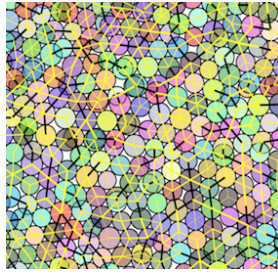


Disorder in Complex Systems



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Introduction to the statistical physics of phase transitions and critical phenomena

Wednesday, June 8, 2022 9:30 AM (1h 30m)

The material covered deals with collective phenomena and the various approaches to treat phase transitions. We will start by discussing the notion of symmetry breakdown, the effect of dimensionality, and how order is inferred, down to the microscopic scale. We will then present how appropriate field theories can be constructed, where symmetry considerations play an important role. Perturbation approaches, exact calculations, and renormalization group will be employed to emphasize the emergence of scale invariance (self-similarity) and universality, which are important hallmarks of critical phenomena. Only basic familiarity with statistical physics will be assumed.

Presenter: Prof. TRIZAC, Emmanuel (Université Paris-Saclay)