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FocusDays@LPENS

Mardi 23 Avril 2024, 16 :00
LPENS, Salle Langevin 29 RUE D'ULM((3rd of 3 talks in the Focus Day on Optimal Transport))
Domaines : cond-mat.stat-mech—math-ph—math.MP—physics.comp-ph

Titre : *Cutoff for Dyson Ornstein Uhlenbeck process, with a focus on distances in high dimension*

Orateur : **Djalil ChafaÏ (DMA-ENS)**

Résumé : *It is customary to say that an ergodic Markov process exhibits a cutoff when the distance to the equilibrium, for the worst initial condition, goes down to zero abruptly after a critical time. This threshold phenomenon was put forward by David Aldous and Persi Diaconis in the past century, and is particularly meaningful in the presence of a dimension or size parameter. Despite considerable progress on large classes of examples, there is still no general and satisfactory theory for the cutoff phenomenon. In this talk, we will consider the case of the Dyson-Ornstein- Uhlenbeck process, an ergodic dynamics from random matrix theory for which the equilibrium is a beta ensemble Coulomb gas. We show that the cutoff takes place in high dimension and is universal with respect to beta. We take this occasion to explore the advantages and drawbacks of different distances between probability distributions, in particular in high dimensions. This is a joint work with Jeanne Boursier and Cyril Labbé.*