Contribution ID: **16** Type: **not specified**

Semiclassical Approximation and Dynamics for Non-Hermitian Operators

Wednesday 5 February 2020 12:27 (11 minutes)

The main goal of the thesis will be to obtain a semiclassical description for the evolution of physical systems under non-hermitian Hamiltonian dynamics. Non-hermitian Hamiltonians (NHH) often arise in the effective description of decay processes in open quantum systems. Most notably, in optics, they appear naturally in the study of absorbing or optical active materials that can be modeled by a complex refraction index. In the emerging field of the topological photonics, NHH are now being used to design and control the behavior of light. Recently, a semiclassical treatment of non-hermitian models and of the evolution of Gaussian coherent states has led to a system of equations describing the approximate semiclassical evolution through the evolution of the center and of the associated metric. They satisfy a system of coupled equations which can be efficiently investigated with methods suggested by geometric quantization. The goal is then to further generalize this formalism for bosons and spin systems under the semiclassical approximation.

Author: COUTO, Carlos (Instituto Superior Técnico - University of Lisbon)

Presenter: COUTO, Carlos (Instituto Superior Técnico - University of Lisbon)