Microlocal analysis over the Maslov cycle

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Resumo/Abstract:
In the lagrangian grasmannian Λ of lagrangian subspaces in $T^*\mathbb{R}^n$, the elements which

have nonzero intersection with the fibre over 0 form a codimension 1 cooriented subvariety Σ with singular set of codimension 3 in Λ. Σ is called the Maslov cycle, as it is dual to the Maslov class in $H^1(\Lambda, \mathbb{Z})$.

According to a much more general result of Givental, Σ is the image under the cotangent projection of a smooth, conic lagrangian submanifold $\mathcal{S}$ in the cotangent bundle of Λ with the zero section removed. In this talk, I will describe a distribution (i.e. generalized function) ϕ on Λ whose singular support is Σ and whose wave-front set is $\mathcal{S}$. ϕ is, in fact, a so-called Fourier integral distribution attached to $\mathcal{S}$. I will make some remarks on the Maslov class of $\mathcal{S}$, which determines the bundle where the principal symbol of ϕ takes its values, and on the regularity properties of ϕ.

Finally, I will explain how the results above fit into a larger program of describing "impossible operations" on distributions as generalized functions on spaces of distributions.