SHEAR WAVE SPEED RECOVERY IN CRAWLING WAVE SONOELASTOGRAPHY

Ashley Thomas
RPI

Abstract

In elastography, the goal is to recover biomechanical properties of tissue from wave propagation data. The crawling wave technique is a recent development in ultrasound elastography in which two harmonic excitations are made at nearby frequencies, creating a moving interference pattern of shear waves. If the two frequencies are chosen appropriately, the interference pattern travels slowly enough that its propagation can be captured on traditional ultrasound machines. In this talk we present a method for recovering the shear wave speed from crawling wave data. In addition, we show that we are able to use crawling wave data to identify prostate cancer in vitro by imaging the shear wave speed. We also describe how our imaging method can be applied when displacement data from two independent shear waves are combined to create a synthetic moving interference pattern.