

Séminaire : Problèmes spectraux en physique mathématique

Les séminaires ont lieu à l'**Institut Henri Poincaré**, 11 rue Pierre et Marie Curie, Paris.

Programme du lundi 17 juin 2019, en **salle 314** (3e étage)

— 11h15 - 12h15 : **Takuya Watanabe** (Ritsumeikan)

Widths of resonances above an energy-level crossing

We study the existence and location of the resonances of a 2×2 semiclassical system of coupled Schrödinger operators, in the case where the two electronic levels cross at some point, and one of them is bonding, while the other one is anti-bonding. Considering energy levels just above that of the crossing, we find the asymptotics of both the real parts and the imaginary parts of the resonances close to such energies. In this talk, we would like give the result above and compare it with our previous works where we considered energy levels around that of the crossing.

This talk is based on joint works with S. Fujiie (Ritsumeikan) and A. Martinez (Bologna).

— 14h - 15h : **Mona Ben Said** (Paris-Nord)

Compactness of the resolvent for Kramers-Fokker-Planck operators.

This talk is devoted to the study of some spectral properties and compactness criteria for the resolvent of Kramers-Fokker-Planck operators, which will be denoted by K_V . I will speak in particular about the results obtained from a joint work with Francis Nier and Joe Viola on the case of a polynomial potential V of degree less than 3. Then based on this work, I will present my recent results which concerns compactness criteria for the resolvent of the operator K_V with more general potentials.

— 15h15 - 16h15 : **Stephan De Bièvre** (Lille)

Measuring the Non-Classicality of the Quantum States of a Bosonic Field with Ordering Sensitivity

In quantum optics, a classical state of the quantized electromagnetic field is a mixture of coherent states. When a state is not classical, it is of importance to establish how strongly nonclassical it is. We will present a recently introduced distance-based measure for the non-classicality of the states of such fields, and show its advantages over existing such measures. We define for that purpose the operator ordering sensitivity of the state which evaluates the sensitivity to operator ordering of the Renyi entropy of its quasi-probabilities and which measures the oscillations in its Wigner function. Through a sharp control on the operator ordering sensitivity of classical states we obtain a precise geometric image of their location in the density matrix space allowing us to introduce the aforementioned measure of nonclassicality. Its properties will be illustrated with a variety of examples.

Joint work with D.Horoshko, G.Patera and M.Kolobov

Pour tout renseignement, contacter les organisateurs

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