

Non-Monotonicity in Axelrod Model Dynamics

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Abstract

We investigate the dynamics of the Axelrod model for cultural diversity by studying a set of master equations for the time evolution of the average density of different types of bonds connecting neighbors. Within a mean-field approximation we obtain the exact solution for the equations and uncover the nature of the transition. We find that the density of active links between interacting partners is non-monotonic in time and that the asymptotic approach to the final state diverges at the critical point with an exponent equal to 0.5.