

**Simultaneous Determination of Sound Speed and Initial Data for the Photoacoustic Tomography Problem**

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The photoacoustic tomography is a biomedical imaging modality whose purpose is to determine absorption properties of a biological medium in order to identify tissues and check if they are safe or not. This modality has many applications including detection of tumors diagnostic of breast cancer. In this talk, we will consider the acoustic inversion, which is one of the steps of the photoacoustic tomography problem, when the sound speed is unknown. Mathematically, our problem can be stated as the simultaneous determination of a coefficient and an initial data of an initial value problem associated with wave equations from measurement on a surface of the solution. This talk is based on a joint work with Gunther Uhlmann.