Abstract

In this paper, we study the motion of a spherical particle in a rotating parabola using the Lagrangian method. As the first step, we construct the Lagrangian of the system, and then we obtain the Euler-Lagrange equations (i.e. equation of motion of the system). The obtained equation of motion is a homogenous second order equation. Finally, we solve this equation numerically using the ode45 code which is based on Runge-Kutta method.