Characterizations of intrinsic rectifiability in Heisenberg groups

PERTTI MATTILA, RAUL SERAPIONI AND FRANCESCO SERRA CASSANO

Abstract. We define rectifiable sets in the Heisenberg groups as countable unions of Lipschitz images of subsets of a Euclidean space, in the case of low-dimensional sets, or as countable unions of subsets of intrinsic C^1 surfaces, in the case of low-codimensional sets. We characterize both low-dimensional rectifiable sets and low codimensional rectifiable sets with positive lower density, in terms of almost everywhere existence of approximate tangent subgroups or of tangent measures.