Docket #: S09-234

Micromachined Ultrasonic Transducer Having Compliant Post Structure

Researchers in the Khuri-Yakub Ultrasonics Group have developed a novel micromachined ultrasonic transducer device with improved performance. The unique post structure design creates a translational piston-like movement that generates more average displacement of the top plate in both transmit and reception mode than conventional CMUT (capacitive micromachined ultrasonic transducer). The transducer can be designed for both types of electrostatic actuators, parallel plate or comb-drive. Applications for this technology include imaging and non-destructive testing.

Stage of Research
The inventors have fabricated a prototype and this device is being characterized.

Applications

- **Ultrasound imaging**
- Non-destructive testing

Advantages

- **Better displacement** of the top plate (and therefore surrounding medium) than conventional CMUT
- **Well-established fabrication techniques** of integrated circuits and Micro-Electro-Mechanical Systems (in contrast to piezoelectric transducer)
- **Versatile** transducer can be designed for parallel plate or comb-drive actuators

Publications

- US Patent Application 20110050033

Patents

- Published Application: 20110050033
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Innovators

- Butrus Khuri-Yakub
- Amin Nikoozadeh

Licensing Contact

David Mallin

Licensing Manager, Physical Sciences

Email