UNIVERSITY OF TEXAS ARLINGTON | OFFICE OF TECHNOLOGY MANAGEMENT

Apparatus for Guidance of a Prostate Needle Biopsy

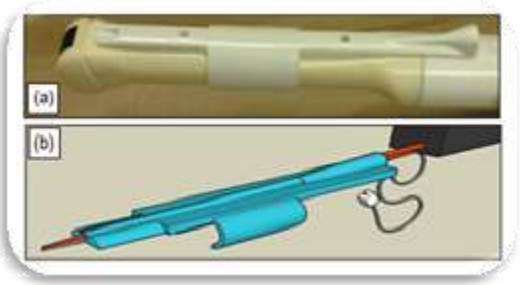
(UTA 09-59)

Technology Need:

Fifteen percent of men will be diagnosed with prostate cancer. The current method to screen for prostate cancer involves taking a sample of the prostate to then test, outside of the body, for the presence of cancer. Unfortunately, technology does not allow for the sampling of the prostate to be guided but rather simply taken at random. An invasive procedure is completed that leaves locating cancer up to chance. Although MRI can be used to guide a needle biopsy, it is more costly and time consuming.

Solution/ Offering:

Researchers here at UTA have developed an apparatus that enables clinicians to distinguish between healthy and cancerous tissue quickly enough to guide a needle biopsy procedure as it is occurring. The apparatus makes use of steady state broadband spectrometry and can be controlled by a computer for automated movement. The device allows for increased likelihood of catching aggressive prostate cancer early since the accessibility of a guidance mechanism and the effectiveness of the needle biopsy are both enhanced by this technology.



(a) End-fire transrectal ultrasound probe with needle probe holder attachment. (b) Proposed geometry for the combined needle/optical fiber holder.

Value Proposition:

- ✓ Increases effectiveness of current prostate cancer screening and treatment
- ✓ Increased accessibility to quality treatment
- ✓ Saves clinicians and patients time and money

Industrial application:

- ✓ Healthcare -
  Needle Biopsy
  Cancer Screening

Patent Status:

- ✓ Publication Number- US20110319759 A1

Publication:

- ✓ Sharma, Vikrant, et al. "Optical reflectance spectroscopy for detection of human prostate cancer." *Engineering in Medicine and Biology Society, 2009. EMBC 2009. Annual International Conference of the IEEE.* IEEE, 2009.

Meet the Inventor

Dr. Hanli Liu is a Bioengineering Professor at the UTA. She received here B.S. in Physics from Beijing Normal University in 1983 and both her M.S. in Physics and Ph.D. in Applied Physics from Wake Forest University in 1990 and 1994, respectively. Her research interests lie in medical instrumentation and imaging, as well as minimally invasive and non-invasive spectroscopy and optical diffuse cancer prognosis. She is a member of the International Optical Engineering Society (SPIE), IEEE Lasers and Electro-Optical Society (IEEE-LEOS), and American Physical Society (APS) among others.

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