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GEOMETRY AND ANALYSIS IN FUNCTION AND MAPPING THEORY ON EUCLIDEAN AND METRIC MEASURE SPACES

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WARSAW | BĘDLEWO

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Variations for submanifolds in graded manifolds

Friday, November 15, 15:30

room 321

Abstract:

The aim of this talk is to present the deformability properties of submanifolds immersed in graded manifolds that are a generalization of Carnot manifolds. We consider an area functional defined on submanifolds of fixed degree immersed into a graded manifold equipped with a Riemannian metric. Since the expression of this area depends on the degree, not all variations are admissible. It turns out that the associated variational vector fields must satisfy a system of partial differential equations of first order on the submanifold. Moreover, given a vector field solution of this system, we provide a sufficient condition that guarantees the possibility of deforming the original submanifold by variations preserving its degree. In the one-dimensional case, the integrability of compact supported vector fields depends on the surjection of the holonomy map at the endpoints. As in the case of singular curves in sub-Riemannian geometry, there are examples of isolated surfaces that cannot be deformed in any direction. This talk is based on my joint work with G. Citti and M. Ritoré.

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