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TITLE: Well posedness of ODE's for nonsmooth velocities and in non-Euclidean ambient spaces: a survey

ABSTRACT. In this lecture I will make a survey on the theory of ODE's associated to nonsmooth

vector fields. Initiated in a seminal paper by R.DiPerna and P.L.Lions, who dealt with Sobolev vector fields,

has found many applications to PDE's and even to Geometric Analysis. By a combination

of Lagrangian and Eulerian techniques, more general classes of vector fields and more general

ambient spaces have been included in the theory.