SUBJECT= 6

Control of stochasticity in magnetic field lines

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Chaos often represents a severe obstacle for the set-up of many-body experiments, e.g., in fusion plasmas or turbulent flows. We propose a strategy to control chaotic diffusion in conservative systems. The core of our approach is a small apt modification of the system which channels chaos by building barriers to diffusion. It leads to practical prescriptions for an experimental apparatus to operate in a regular regime (drastic enhancement of confinement). In this talk, a method of localised control of chaos in Hamiltonian systems will be presented. The aim is to modify the perturbation locally by a small control term which creates invariant tori. This localised control technique will be applied to the dynamics of magnetic field lines.

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