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Singular integrals on Heisenberg curves

Abstract: In 1977, Calderon proved that the Cauchy transform is bounded as a singular integral operator on the L_2 space of Lipschitz graphs in the complex plane. This subsequently sparked much work on singular integral operators on subsets of Euclidean space. It is now known that the boundedness of singular integrals of certain odd kernels is intricately linked to a rectifiability structure of the underlying sets. We study this connection between singular integrals and geometry for 1-dimensional subsets of the Heisenberg group where we find a similar connection. However, the kernels studied turn out to be positive and even, in stark contrast with the Euclidean setting. Joint work with V. Chousionis.