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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*

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- 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.**