Mathematics > Metric Geometry

Some properties of Hölder surfaces in the Heisenberg group

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It is a folk conjecture that for alpha > 1/2 there is no alpha-Hoelder surface in the subRiemannian Heisenberg group. Namely, it is expected that there is no embedding from an open subset of R^2 into the Heisenberg group that is Hoelder continuous of order strictly greater than 1/2. The Heisenberg group here is equipped with its Carnot-Caratheodory distance. We show that, in the case that such a surface exists, it cannot be of essential bounded variation and it intersects some vertical line in at least a topological Cantor set.

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