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Sommario/riassunto	The goal of this monograph is to answer the question, is it possible to solve the dynamics problem inside the configuration space instead of the phase space? By introducing a proper class of vector field – the Cartesian vector field – given in a Riemann space, the authors explore

the connections between the first order ordinary differential equations (ODEs) associated to the Cartesian vector field in the configuration space of a given mechanical system and its dynamics. The result is a new perspective for studying the dynamics of mechanical systems, which allows the authors to present new cases of integrability for the Suslov and Veselova problem; establish the relation between the Cartesian vector field and the integrability of the geodesic flow in a special class of homogeneous surfaces; discuss the importance of the Nambu bracket in the study of first order ODEs; and offer a solution of the inverse problem in celestial mechanics.