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## WEIGHTED ESTIMATES FOR OSCILLATORY FOURIER MULTIPLIERS

We present Fefferman-Stein  $L^2$  weighted inequalities for some classes of oscillatory Fourier multipliers in  $\mathbb{R}^d$  which allow to recover the sharp  $L^p - L^q$  bounds on those multipliers. The techniques rely on Littlewood-Paley type decompositions at scales finer than dyadic.

The talk is organised as follows. First, we give a survey of the more classical setting of the Hörmander-Mikhlin multiplier theorem and standard Littlewood-Paley decompositions. This will prepare the ground for our results.

Then we introduce the classes of multipliers under study, which include the solution to the free Schrödinger operator and highly oscillatory convolution kernels. Finally, we provide the idea behind the proof of our weighted inequalities, stressing the importance of good orthogonality properties of *subdyadic* frequency projections.