5007-37-212 **Luciano Coutinho Dos Santos*** (astrofisico2@yahoo.com.br), Avenida Afonso Pena 6627, Dept. Matemática, Belo Horizonte, MG 31270-901, Brazil, and **Sônia Pinto de Carvalho**.
Billiards on Surfaces of Constant Curvature.

The billiard problem consists in the free motion of a point particle in the plane region enclosed by a curve, being reflected elastically at the impacts with the boundary. It defines a class of discrete conservative dynamical systems on an annulus, that exhibits the richness of the conservative dynamics.

They were introduced by Birkhoff, at the beginnings of the XX century, and since then extensively studied by mathematicians and physicists.

In this work we deal with billiards on surfaces of constant curvature. We extend to the unit sphere and to the hiperbolic plane two known results of billiards on the Euclidean plane: the existence of at least one periodic orbit, parabolic or hyperbolic, for each given period (following Koslov and Trechev [4]) and a result of Ramírez-Ros [1], that gives conditions for the non persistence of resonant invariant curves for billiards on perturbations of the geodesic circle. (Received May 07, 2013)