

A Wireless Implantable Passive Intra Abdominal Pressure Sensing Scheme via Ultrasonic Imaging of a Microfluidic Device

Microfluidic device read via ultrasound to monitor intra-abdominal pressure noninvasively.

In order to help patients of abdominal compartment syndrome (ACS), researchers at Purdue University have developed a method for wirelessly measuring intra-abdominal pressure via the ultrasonic imaging of a passive implantable device. This implantable device enables noninvasive measurement of pressure data that can be used by health professionals to diagnose and treat ACS in a more informed and responsive manner. By helping better inform decisions, this technology could be used to reduce morbidity and increase overall survival in patients with risk of ACS. This technology has applications in the medical device space to measure in-vivo pressures via ultrasound in order to help patient outcomes.

Advantages:

- Wireless measurement of pressure via ultrasound
- Gives doctors easier access to patient conditions
- Non-invasive monitoring of patient, once device is implanted

Applications:

- Monitoring of abdominal compartment syndrome
- In vivo pressure monitoring
- Implantable Medical Devices
- Biotechnology

Technology Validation: this technology has been validated through ex vivo demonstration of 600 cycles at pressures up to 55 kPa over the course of 2 days.

Technology ID

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Category

Digital Health &
Medtech/Remote Patient
Monitoring & Telehealth
Digital Health &
Medtech/Wearable Health Tech
& Biosensors
Digital Health & Medtech/AI in
Medical Imaging
Digital Health &
Medtech/Implantable Medical
Devices
Biotechnology & Life
Sciences/Analytical & Diagnostic
Instrumentation

Further information

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Related Publications: H. Jiang et al., "A Wireless Implantable Passive Intra-Abdominal Pressure Sensing Scheme via Ultrasonic Imaging of a Microfluidic Device," in IEEE Transactions on Biomedical Engineering, vol. 68, no. 3, pp. 747-758, March 2021, doi: 10.1109/TBME.2020.3015485.

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