SINGULAR INTEGRALS ON REGULAR CURVES IN THE HEISENBERG GROUP

A result by A. P. Calderón from 1977 says that the Cauchy transform is bounded on L^2 on Lipschitz graphs in the plane with sufficiently small Lipschitz constant. The assumption on the slope of the graphs could later be removed by R. R. Coifman, A. McIntosh, and Y. Meyer, and the result was extended by G. David to a more general class of singular integral operators (SIOs) induced by smooth -1-homogeneous odd kernels on 1-regular curves. These works mark the beginning of an active line of research at the interface of geometric measure theory and harmonic analysis. In the talk I will discuss recent developments regarding SIOs induced by "horizontally odd" -1-homogeneous kernels on 1-regular curves in a non-Euclidean metric space, the Heisenberg group. This is based on joint work with Tuomas Orponen.