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On the stability of some dissipative systems with applications to Celestial Mechanics

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I will talk about recent results concerning the stability of some dissipative systems, precisely conformally symplectic systems. I will start with the description of a suitable KAM theory, which allows to prove the persistence of invariant attractors. In the neighborhood of rotational Lagrangian tori the motion can be described—after a suitable change of coordinates—by a rotation in the angles and a contraction in the actions. Finally, I conclude by analyzing the approximation of KAM tori by periodic orbits. An application to some models of Celestial Mechanics, e.g. the spin-orbit problem in rotational dynamics, is provided.

Most of these works are done in collaboration with R. Calleja and R. de la Llave.

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