Laboratoire de Physique Théorique et Hautes Energies

Unité Mixte de Recherche (UMR 7589) de Sorbonne Université et du CNRS

SEMINAIRE du LPTHE

Jeudi 5 Octobre 2017, 11:00

Jean-Bernard Zuber

LPTHE

Horn's problem, from classical to quantum

Horn's (classical) problem deals with the following question : what can be said about the spectrum of eigenvalues of the sum C=A+B of two Hermitian matrices of given spectrum ? Curiously this problem is intimately related to the "quantum" problem : given two irreducible representations of SU(n), which irreps appear in their tensor product ?

The support of the spectrum of C is well understood, after a long series of works from Weyl (1912) to Knutson and Tao (1999), and the classical problem is known to provide an asymptotic approach of the quantum one. Here I show how an explicit computation based on a well-known matrix integral enables one to determine the probability distribution of the eigenvalues of C, and sheds some new light on the relation between the classical and quantum problems.

Bibliothèque du LPTHE, tour 13/14, 4ème étage

N.B. La liste de tous les séminaires en région parisienne est disponible sur
http ://semparis.lpthe.jussieu.fr