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**Spin glass model for dynamics of cell reprogramming** SAI TEJA PUSULURI, Ohio University, ALEX H. LANG, PANKAJ MEHTA, Boston University, HORACIO E. CASTILLO, Ohio University — Recent experiments show that differentiated cells can be reprogrammed to become pluripotent stem cells [1]. The possible cell fates can be modeled as attractors in a dynamical system, the "epigenetic landscape." Both cellular differentiation and reprogramming can be described in the landscape picture as motion from one attractor to another attractor. We perform Monte Carlo simulations in a simple model of the landscape [2]. This model is based on spin glass theory and it can be used to construct a simulated epigenetic landscape starting from the experimental genomic data. We re-analyse data from several cell reprogramming experiments [3-6] and compare with our simulation results. We find that the model can reproduce some of the main features of the dynamics of cell reprogramming.

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