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.

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.