

**Esther Barrabés**

Universitat de Girona

*Dynamical generation of galactic bridges and tails using a parabolic restricted three-body problem*

After a close encounter of two galaxies, bridges and tails can be seen between or around them. A bridge would be an spiral arm between a galaxy and its companion, whereas a tail would correspond to a long and curving set of debris escaping from the galaxy. We consider a parabolic restricted three body problem as a simple model to understand the effect of a close encounter of two galaxies and to give a mechanism that explain the formation of bridges and tails. The parabolic problem consist in the study of the motion of an infinitesimal mass under the gravitational influence of two masses (primaries) moving in two parabolic orbits. Taking into account just one particle, after the close encounter, the particle may stay, or jump to the other galaxy or escape. We will show that the invariant manifolds of the equilibrium points and the heteroclinic connections between explain the formation of bridges and tails.