

Bilinear multiplier theorems and rough singular integrals

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A version of the Hormander multiplier theorem for m -linear singular integrals on R^n is obtained. This version only requires $mn/2 + \epsilon$ derivatives of the multiplier localized in an annulus to be in L^2 (uniformly in all annuli). An analogous condition is obtained for multipliers with only ϵ derivatives in L^1 , where ϵ is arbitrarily small. Applications are given in the context of multilinear singular integrals with rough kernels.