

Characterization of orbits for the MacMillan problem with test particle of variable mass

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In the present study, we conduct a numerical analysis of the MacMillan problem in which the mass of the test particle varies in time according to the Jeans' law. The MacMillan problem is a particular case of the circular three body problem, where the third body moves along an axis passing through the center of mass of the system, and is perpendicular to the plane of the primaries. Since the formulation of the MacMillan equations of motion, several variations of this problem have been addressed in the literature, all of them with something in common: constant mass. In this master thesis, the focus is laid on the characterization of orbits for the MacMillan problem, assuming that the mass of the third body is variable in time according to the Jeans' law.

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