



# THE UNIVERSITY OF CHICAGO

Department of Statistics

## STATISTICS COLLOQUIUM

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GUILLAUME BAL

Applied Mathematics  
Columbia University

Mathematical Questions in Ultrasound Elastography

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Eckhart 202, 5734 S. University Avenue

### ABSTRACT

Ultrasound Elastography is a medical imaging modality aiming to reconstruct the elastic properties of biological tissues from sonic wave measurements. Mathematically, this reconstruction may be modeled as a succession of two inverse problems. The first one aims to reconstruct elastic displacements from the available measurements. This may be modeled as a wave propagation problem in highly disordered media. The second inverse problem aims to reconstruct constitutive coefficients in a partial differential equation from knowledge of internal functionals such as, in the setting of elastography, the solution itself. This talk will present some results obtained recently on these two and related inverse problems.