

## Effective two-body approach to the hierarchical three-body problem

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The three body-problem, even in the simple Newtonian case, exhibits very rich dynamical behaviors. The study of a hierarchical configuration, in which a close inner binary is orbited by a distant perturber, has been initiated by Lidov and Kozai in the 60's. The eccentricity oscillations that they discovered is particularly relevant to gravitational wave astronomy. On the other hand, several efficient tools have been developed to study the general relativistic two-body problem. In this talk, I will present how one can extend the two-body effective field theory (EFT) approach to the setup of a hierarchical three-body problem. Besides introducing a new expansion parameter consisting in the ratio of semimajor axes of the two orbits, our approach builds on the fact that one can treat the inner binary itself as an effective spinning point-particle. I will present in some details how this identification is performed.

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