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New families of relative equilibria in the curved N-body problem

The curved N-body problem is a generalization of the classical Newtonian N-body problem to spaces with constant curvature, in this talk we will consider the two dimensional case. Using the cotangent potential as a generalization of the Newtonian one, we describe new families of relative equilibria (an especial kind of periodic orbits which are invariant under the group of isometries acting on the corresponding surface). We show some new families of relative equilibria and study the linear stability of them.