

n -body relative equilibria in higher dimensions

Alain Chenciner

ASD, IMCCE, Observatoire de Paris (UMR 8028),
77, avenue Denfert-Rochereau, 75014 Paris, France

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Département de mathématique, Université Paris 7

`alain.chenciner@obspm.fr`

Abstract

If one allows the dimension of the ambient Euclidean space to be greater than 3, the family of n -body configurations which, when submitted to Newtonian or similar attraction, admit a relative equilibrium motion (the “balanced” configurations) becomes much richer. Also, a given balanced configuration admits a variety of relative equilibria, namely one for each choice of a hermitian structure on the space where the motion really takes place; in general, if the configuration is not central, such relative equilibria are quasi-periodic.

I shall discuss several problems, like the one of deciding what is the smallest dimension in which a given configuration admits a relative equilibrium motion, or when bifurcations from the periodic relative equilibrium of a central configuration may bifurcate into a family of quasi-periodic relative equilibria of balanced configurations.