Photo-acoustic NeedleScope

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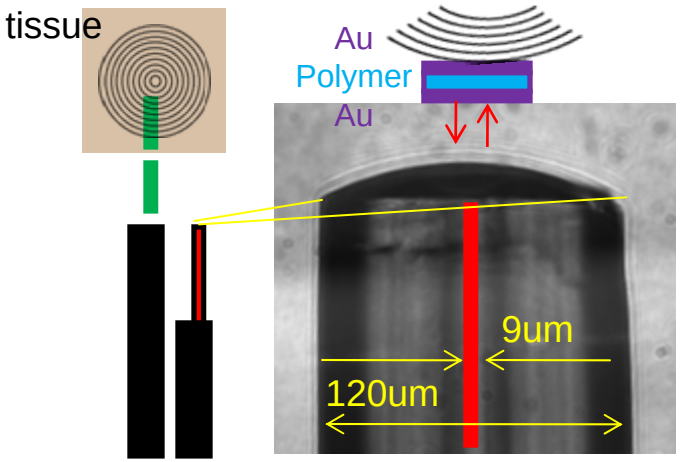
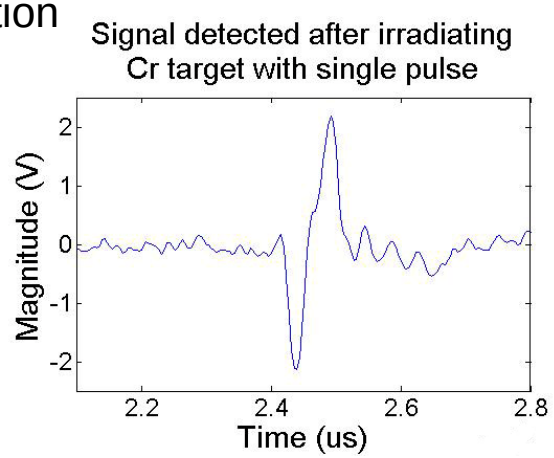
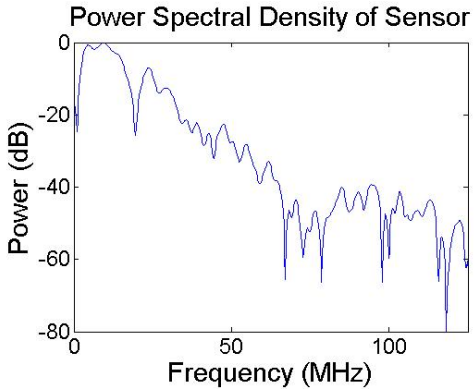
- **Objective**: to create a miniature ultrasound device to mount on the tip of a biopsy needle for image-guidance.
  - Deposit materials for an opto-acoustic sensor on tip of optical fiber using e-beam evaporation
  - Pair sensor with fiber transmitting at 532nm



- **Major Observations**
  - Sensor exhibits optical and mechanical resonance suitable for opto-acoustic ultrasound detection
  - Transmitting fiber emits intensities at a wavelength required for photo-acoustic generation in blood
  - Fibers have been successfully paired to create a complete transmit/receive ultrasound transducer





- **Publications**
  - C. Sheaff, N. Lau, H. Patel, S. Huang, and S. Ashkenazi. *Photoacoustic Imaging Endoscope*, International Conference of the IEEE Engineering in Medicine and Biology Society, Minneapolis, MN, USA, September 2-6, 2009 (IEEE, 2009).