
Billiards in the three body problem

Sergey Bolotin*¹

¹Moscow Steklov Mathematical Institute and University of Wisconsin – Russia

Abstract

We consider the plane three body problem with two of the masses much smaller than the third one. Solutions with near collisions of the small bodies shadow trajectories of a billiard type system with the discrete Lagrangian determined by the classical Lambert's problem. In the limit of many revolutions between near collisions the billiard system admits relatively simple description. The approach can be extended to other problems of celestial mechanics.

*Speaker