

ISSUES IN THERMOACOUSTIC TOMOGRAPHY

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Thermoacoustic Tomography (TAT) is a non invasive imaging modality [1,2], which can be used in various domains such as medical imaging or small animal imaging. It can be described as follows : the sample to be imaged is illuminated by a pulsed electromagnetic energy, which results in a non-uniform thermoelastic expansion. The emitted pressure wave depends on the distribution of absorbed energy f , and the inverse problem one is then facing is that of recovering f from measurements of the acoustic pressure field performed outside the sample.

In this talk, we shall first review various aspects of the physical and mathematical modellings of TAT, and then consider several issues concerning the reconstruction problem. We shall discuss in particular the possibility and interest of an approach based on the notion of regularization by mollification [3,4].

References

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