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(Article begins on next page)

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L^p microlocal properties for vector weighted pseudodifferential operators with smooth symbols

Abstract

The authors introduce a class of pseudodifferential operators, whose symbols satisfy completely inhomogeneous estimates at infinity for the derivatives, namely:

$$|\partial_{\xi}^{\alpha} \partial_x^{\beta} a(x, \xi)| \leq c_{\alpha, \beta} m(\xi) \Lambda(\xi)^{-\alpha},$$

where $m(\xi)$ is a suitable positive continuous weight function, which indicates the “order” of the symbol, and $\Lambda(\xi) = (\lambda_1(\xi), \dots, \lambda_n(\xi))$ is a weight vector.

Continuity properties in suitable weighted Sobolev spaces of L^p type are given and L^p microlocal properties studied.

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