

Optimal control techniques for photo-acoustic tomography

Maitine Bergounioux¹

Abstract

In this talk, we present the photo-acoustic tomography principle and a classical model that describes the acoustic wave propagation together with the fluence rate equation (deduced from the radiative transfer equation.)

We discuss the direct model and present the inverse problem that permits to recover the absorption and the scattering coefficients. Optimal control techniques are used to get optimality conditions. We present numerical simulations.

This is a joined work with X. Bonnefond (MAPMO), Y. Privat (IRMAR-Rennes) and T. Haberkorn (MAPMO)

¹University of d'Orléans, MAPMO, CNRS, UMR 7349,
Fédération Denis Poisson, FR 2964,
Bat. Math., BP 6759,
45067 Orléans cedex 2, France
maitine.bergounioux@univ-orleans.fr.