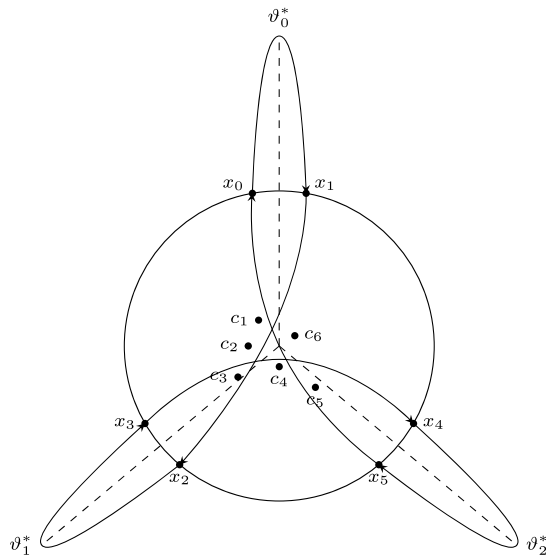


SYMBOLIC DYNAMICS FOR THE ANISOTROPIC N -CENTRE PROBLEM

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We consider the planar N -centre problem of Celestial Mechanics, assuming that each centre is endowed with a homogeneous anisotropic potential. As a peculiar difference with Newtonian potentials, the attraction field generated by every centre is no longer radial and the rotational symmetry is lost. These facts destroy the integrability of the system and prevent the use of collisions regularization methods such as the *Levi-Civita transform*. However, a law of conservation of the energy still holds and we show the existence of bounded periodic trajectories for *slightly* negative energies, employing both variational and perturbation methods. In particular, we show that, over a certain threshold on the homogeneity degree, all the solution trajectories of this system are collision-less. Consequently, the existence of a symbolic dynamics for the system is deduced, which is enriched by the important role played by the minimal central configurations of the potentials taken into account.

This is a joint work with Vivina Barutello and Susanna Terracini ([1]).



REFERENCES

- [1] V. BARUTELLO, G.M. CANNEORI, S. TERRACINI, *Symbolic dynamics for the anisotropic N -centre problem at negative energies*, Arch. Ration. Mech. Anal., 242 (3) pp. 1749–1834, 2021.