❦ ABSTRACT ❦

DISCONTINUOUS PHASE TRANSITIONS IN DISCRETE OPINION DYNAMICS MODELS

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The thesis examines the role of various factors in shaping the phase transition in discrete opinion dynamics models. To check how universal results are within these models, we investigate two types of them (1) the threshold and (2) the q-voter models. For the former, a homogeneous symmetrical version is proposed, and the role of the nonconformity and network are studied. In addition, we analyze how the transition type is affected by the distribution of thresholds in the classical asymmetric version of this model. For the second family of models, we generalize the q-voter model to s-state opinion, similarly as in equilibrium statistical physics the Ising model was generalized to the Potts model. This generalization is considered under two types of randomness, quenched and annealed.

The issues addressed in the dissertation have been published in international peer-reviewed journals. All articles are summarized in the body of the thesis and included after the summary. The analyzed models not only show interesting properties from the perspective of phase transitions. They are also rooted in social science. Thus, the work is interdisciplinary and should contribute to these scientific fields.

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