Analysis and Differential Geometry Seminar

Stability and Statistical Inversion for Travel Time Tomography

Hanming Zhou

University of California, Santa Barbara

Abstract: In this talk, we consider the travel time tomography for conformal metrics on a bounded domain which consists of determining the conformal factor of the metric from the length of geodesics joining boundary points. We establish forward and inverse stability estimates for simple conformal metrics under some a priori conditions. We then apply the stability estimates to show the consistency of the statistical inversion of the travel time tomography with discrete, noisy measurements. This is based on joint work with Ashwin Tarikere.

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Mathematics and Science Center: MSC W301

Mathematics
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