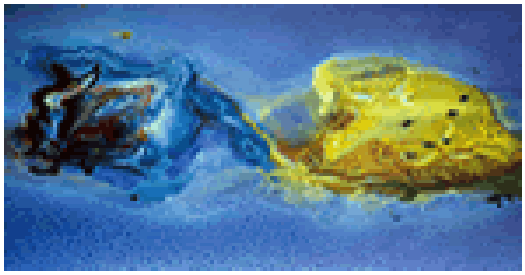

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The Born-Oppenheimer approximation in an effective field theory framework

Friday 3 August 2018 15:20 (20 minutes)

The Born–Oppenheimer approximation is the standard tool for the studying systems in atomic molecular systems. It is founded on the observation that the energy scale of the electron dynamics in a molecule is larger than that of the nuclei. A very similar physical picture can be used to describe QCD states containing heavy quarks as well as light quarks and gluonic excitations. In this talk I will report on a recent work [PRD 97, 016016 (2018)] in which we derived the Born–Oppenheimer approximation for atomic and hadronic molecular systems in an effective field theory framework by sequentially integrating out degrees of freedom living at energies above the typical energy scale where the dynamics of the heavy degrees of freedom occurs.

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