

Eduardo Shirlippe Goes Leandro, Universidade Federal de Pernambuco,
Brazil. email: MISSING

AN APPLICATION OF WAZEWSKI'S PRINCIPLE TO AN EXISTENCE PROBLEM IN CELESTIAL MECHANICS

In 1979, R. Broucke published a numerical proof of existence for a symmetrical periodic solution of the planar isosceles three-body problem. Broucke's solution turned out to be very important in Astronomy as an example of stable periodic orbit in the equal-mass Newtonian three-body problem (only two other such orbits are known). An analytical proof, which uses the calculus of variations, was given by Shibayama in 2011. We provide a constructive, topological proof of existence of Broucke solutions with a strong dynamical systems flavor.

Mathematical Reviews subject classification: Primary: ; Secondary:
Key words: ,