



复旦大学数学科学学院 数学综合报告会

报告题目: Inverse Nonlinear Scattering by a Metric

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时间: 2026-04-08 星期三 13:30-14:40

地点: 光华楼东主楼1601

报告摘要:

We consider the inverse problem of recovering a time-dependent metric from scattering data. We show that from the knowledge of the scattering operator for a semilinear wave equation one can recover the metric up to natural obstructions. To this end, we construct receding waves with conormal singularities and analyze the nonlinear interaction. The new singularities produced in the interaction enables us to recover the family of the so-called scattering light observation sets, from which the metric can be reconstructed up to conformal diffeomorphisms. In particular, to overcome the difficulty caused by caustics, we develop a layer-stripping method to reconstruct the metric in accessible regions of the manifold step by step.

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