Abstract

According to Newton's Second Law, the motion of N point bodies with positive masses m1, m2, ... ,mk located at positions x1, x2, ... ,xk belonging to 3D R3 is governed by the system of second-order nonlinear vector differential equations.

In this talk, a brief introduction of the variational methods of N-body Problem from 2006--2017 with emphasize on the work of boundary value problems for 3--6 body problems in 2D and 3D will be given. Some numerical simulations of periodic and quasi-periodic orbits will be demonstrated. Very interesting phenomenon of 3D orbits of solar system will be discussed.