Abstract. In this talk, I will present an inverse problem in photo-acoustic tomography. The aim is to recover and characterize the absorption coefficient of a soft body. The inverse problem is formulated as a problem of optimal control in which the control variable is the coefficient to retrieve.

The result of existence of at least one optimal control was proved in « An optimal control problem in photoacoustic tomography » by M. Bergounioux et al.

In this presentation, I will deal with the problem of the uniqueness of the optimal solution (absorption coefficient) and also I will present a study on the sensitivity of this solution with respect to variations of the source of illumination and with respect to observation.