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Global existence and singularity of the Hill's type lunar problem

In a joint work with Slim Ibrahim, we used the idea of ground states in nonlinear dispersive equations (e.g. Klein-Gordon and Schrödinger equations) to characterize solutions in the N-body problem with strong force under some energy constraints. In this talk, I will explore this method to a restricted 3-body problem (Hill's type lunar problem), and talk about the dynamics of the solutions below, at, and (slightly) above the ground state energy threshold.