

ICTS Skype Seminar

Title : Discontinuous percolation transition: A search for new models and scaling theory

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Date : Thursday, August 3, 2017

Time : 4:00 PM

Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore

Abstract : The percolation transition (PT), that is, the formation of a giant cluster on a macroscopic scale, is known as one of the most robust continuous geometrical phase transitions. However, a variety of new percolation models has been introduced at the beginning of this century and also a variety of new features are reported. Whereas, the nature of explosive percolation has been the topic of intense debate for the past few years. Therefore, we develop a number of lattice models incorporating the essential ingredients and associating more than one parameter in order to realize percolation as a first-order transition. The models developed represent both equilibrium behavior as well as non-equilibrium growth processes. Starting with a simple two parameter model with random processes and incorporating nucleation and coagulation it was possible to exhibit a crossover from continuous to discontinuous transition with a tricritical region in most of the models.