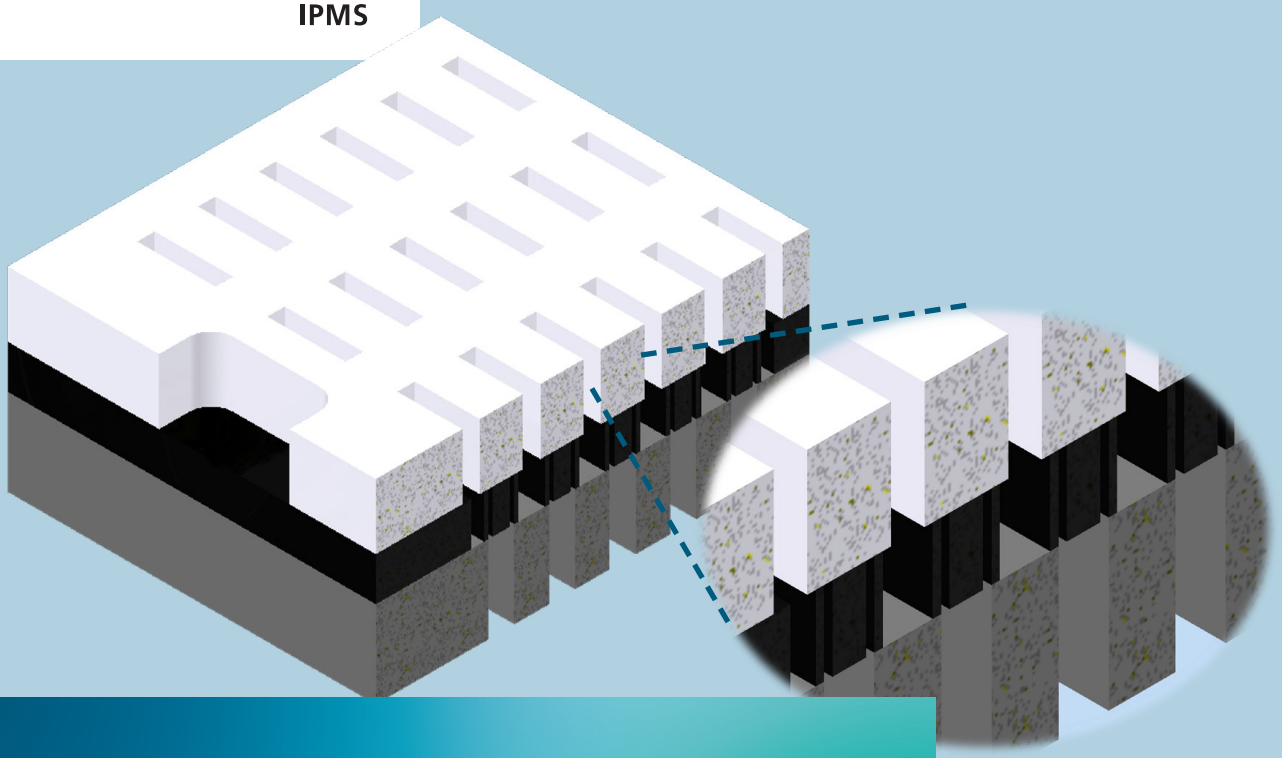
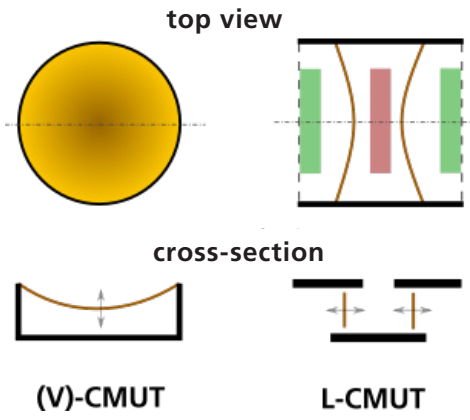
Fraunhofer IPMS



L-CMUTs

Micromachined ultrasound transducers

Micromachined ultrasound transducers (MUT) offer companies an innovative development platform for precise measurement and diagnostics with the following key features: miniaturization, increased sensitivity and efficient array functionality.



L-CMUTs

L-CMUTs are a development of MUTs at Fraunhofer IPMS, which differ from classical electrostatic driven MUTs (CMUTs) by their design. Instead of a membrane, the volume of the chip is used to generate sound by means of laterally (L) moving elements. This results in potentially high specific sound pressures, high bandwidth and significantly lower frequencies for long ranges in air that can be achieved with MUTs.

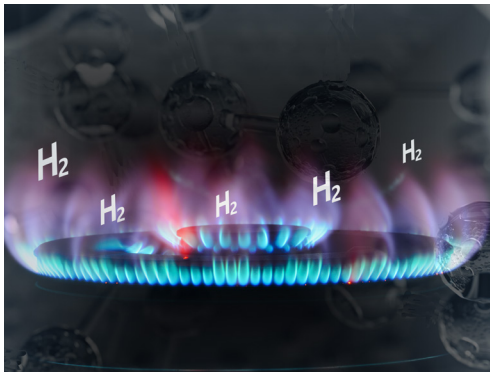
Typical characteristics

- Frequency: from audible sound range: 20 – 300 kHz
- Range: centimeters to a few meters
- Resolution: centimeters to millimeters
- Media: gaseous

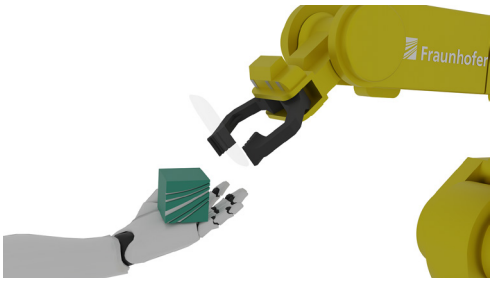
Find out more on our website:

Application examples

Distance measurement
MUTs are used for distance measurement with an indication of direction.



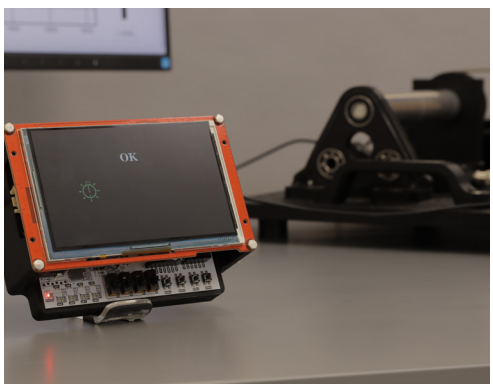
Industry: Flow sensor, concentration sensor
With the help of low-frequency ultrasound of L-CMUTs, flow and concentration of e.g. H_2 can be determined.



Robotics
MUTs are used in environment recognition for collaborative robots.

Industry: Recognition of individual parts on a conveyor belt
L-CMUTs detect and classify individual parts, for example on conveyor belts in industrial production.

Gesture recognition in a museum
L-CMUTs serve as human-machine interfaces and thus as input devices for exhibits, for example.



Industry: Predictive maintenance
L-CMUTs enable applications in predictive maintenance of machines and machine parts.

Contact

Dr. Sandro Koch
+49 351 8823-239
sandro.koch@ipms.fraunhofer.de

Jorge Mario Monsalve Guaracao
jorge.mario.monsalve.guaracao@ipms.fraunhofer.de

Fraunhofer Institute for Photonic Microsystems IPMS
Maria-Reiche-Str. 2
01109 Dresden, Germany

www.ipms.fraunhofer.de