

Singular integral affine structures and completely integrable Hamiltonian systems

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Resumo

Classifying and constructing completely integrable Hamiltonian systems are two driving (hard!) questions in Hamiltonian mechanics, which have far reaching consequences and applications in various fields, ranging from symplectic topology to representation theory, algebraic geometry and spectral theory. This talk aims to present a possible framework to tackle both problems (under some mild assumptions) by introducing a differential-geometric notion of singular integral affine structures, which are particular Lagrangian submanifolds of cotangent bundles. This is ongoing work with Rui Loja Fernandes (University of Illinois at Urbana-Champaign).