

Speaker: George Barmpalias

Title: Minority population in the one-dimensional Schelling model of segregation

Abstract: The Schelling model of segregation looks to explain the way in which a population of agents or particles of two types may come to organize itself into large homogeneous clusters, and can be seen as a variant of the Ising model in which the system is subjected to rapid cooling. While the model has been very extensively studied, the unperturbed (noiseless) version has largely resisted rigorous analysis. Most of the relevant results in the literature pertain to versions of the model in which noise is introduced into the dynamics so as to make it amenable to standard techniques from statistical mechanics or stochastic evolutionary game theory. We rigorously analyze the one-dimensional version of the model in which one of the two types is in the minority, and establish various forms of threshold behavior. Our results are in sharp contrast with the case when the distribution of the two types is uniform (i.e. each agent has equal chance of being of each type in the initial configuration).