

Workshop on "Geometry of vector distributions, differential equations, and variational problems"

SISSA, Trieste, Italy, 13–15 December 2006

Abstracts of the talks

Frederic Jean (ENSTA, Paris, France) *Generic results for horizontal and singular curves of rank-varying distributions.*

In this talk, we provide characterizations for singular curves of rank-varying distributions. We prove that, under generic assumptions, such curves share nice properties, related to computational aspects; more precisely, we show that, for a generic rank-varying distributions (with respect to the Whitney topology), all nontrivial singular curves are of minimal order and of corank one. As a consequence, for a Riemannian manifold (M, g) and for a generic rank-varying distribution D of dimension at least 3, the sub-Riemannian manifold (M, D, g) does not admit nontrivial minimizing singular curves. We also prove that, given a rank-varying distribution, singular curves are strictly abnormal, generically with respect to the Riemannian metric. We then show how these results can be used to derive regularity results for the distance function and in the theory of Hamilton-Jacobi equations.