

Fractional Degenerate Poincaré-Sobolev inequalities

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In this lecture we will discuss some recent results concerning fractional Poincaré and Poincaré-Sobolev inequalities with weights. These results improve some celebrated results by Bourgain-Brezis-Minoreanu, Maz'ya-Shaponiskova unified by M. Milman. Our approach is based on methods from Harmonic Analysis. We will first consider the usual context of cubes but also we will discuss some new results in the multiparameter setting improving some results by Shi-Torchinsky and Lu-Wheeden from the 90's.