Mathematics > Functional Analysis

Approximation of Fourier Integral Operators by Gabor multipliers

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A general principle says that the matrix of a Fourier integral operator with respect to wave packets is concentrated near the curve of propagation. We prove a precise version of this principle for Fourier integral operators with a smooth phase and a symbol in the Sjoestrand class and use Gabor frames as wave packets. The almost diagonalization of such Fourier integral operators suggests a specific approximation by (a sum of) elementary operators, namely modified Gabor multipliers. We derive error estimates for such approximations. The methods are taken from time-frequency analysis.

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