Shearless Barriers in Chaotic Symplectic Maps

Initially, we introduce shearless transport barriers created in nonmonotonic dynamical systems described by symplectic maps [1]. These barriers reduce the transport in the shearless region. After that we show that secondary shearless bifurcations can also occur in monotonic systems [2]. To show the presence of these barriers in confined plasmas, we present examples of two kinds of symplectic maps: the first kind describing the chaotic magnetic field line transport in plasmas with external resonant perturbations [3]; the second kind concerning the chaotic particle drift motion caused by electrostatic waves [3].

References