Meeting: 1003, Atlanta, Georgia, SS 4A, AMS-SIAM Special Session on Theoretical and Computational Aspects of Inverse Problems, I

1003-35-1631 **Anna L Mazzucato** and **Lizabeth V Rachele*** (`rachel@rpi.edu`), Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, NY 12180. *Inverse Problems for Anisotropic Elastic Media.*

In this joint work with Anna Mazzucato we consider dynamic inverse problems for bounded, three-dimensional anisotropic elastic media with smoothly varying density and elastic properties.

We characterize an ambiguity that arises in sensing the material properties of the interior of a bounded anisotropic elastic object, given displacement-traction measurements made at the surface. We also present a class of transversely isotropic elastic media within which disturbances propagate along geodesics of Riemannian metrics. We study the dynamic inverse problem for these anisotropic elastic media. (Received October 05, 2004)