Microlocal analysis of continuous shearlet transform

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Abstract: Wavefront sets play a key role in partial differential equations, tomography and inverse problems. Continuous shearlet transform have been proven to cap- ture the location and geometries of the singularities of a distribution. We define a continuous shearlet transform and characterize wavefront sets in different cat- egories depending on the decay properties of the shearlet transform. We verify our results with several examples.