

TFM: Samuel Gutiérrez Corregidor

Curso: 2017-2018

Título: Symplectic geometry, symplectic group actions, and integrable systems.

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Resumen:

The first part of the thesis is concerned with the basic properties of symplectic manifolds, including for instance the local classification theorem of Darboux which says that locally all symplectic manifolds are equivalent, and therefore their invariants are necessarily global. We intend to explore the Darboux theorem also in the case when the manifold is modeled on a Cartesian product of the p-adic numbers (instead of a Cartesian product of the real numbers). The second part of the thesis concerns some of the fundamental properties of symplectic actions of tori (i.e. compact connected Abelian Lie groups) on compact manifolds, and of finite dimensional integrable Hamiltonian systems.