Gabriele Paternain
University of Cambridge, UK

Symplectic topology of Mañé's critical values
(joint work with Kai Cieliebak and Urs Frauenfelder)

Abstract

Consider a closed Riemannian manifold M and let σ be a closed 2-form whose pull-back to the universal covering of M is exact. I will discuss the changes in the symplectic topology of a hypersurface $|p|^2 = 2k$ in the twisted cotangent bundle determined by σ as k makes its transition from high energies to low energies. It has been known for some time (Aubry-Mather theory) that drastic changes in the dynamical properties of the hypersurface take place at the Mañé's critical values. I will try to relate these phase transitions to symplectic properties like displacement, stability and vanishing of the Rabinowitz Floer homology.