

INTERCONNECTION OF DIRAC SYSTEMS FOR MORSE FAMILIES.

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Resumo/Abstract:

Dirac structures provide a framework to describe Hamiltonian and Lagrangian mechanics by means of Dirac systems. Such systems are given implicitly by a Lagrangian submanifold defined by the differential of a function. Here, we extend the notion of Dirac system to Lagrangian submanifolds given by a Morse family. Examples such as constrained variational calculus on Poisson manifolds, optimal control problems can be described intrinsically with this new approach. Moreover, the notion of backward and forward Dirac structures allow us to describe the interconnection of Dirac systems.