Seminar/Talk

Asymptotic series for low-energy excitations of the Fröhlich polaron at strong coupling

David Mitrouskas
ISTA

Host: Robert Seiringer

We consider the Fröhlich polaron confined to a bounded region. The Fröhlich polaron is a model for an electron interacting with the quantized optical phonons of a polar crystal. It provides a simple and well-studied model of nonrelativistic quantum field theory. In this talk, we will discuss the low-energy spectrum of the self-adjoint Hamiltonian describing this system when the coupling between the electron and the quantum field is large. Concretely, we establish an asymptotic series for every low-lying eigenvalue in negative powers of the coupling constant. The coefficients of the series are derived through a two-fold perturbation approach, involving expansions around the Pekar minimizer of the semiclassical energy and around the low-energy eigenstates of the quantum field.

Thursday, June 29, 2023 04:15pm - 05:15pm
Heinzel Seminar Room (I21.EG.101), Office Building West, ISTA

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