

Classical multiplier theorems and their sharp variants

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The question of finding good sufficient conditions on a bounded function m guaranteeing the L^p -boundedness of the associated Fourier multiplier operator is a long-standing open problem in harmonic analysis. In this talk we recall the classical multiplier theorems of Hörmander and Marcinkiewicz and present their sharp variants in which the multiplier belongs to a certain fractional Lorentz-Sobolev space. The talk is based on a joint work with L. Grafakos and M. Mastyło.