Seminar/Talk

A rigorous Dyson expansion for polaron Hamiltonians

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The polaron problem, introduced by Landau in 1933, concerns the coupling of an electron with phonon fields in a continuum. The energy-momentum relation for the Frhlich polaron has been recently proved to be a concave function of the square of the total momentum with a probabilistic approach via Wiener integrals. In this talk, I will present an abstract Dyson expansion for form bounded perturbations and apply it to the polaron Hamiltonian. I will show that the expectation value of the heat semi-group on the vacuum is a completely monotone function of the square of the total momentum and, consequently, the concavity of the energy-momentum relation as a function of the square of the total momentum.

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Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)