

Oscillatory orbits in the restricted elliptic planar three body problem

Marcel Guàrdia, Pau Martín, Tere M. Seara

Departament de Matemàtiques

Universitat Politècnica de Catalunya. *

and

Lara Sabbaggh

Warwick University.

June 3, 2016

Abstract

The restricted planar elliptic three body problem models the motion of a massless body under the Newtonian gravitational force of two other bodies, the primaries, which evolve in Keplerian ellipses.

A trajectory is called oscillatory if it leaves every bounded region but returns infinitely often to some fixed bounded region. We prove the existence of such type of trajectories for any values for the masses of the primaries provided the eccentricity of the Keplerian ellipses is small.