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Fractional Calculus, Sobolev Spaces and Related Rules on Spaces of Homogeneous Type

A Space of Homogeneous Type (X, δ, ν) is a generalization of the Euclidean Space R^n.(X, δ, ν) is a space with a metric δ (more generally δ is a quasi-metric) and a doubling measure ν. These spaces were introduced by R. Coifman and G. Weiss in 1972. We show that the M. Riesz classical Fractional Calculus can be extended to these spaces. Most of these results are joint work with C. Segovia and S. Vagi.

References: 1. A. Eduardo Gatto, Carlos Segovia and Stephen Vági, On fractional differentiation and integration on spaces of homogeneous type. Revista mathematica Iberoamericana vol. 12, No. 1, 1996. 2. A. Eduardo Gatto and Stephen Vági, On Sobolev Spaces of Fractional Order and ε-families of Operators on Spaces of Homogeneous Type. To appear in Studia Mathematica.