

Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5)
Vol. III (2004), pp. 871-896

Rectifiability and Parameterization of Intrinsic Regular Surfaces in the Heisenberg Group

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Abstract. We construct an intrinsic regular surface in the first Heisenberg group $\mathbb{H}^1 \cong \mathbb{R}^3$ equipped with its Carnot-Carathéodory metric which has Euclidean Hausdorff dimension 2.5. Moreover we prove that each intrinsic regular surface in this setting is a 2-dimensional topological manifold admitting a $\frac{1}{2}$ -Hölder continuous parameterization.

Mathematics Subject Classification (2000): 28A75 (primary); 28A78, 22E25 (secondary).