

# Estimation of Interstitial Fluid Pressure and Velocity in Cancers

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## Technology description

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## Estimation of Interstitial Fluid Pressure and Velocity in Cancers

### Overview

Interstitial fluid pressure (IFP) is a mechanical parameter of enormous clinical significance, which affects diagnosis, prognosis, and treatment of cancers. IFP is an influential component of the cancer microenvironment that plays a crucial role in cancer initiation, growth, and metastasis. The interstitial fluid velocity (IFV) is another parameter, which is related to the gradient of the IFP, that significantly affects the metastatic nature of cancer and the effectiveness of drug delivery therapies in cancer. Currently, there are no non-invasive methods to assess and image the IFP/IFV inside a tumor.

### Technology

We have designed a new non-invasive technique based on ultrasound imaging and proved that this technique could simultaneously image both IFP and IFV in a cancer tumor (as well as an addition of five mechanical parameters) all from the same set of ultrasound data. Ultrasound data for this technique are acquired in a manner similar to that employed in clinical settings today. The tissue will need to be slightly compressed for a few minutes while the probe is in contact with the tissue. From the acquired ultrasonic data, IFP and IFV inside a cancer can be computed using dedicated software with novel algorithms tailored for this application.

### Research Interests

Ultrasonic Imaging

Ultrasound methods for imaging the mechanical behavior of soft tissues

Medical uses of ultrasound

Biomedical Imaging



# TECHNOLOGY COMMERCIALIZATION

## Application area

Cancer clinical research

Cancer treatment

## Advantages

Non-invasive

No imaging contrast agents required

No radiation employed

Suitable for frequent follow-ups from patients

Portable

Low cost

## Institution

[Texas A&M University](#)

## Inventors

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