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**Minimizing methods for the  $N$ -body problem without equal-mass constraint**

**Abstract:** In recent years variational methods have been successfully applied to the  $N$ -body problem to prove the existence of miscellaneous solutions with equal masses. The equal-mass constraint has been considered the primary weakness of this approach. In this talk we show how this constraint can be removed. In particular, for the 3-body problem, we show the existence of retrograde orbits for most choices of masses.