Wave front sets and time-frequency analysis

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The concept of wave front set is the main notion in microlocal analysis. We present different situations where this concept turned out to be useful. More precisely, we illustrate its use in the geometric separation problem, quantum field theory and partial differential equations. Then we give a short overview of different definitions of wave front sets, adjusted to particular aims. For example, we consider wave front sets in the context of Gevrey and extended Gevrey regularity, cf. [4, 5, 6].

The second part of the lecture is devoted time-frequency analysis of wave front sets. In particular, we take a look at micro-local analysis of modulation spaces [2, 3] and discuss the relation between the continuum and the discrete counterparts [1].

References

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