

Abstract Submitted
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On the absorbing-state phase transition in the triplet creation model¹ RONALD DICKMAN, Universidade Federal de Minas Gerais, GEZA ODOR, MTA-MFA Research Institute, Budapest — We study the lattice reaction diffusion model $3A \rightarrow 4A$, $A \rightarrow \emptyset$ (“triplet creation”) using numerical simulations and n -site approximations [1]. The simulation results suggest that the phase transition is discontinuous at high diffusion rates. In this regime the order parameter appears to be a discontinuous function of the creation rate; no evidence of a stable interface between active and absorbing phases is found. Based on an effective mapping to a modified compact directed percolation process, we shall nevertheless argue that the transition is *continuous* in one dimension, despite the seemingly discontinuous phase transition suggested by studies of finite systems. We also present preliminary results on the phase diagram of the model on the triangular lattice.

[1] G. Ódor and R. Dickman, J. Stat. Mech. (2009) P08024.

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Ronald Dickman
Universidade Federal de Minas Gerais

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