

EASTERN REGIONAL CENTRE

1/R-1 Baishnabghata Patuli Township, Kolkata 700 094

Ref.: ICSSR-ERC/2018-19/40

Date: 09.10.2018

To
Dr. Nibedita Chakrabarti
Principal
Victoria Institution (College)
78-B, Acharya Prafulla Chandra Road
Kolkata – 700 009

Dear Dr. Chakrabarti,

We refer to your proposal, dated 24.09.2018 requesting funds for organizing the fourth Series of Extension Lectures for Undergraduate Students of Political Science and Allied Social Sciences, by the Department of Political Science, Victoria Institution (College), Kolkata.

We are happy to inform you that a lump sum of Rs.20,000/-(Rupees twenty thousand only) has been sanctioned towards financial support for the series of lectures. We shall now request you to send a formal request for release of the grant of Rs.20,000/- and name of the payee so that we can send you a cheque for the amount. We shall also require a short report on this programme along with Utilization Certificate for the amount sanctioned soon after it is over.

With regards,

Yours sincerely,

(Saibal Kar)
Hony. Director

Signature Not Verified
MAITREYI RAY KANJILAL
I attest to the accuracy and
authenticity of this document
22.57492076173886,
88.3732529745284
15.03.2024 09:05

Academic Report

On

4th Series of Extension Lectures for Students of Political Science & Allied Social Sciences

Organized by

Department of Political Science

Victoria Institution (College), Kolkata

Supported by

The Indian Council of Social Science Research – Eastern Regional Centre, Kolkata

Introduction:

The department of Political Science, Victoria Institution (College) has successfully completed conducting the fourth series of Extension lectures for Students of Political Science and Allied Social Sciences (2018-2019) with financial assistance received from the Indian Council of Social Science Research – Eastern Regional Centre, Kolkata. This year, the series comprised of six lectures beginning in December 2018 and ending in March 2019. The lectures evenly spanned across the honours syllabus of Political Science prescribed by the University of Calcutta. Thematically, the issues were chosen in such a fashion so that the students get acquainted with the finer nuances of the discipline and are suitably introduced to the essential multidisciplinary nature of the subject. Since the lectures are meant to supplement the understanding of the undergraduate students, all the esteemed resource persons not only kept their lectures suited to the needs and capacity of the students but also simultaneously pushed the boundaries by invoking interdisciplinary temper, raising critical enquiries and presenting newer discourses related to their respective themes. As teachers, we were pleased to witness the ways in which our students received the said lectures, discussed and deliberated upon each issue and most importantly raised questions. Their active participation in each of the session has emboldened our desire to conduct similar series in the coming years with your kind assistance. We took a step further this by trying to supplement one of the topics (*Naxalbari: An Overview)* of the series, by organizing a documentary film show on the same titled *S.D.: His Life and Times* immediately after the lecture. The idea was to enable our students with a better understanding about an issue by using the audio-visual medium as a serious pedagogical tool.

We are deeply indebted to the Indian Council of Social Science Research – Eastern Regional Centre, Kolkata for not only lending us financial support to conduct such a series but also for showing faith on our efforts. Conducting this series would have been impossible without the incessant advice and cooperation we received from the Principal of our college. We are also thankful to the office of the Director of ICSSR – ERC. The purpose of this series was to provide our students with a much needed exposure to the newer discourses of the discipline. We thank all the esteemed resource persons for humbly accepting our invitation to deliver lectures and doing so with unparalleled sincerity and erudition. Last but not the least we thank Sri Asit Mondal for providing us with timely technical support throughout the series.

Detailed Academic Report:

1. From Liberal to Neoliberal State: A Trajectory

The inaugural lecture was delivered by Professor Sobhanlal Dattagupta, former Surendranth Banerjee Chair of Political Science, University of Calcutta on December 4th 2018 on the evolution of the idea of state, its transformation from the liberal to neoliberal. Professor Dattagupta began by outlining the transition by earmarking the major historical moments which entailed changes across polity, economy and society. Beginning with a brief overview about the pre-modern era state (absolutist), Professor Dattagupta delved into the question of political modernity. The emergence of modern state was thus placed within the ambit of factors like separation of state from religion (idea of secular), separation between state and government, constitutionalism, republicanism, citizenship etc. Emergence of the liberal (modern) state also facilitated the birth of the capitalist political economy which soon confronted a crisis of its own making. Liberal state thus got mired into its first crisis as a result of the capitalist boom and was left with no choice but to evolve and transform its nature to what came to be known as the 'new-liberal state'. The ideas of Locke made a natural progression towards the ideas of Bentham, Mill and Laski, Hobhouse later. The new liberal state did away with the restrictive idea of the state (the concept of negative liberty) and remodeled state as the ultimate provider of welfare measures to the teeming million thus giving flesh to the concept of social-welfarism. Soon social welfarism was found to be faltering on the threshold of development induced growth which resulted once again in upholding the magic like role of 'capital'. Political theorists like Friedrich Hayek, Milton Friedman, Robert Nozick etc. ushered in the idea of neoliberalism which once again put reason on the virtue of

'rolling back of the state'. Thus the transformation of state from new-liberal to neoliberal saw the simultaneous emergence of an exclusionary, transactional and a purely economic state.

2. Citizenship: Evolution of the Idea

The second lecture of the series was delivered by Professor Shibashis Chatterjee of the department of International Relations, Jadavpur University on the evolution of the idea of citizenship on December 8th, 2018. Professor Chatterjee began by addressing the notion of citizenship from the perspective of identity, statehood, entitlements and individual rights. He thereafter outlined the evolution of the concept of citizenship, beginning with the Greek-Roman period to the times of Machiavelli, Montesquieu, Rousseau to that of Bodin and Hobbes. The journey of citizenship to a highly legal concept revolving around the state authority and its people(citizens) was elaborated sufficiently. A good part of the lecture elaborated on the collapse of the feudal order in Europe and the advent of mercantilism which in turn shaped the modern notion of citizenship to a substantial degree. The relationship between the modern notion of citizenship and individualism was highlighted as was the fundamental shift which was visible - people were becoming active participants in the order of things, from merely remaining passive recipients.

Having outlined the evolution of the concept, Professor Chatterjee raised the issue of citizenship being a technique attempting to bring about a leveling across population groups. Citizenship, he said, tries to balance out over multiple layers of identity; it subsumes all other identities into its fold of state identity alone. The question which he raised therefore was that, whether citizenship is sturdy enough to hold disparate multiple identities together? Thus, fundamental questions about the project of citizenship were being raised from different political positions like the

multiculturalists, the feminists, the neo-republicans and the debate between the advocates of globalization and cosmopolitanism versus restricted citizenship.

3. Proactive Judiciary, Passive State? – Revisiting India

The third lecture was delivered by Professor Dipankar Sinha from the department of Political Science, University of Calcutta on 25th February 2019. Professor Sinha, began addressing the issue by placing the question within the constitutional ethos of a harmonious relationship between the legislature, executive and judiciary branches of the Indian government and that of an emerging psycho-sociological trend among India's population that the judiciary is alone capable of greater and effective empathy than the executive and legislature. While the former assertion is an institutional/legal truth, the later observation is reflective of the political behavior of the Indian citizenry, and it is therefore within this theoretical space between the two positions that the question / enquiry / reflection about a pro-active judiciary, its efficacy arises. Professor Sinha very effectively, classified the tumultuous relationship between the judicial arm of the state and its executive-legislative counterpart into four periods, namely: phase of establishment (1950-1967); period of friction (post 1965 – death of Nehru); period of judicial rehabilitation (1978-1989) and period of consolidation and image enhancement. Major trends evident during the above mentioned periods were / are a result of the workings of the state, prevalent politics and democracy. The first period, the Nehruvian era made parliament as the chief custodian of the constitution. It is this period when the provision of judicial review was introduced and also saw the famous case of A.K. Gopalan (1950), Bela Banerjee versus state of West Bengal which are instructive about this period's trend. Judiciary played its prescribed role but remained subservient to the legislature and

executive. Post Nehru era, brought Indira Gandhi at the helm and in terms of her relationship with the judiciary this period has been rightly named as the period of friction (1967 0nwards). 42nd amendment of the Indian constitution, Keshuvananda bharati case, R.C. Cooper case etc. very rightfully are instructive of the high-handedness displayed by the executive vis-à-vis the judiciary of India. The period of judicial rehabilation (1978-1989) was a period which introduced an extremely significant and critical element in legal affairs, the Public Interest Litigation. It is PIL which was regarded by the citizens as a democratic tool in the hands of the common man, to be used timely and often against any infringement of rights guaranteed by the constitution. On the other hand, this paved the way for the judiciary to become proactive. The last period beginning from 1989 marked a shift. Judicial activism moved from being legal to being highly opinionated, politicized and ideological.

4. Gandhi and his Idea of the State

The fourth lecture was delivered by Professor Tapan Kumar Chattyopadhyay, former professor at the department of Political Science, University of Calcutta on March 1st 2019. Professor Chattyopadhyay had divided his lecture into two parts; he began by presenting Gandhi's critique of the modern state and then went on to outline Gandhi's idea of an ideal state.

Gandhi's critique of the modern state rested on its impersonal, extremely technocratic – bureaucratic nature, amoral stance, surveillance which together muzzles the spirit of community based living of an individual. Modern state according to Gandhi was also fraught with a mechanical relationship between authority and the citizens which scuttled all kinds of individual growth. The second part of the lecture was a veritable revisiting the seminal text, the Hind Swaraj, wherein Gandhi had presented his idea of an ideal state. Larger share of the people in decision making, the concepts of self rule and enlightened anarchy, emphasis on man being a moral being and not

merely a legal being were highlighted in the second half. The lecture was drawn to a closure with a brief discussion about the various ways Gandhi scholars have viewed him and his relevance in modern day politics.

5. Power, Authority, Legitimacy

The fifth lecture was delivered by Professor Manabi Majumdar of the Centre for Studies in Social Sciences, Kolkata on March 15th 2019. Professor Majumdar began by elaborating independently the notions of power, authority and legitimacy, and then went on to weave their inter-relationship in its various nuances. The main elements of her lecture rested on the traditional definition of power (Hobbesian); various faces of power (decision making, agenda setting and thought control); the double faced nature of authority, sources of legitimacy; Max Weber's classification of authority etc. her lecture made a very special reference to the ways in patriarchy utilizes power and here she mentioned the work of Naira Kabir and her concept of power within and power over. Professor Majumdar concluded by saying a few words about the way, power – authority - legitimacy, as an inter-relational concept has been viewed by Michel Foucault

6. Naxalbari: An Overview

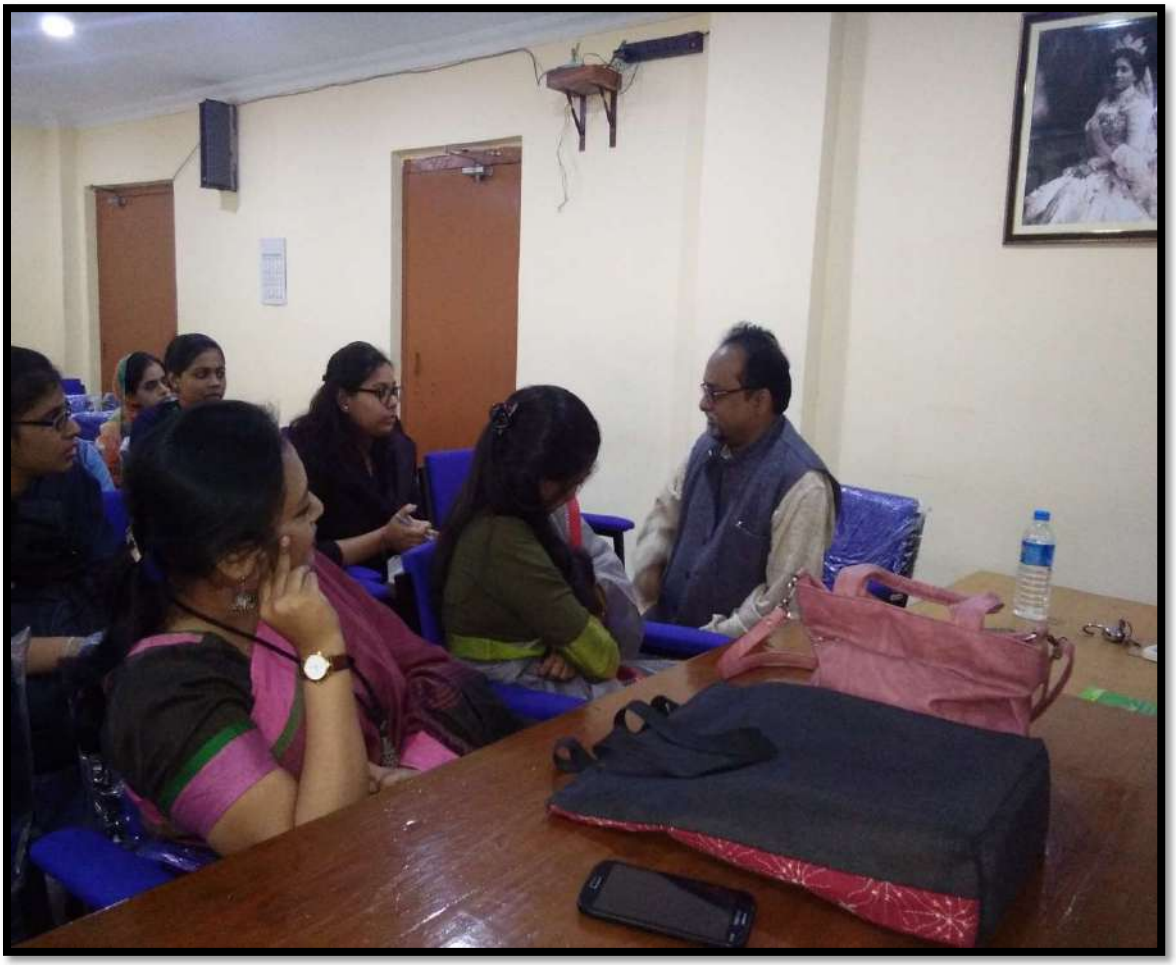
The final lecture of the series was delivered by Professor Pradip Basu of the department of Political Science, Presidency University on March 25th 2019. Professor Basu presented an extremely compelling and graphical view of the various phases, aspects and characters of the Naxalbari movement which according to his opinion had an everlasting impact on Indian politics. Beginning with the inner party struggle within the folds of communist movement centering around the question of ideology to the eventual split in the communist party, the irreconcilable differences which actuated the split to the various stages of the Naxalbari movement, the positional difference between the debatists and the activists (based on the work of scholar Sanjay Seth) were dwelt upon

by Professor Basu. He concluded by effectively pointing out and explaining the positive as well as negative impacts that the said movement had on Indian politics. He categorized the natural tendency to militancy and anarchism, lack of proper understanding of the rural political economy of Indian rural population, a fuzzy notion of class and caste dimension of the Indian rural populace as major drawbacks and elemental flaws of the movement. On the other hand, professor Basu enlisted the following as the positive contributions which the movement made for posterity, they being: it presented an alternative to electoral and vote bank politics; the question of poverty received the importance which was long overdue, and the politics of selflessness and sacrifice. It was this lecture, which was followed by a documentary film screening for the students so that it not only helps them appreciate the issue of Naxalbari better but also exposes them suitably to the politics of representation in a very elementary manner. The documentary film that was screened was based on the polemic radical left leader, poet and columnist Saroj Dutta. The title of the film was 'S.D.: his Life and Times'. This film screening was financially supported by the college.

All the lectures were followed by extensive rounds of deliberation which saw an unprecedented participation of the students, faculty members of the department of political Science and also from other departments.

ALBUM

Professor Sobhanlal Dattagupta speaking on *From Liberal to Neoliberal State: A Trajectory*.



Professor Shibashis Chatterjee speaking on the *Idea of Citizensip*

Professor Dipankar Sinha speaking on *Proactive Judiciary, Passive State?:Revisiting India*

Professor Tapan Kumar Chattyopadhyay speaking on *Gandhi's Idea of State*

—

Professor Manabi Majumdar speaking on *Power, Authority and Legitim*

Professor Pradip Basu speaking on *Naxalbari: An Overview*

Participation of the Students