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Gabor multipliers in imaging

Gabor multipliers are a class of linear operators representing localized Fourier multiplier which operate on signals in the time-frequency domain. We have developed this family of operators for rapid numerical approximation to solutions of PDEs, for use in the solution of the inverse problems that arise in seismic imaging. Analogous to the pseudodifferential calculus, we demonstrate an approximate functional calculus for Gabor multipliers on generalized frames and indicate their application to source-signature separation in Q-attenuated seismic signal propagation, deconvolution, and seismic migration.

This is joint work with Drs. Peter Gibson (York) and Gary Margrave (Calgary).