

THEMATIC SESSION: Dynamical Systems

Computation of lower-dimensional elliptic tori via parametrization method

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In this talk, I will present an algorithm for computing lower dimensional elliptic tori in Hamiltonian systems using the parametrization method. The advantage of such a constructive technique is that it can be used to produce realistic (and, when combined with a computer-assisted proof, even rigorous) results in physical problems. As a difference with respect to previous results based on the normal forms approach, we fix the frequencies that describe the quasi-periodic motion on the torus and those that describe the oscillations in the transverse direction. Finally, I will present an application to the problem of four coupled pendula.

This is joint work with J-L. Figueras and A. Haro.