Formal Integral and Caustics in Henon-Heiles model

Tatiana Mylläri, Aleksandr Mylläri
St. George's University (Grenada)

`tmyllari@sgu.edu`

Abstract

We use a formal integral to study the structure of caustics in the Hénon-Heiles model. A Gustavson-like formal integral of motion is used (together with the Hamiltonian of the system) to study analytically the structure of caustics (the structure of the velocity field in the case of projection to the coordinate plane) in the system. Results obtained analytically by using a formal integral of motion are compared with those obtained by the numerical integration.

Keywords
Hénon-Heiles model, formal integral, caustics in Hamiltonian systems