

Raffaele Carlone: "A ionization model"

In the first part of the talk, it will be discussed the dynamics of a polaron (a quantum particle coupled to bosonic fields) in the quasi-classical regime: in such a regime, the effective dynamics for the quantum particles are approximated by the one generated by a time-dependent point interaction, i.e., a singular time-dependent perturbation of the Laplacian supported in a point.

In the second part, it will be analyzed the effective equation and, in particular: global well-posedness of the associated Cauchy problem under general assumptions on the potential and the initial datum and, for a monochromatic periodic potential; the asymptotic behavior of the survival probability of a bound state of the time-independent problem.

Joint work with M. Correggi, L. Tentarelli, M. Falconi, M. Olivieri, R. Figari, W. Borrelli