

Photo-acoustic and Thermo-acoustic Tomography in an Inhomogeneous Medium

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Photo-acoustic and Thermo-acoustic tomography are hybrid medical imaging modalities where optical waves or electromagnetic waves and ultrasound waves are coupled. The propagation of ultrasound waves is typically modeled as an inverse source problem for the acoustic wave equation. In this talk the speaker will discuss the inverse source problem in an inhomogeneous medium where the wave speed is variable. Two types of measurement are to be considered: one from pointwise detectors while the other from large planar detectors. The speaker will prove uniqueness and stability on the recovery of the source, and give reconstruction procedures for the source or its singularities. This is based on joint work with Plamen Stefanov.