1027-35-37 **Joyce R McLaughlin*** (mclauj@rpi.edu), Rensselaer Polytechnic Institute, Math Department Amos Eaton Bldg. room 414, 110 8th Street, Troy, NY 122180. *Creating a new medical diagnostic tool by imaging shear stiffness in tissue.*

We: (1) describe three experiments designed to measure displacement of an induced propagating shear wave based on ultrasound or MR; (2) give hypothesized criteria, based on tissue biomechanical properties, for finding tumors and distinguishing benign from cancerous tumors; (3) present algorithms based on level set methods or on statistically justified averaging; discuss resolution and sensitivity; and (4) show the images our algorithms produce with phantom, in vitro and in vivo acquired data. The target is breast cancer and prostate cancer. (Received February 01, 2007)