

Some recent advances on the Kepler problem

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Abstract

The Newtonian 2-body problem is also known as the Kepler problem in honor of Johannes Kepler (1571-1630) for his discovery of three laws of planetary motion, based on which Newton deduced in 1687 the celebrated law of universal gravitation. It is commonly considered a well-understood problem, as solving it with given initial data and proving Kepler's three laws require nothing more than tools from elementary calculus. In this talk I will briefly describe its history, outline recent discoveries from variational perspectives, and show some progresses regarding singularities.