Oscillatory integral operators with degenerate phases

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Abstract

A basic problem in harmonic and microlocal analysis is finding the relationship between the L^2 estimates satisfied by an oscillatory integral operator and the degeneracies of its phase function. One way of describing such a relationship is by expressing the rate of decay in terms of the singularity types of the two projections, to the left and right, from the canonical relation defined by the phase. We will discuss some known results and open problems from this point of view.