

## Wave Front Sets and Related Topics

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We give a brief look at some aspects of different fields of studies in which the concept of wave front set plays a prominent role.

We proceed by offering a chronology of results related to the qualitative analysis of partial differential equations which may serve as an inspiration to introduce the "classical" notion of the wave front set of a distribution. Then, after introducing the wave front set, we mention several of its modifications, aimed to serve different purposes.

The last part of the lecture is devoted to the resolution of wave front sets in the context of time-frequency analysis. This is done by the use of usual integral transforms such as the wavelet, the shearlet and the short-time Fourier transform. Finally, for digitization of the existing continuum theory of wave-front sets we discuss the notion of discrete wave-front set.