Conformality and $Q$–harmonicity in sub-Riemannian manifolds

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December 15–19, 2014

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Abstract

I will talk about work in progress joint with Enrico Le Donne (Jyvaskyla) and Alessandro Ottazzi (CIRM Trento). We prove equivalence of several natural notions of conformal maps between subRiemannian manifolds. Our main contribution is in the setting of those manifolds that support a suitable regularity theory for subelliptic $p$-laplacian operators. For such manifolds we prove a Liouville type theorem, i.e., 1-quasiconformal maps are smooth. The main new technical tools are a subRiemannian version of $p$-harmonic coordinates and a technique of propagation of regularity from horizontal layers.