
Summary: In this paper we analyse the McGehee regularization of the collision in the spatial Restricted three-body problem (3D RTBP). As a particular application, we study the ejection (collision) orbits. The parameterization method is applied up to high order to obtain suitable initial conditions of ejection (collision) orbits. Moreover, assuming ejection orbits, different methods are discussed to detect which of them are also collision orbits. Finally we explore the so called ejection-collision (EC) orbits, that is, orbits where the particle ejects from one primary, reaches a maximum in the distance with respect to the same primary, and ends at collision with that primary. Some results concerning the existence of spatial EC orbits are described.

MSC:
70Fxx Dynamics of a system of particles, including celestial mechanics
37Nxx Applications of dynamical systems
37Dxx Dynamical systems with hyperbolic behavior

Keywords: McGehee’s regularization; parameterization method; ejection-collision orbits

Full Text: DOI

References:
[4] Martínez-Seara, T.; Ollé, M.; Rodríguez, O.; Soler, J., Generalised analytical results on (m) -ejection-collision orbits in the RTBP, Analysis of bifurcations (2021), Preprint
[16] Cabré, X.; Fontich, E.; de la Llave, R., The parameterization method for invariant manifolds II: regularity with respect to
parameters, Indiana Univ Math J, 52 (2003) · Zbl 1034.37017


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.