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Philadelphia, PA 19122. *Pompeiu problem on the Heisenberg group and non-radial solids.*

The current work continues previous work on the Pompeiu problem in the setting of the Heisenberg group. The goal is to address certain aspects of the problem which are understood in Euclidean space and to determine whether these results are still valid in the setting of the Heisenberg group. The spherical function transform, applied to this problem by Agranovsky, Berenstein, Chang, and Pascuas, was extended to an \mathbf{m} -homogeneous version in previous work. One of our primary goals here is to determine whether this \mathbf{m} -spherical transform can be extended to be applied to non-homogeneous functions. We may also address what other approaches may be applicable when considering the Pompeiu problem for non-radial solids in this setting of the Heisenberg group. (Received February 07, 2006)