

Transition chains of invariant tori around L_1 in the Sun-Earth system

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Abstract

We consider the spatial Restricted Three-Body Problem modelling the Sun-Earth system. We focus on the center manifold $W^c(L_1)$ of the collinear equilibrium point L_1 , with linear type center \times center \times saddle. We present a systematic numerical exploration of heteroclinic connections between different invariant tori in the center manifold $W^c(L_1)$.

The results show that, as energy increases, there exist longer transition chains of tori. For high enough energy, there exist transition chains linking almost all tori in the energy manifold.