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The recent developments of the geometrical formalism associated with a structure of algbroid or quasi--algbroid on a manifold gives rise to a general context for study of non-holonomic mechanical systems. This formalism can be considered as a generalization of the formalism introduced by J. Grifone on the tangent bundle of a manifold.
We shall begin by making a complete presentation of this theory. Then, we shall apply this formalism within the framework of sub-riemannian geometry. It will allow us on one hand to give intrinsic characterizations of the « hamitonian » geodesics , but also to define in a intrinsic way some Lévi-Civita connection of (and all its associated invariants), what recovers the classical non-intrinsec constructions of these objects in sub-riemannian geometry (cf Sub-Riemannian geometry: general theory and example, Ovidiu Calin Der-Chen Chang). Finally, we shall show how these constructions can be adapted « singular » sub-riemannian geometry

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