

1067-70-2050

Hsin-Yuan Huang* (huan0368@umn.edu), 420 Vincent Hall, 206 Church St. SE, Minneapolis, 55455. *On the Minimizing Total Collision Orbits in the Planar Newtonian N -body Problem.*

In this paper, we study the minimizing total collision orbits in the Newtonian planar n -body problem. We introduce the rotation angle with respect to the limiting configuration which naturally interprets how the total collision orbits approach the limiting configuration. The Painlevé-Winter problem is solved from the viewpoint of the variational method. It shows the infinite spin can not happen in these minimizing total collision orbits. In the case of the planar three body problem with arbitrary masses, we show that for any given non-collinear initial configuration, the minimizing total collision path is collision free before it collides simultaneously and the particles approach to the Lagrange configuration closest to the initial configuration. (Received September 22, 2010)