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"PDEs and Singularities"

Abstract:

The pioneer Whitney theorem on singularities of maps from a plane to plane gave birth to the Thom - Malgrange - Mather theory of singularities of differential maps. The machinery of singularity theory proved to be efficient in many applications including Arnold's theory of caustics and wave fronts describing singularities of solutions of Hamilton-Jacobi partial differential equations.

Can the theory say anything about solutions of more general PDEs? This challenge as well as several relevant issues of algebraic geometry, analysis and mathematical physics are to be addressed in the lecture.