SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Colloquium of the Physics Department of ENS

Mardi 11 Janvier 2022, 17 :15
DPT-PHYS-ENS, Amphi Jaurès - Ecole normale supérieure 29 rue d'Ulm 75005 PARIS
Domaines : physics

Titre : *Twenty years of mesoscopic physics at ENS*

Orateur : **Bernard Plaçais (LPENS - CNRS)**

Résumé : *Mesoscopic physics was a mature field when it was introduced at ENS twenty years ago. Originally focussed on dynamical quantum transport and noise in ballistic model systems such as carbon nanotubes and quantum Hall conductors, the activity has developped into new routes including electron quantum optics, quantum electrodynamics of mesoscopic circuits, quantum technologies, topological phases of matter, and Dirac-fermion electronics. I will illustrate electron quantum optics with single-electron collider experiments in the quantum Hall regime, assessing quasi-particle statistics and coherence properties. The advent of gapless graphene in the mid-2000 has shaken-up our understanding of electronics including transistors. I will describe some basic physics effects emerging from the relativistic nature of the Dirac fermion excitations in graphene devices. The talk will illustrate how the unique ENS environment has enabled and fostered the mesoscopic physics endeavour.*