SEMPARIS – Séminaires en région parisienne

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Forum de Physique Statistique @ ENS

Mercredi 22 Juin 2022, 12 :00
LPENS, Conf IV
Domaines : cond-mat.stat-mech

Titre : *Transition to chaos in open quantum systems, non-Hermitian random matrices, and quantum impurity models.*

Orateur : **Camille Aron (LPENS)**

Résumé : *Chaos sets a fundamental limit to quantum-information processing schemes. We work in the framework of the (dissipative) Dicke model which is archetypal of symmetry- breaking phase transitions in open quantum systems. We establish that the Liouvillian describing the dynamics exhibits distinct spectral features of integrable and chaotic character on the two sides of the critical point. The latter are governed by the Ginibre unitary non-Hermitian random matrix ensemble. We also study the onset of chaos in spatially extended systems relevant to quantum optical devices. In particular, we propose a minimal single-site quantum impurity modeling to capture their spectral properties.*