Oscillatory motions for the restricted three body problem

Marcel Guardia[1], **Pau Martin**[1], **Tere M. Seara**[1]

In 1980 J. Llibre and C. Simó proved the existence of oscillatory motions for the restricted planar circular three body problem, that is, of orbits which leave every bounded region but which return infinitely often to some fixed bounded region. To prove their existence they had to assume that the ratio between the masses of the two primaries was exponentially small with respect to the Jacobi constant. In this talk I will explain how to prove the existence of oscillatory motions for any value of the mass ratio. I will also explain how to generalize the result to the restricted planar elliptic three body problem. This is based on [1, 2], joint works with P. Martin, T. M. Seara. and L. Sabbagh.

Referencias

[1] M. Guardia, P. Martin, and T. M. Seara. Oscillatory motions for the restricted planar circular three body problem. *Inventiones Mathematicae*, 2015. Published online, DOI 10.1007/s00222-015-0591-y.

[2] M. Guardia, P. Martin, L. Sabbagh, and T. M. Seara. Oscillatory motions for the restricted planar elliptic three body problem. In preparation, 2015.