

5007-70-175

**John Alexander Arredondo\*** (alexandro179@hotmail.com), Avenida San Rafael Atlixco No. 186, 09340 Mexico, D.F., Mexico. *Dynamics in the Schwarzschild isosceles three body problem*. Preliminary report.

In this poster I want to present a study of some aspects of the isosceles three body problem when the interaction between the masses is given by a Schwarzschild-type potential, based on a joint work with Dr. Ernesto Perez-Chavela and Dra. Cristina Stoica. We describe the dynamics with a two degrees of freedom Hamiltonian system and we study the relative equilibrium and their stability. Then we introduce new coordinates and reparameterize the time to regularize double and triple collisions. In these coordinates we define the collision manifold and study the orbits behavior on it. To get information of the global flow we analyze conditions to find central configurations, which allow to have heteroclinic solutions on an invariant manifold. These solutions are parametrized by the energy and the angular moment. We characterize the dynamics near collision orbits. In the main result of our investigation, we find a new kind of orbits where two of the particles follow a spiral trajectory with infinity spin, whereas the third particle is closer and closer to them. These new kind of trajectories present by first time in a problem with three particles, the black hole effect, studied previously in some two body problems. (Received May 05, 2013)