Boundaries of Stability

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Abstract

After some preliminary considerations on Celestial Mechanics and Dynamical Systems, the following problem will be studied. Consider a totally elliptic fixed point of a symplectic map or a Hamiltonian system. In some cases one can prove (nonlinear) stability. But the standing question is which is the domain of stability (perhaps in a weak sense) around the point. First, the simple case of the Hnon map will be presented. Then, as a preliminary report on a long term project, the case of the triangular libration points of the 3D RTBP. Both the results of numerical experiments and tentative identification of the geometric objects at these boundaries shall be shown.