



University of Crete  
Department of Physics

## Physics Colloquium

Thursday, 31 March 2022 | 17:00 – 18:00, Online with ZOOM

# Non-Hermitian PT-symmetric Quantum Chaos

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### ABSTRACT

*While traditional quantum mechanics focuses on systems conserving energy and probability, described by Hermitian Hamiltonians, in recent years there has been ever growing interest in the use of non-Hermitian Hamiltonians. These can effectively describe loss and gain in a quantum system. In particular, systems with a certain balance of loss and gain, so-called PT-symmetric systems, have attracted considerable attention. The realisation of PT-symmetric quantum dynamics in optical systems has opened up a whole new field of investigations.*

*What has been little investigated in these systems, hitherto, however, is their quantum classical correspondence. In particular, it is an interesting and mostly open question how PT-symmetry interacts with chaos.*

*In this talk I will give a brief introduction to PT-symmetric quantum systems on the one hand and prominent features of quantum chaos on the other hand. I will focus mostly on a specific toy model for the investigation of the interplay of chaos and PT-symmetry: A non-Hermitian PT-symmetric version of the famous kicked top.*

ZOOM Link: <https://zoom.us/j/93663550276?pwd=NDZxVmtQWdV5TnUvV25nc3VtUFBFQT09>