

Diabatic Representation for Heavy Mesons

Wednesday, 7 June 2023 16:30 (25 minutes)

The Born-Oppenheimer approximation for QCD provides an intuitive yet rigorous framework for the study of mesons containing two heavy quarks. The energy levels of QCD with two static color sources, numerically accessible on the lattice, are translated into potentials for the nonrelativistic motion of the heavy quarks. The mass spectrum is then determined simply by integrating a multichannel Schrödinger equation. In this talk, I discuss the diabatic representation of the Born-Oppenheimer approximation for QCD, where the coupled equations for the heavy-quark motion take a particularly simple form. I show that the diabatic representation provides the most effective Born-Oppenheimer framework in which to study the effects of string breaking and heavy-quark spin symmetry breaking, which are essential ingredients for accurate calculations of exotic heavy mesons.

Primary author: BRUSCHINI, Roberto (The Ohio State University)

Presenter: BRUSCHINI, Roberto (The Ohio State University)

Session Classification: Heavy meson spectroscopy

Track Classification: Heavy meson spectroscopy