Fraunhofer
IBMT

FRAUNHOFER-INSTITUT FÜR BIOMEDIZINISCHE TECHNIK IBMT


1


2


3

1 *Choice of industrial transducers.*
2 *Focusing array for nondestructive material testing.*
3 *Close-up view of piezocomposite.*

INDUSTRIAL TRANSDUCER TECHNOLOGY AND PIEZOCOMPOSITE MATERIAL

Industrial Transducer Technology

Ultrasound sensors are used in many industrial measurement applications. Best interaction between sensor, measuring medium and object under given environmental conditions (pressure, temperature, medium) are the base for high-quality and safe signal analysis. We offer development services and production technologies up to 50 MHz for all type of media in the following fields:

- airborne transducers (up to 2 MHz)
- level measurement
- flow measurement
- process control (e. g. concentration)
- geometry measurement
- object detection

Power Ultrasound Transducers

Applications of ultrasound where high-acoustic intensity is inserted in a medium, are called “high-power applications”(e. g. cleaning or welding). We offer development services and production technologies for high-efficient oscillation systems e. g. for the following devices:

- sonotrode development
- Tonpilz resonators (e. g. cleaning)
- megasound cleaning systems
- ultrasonic applicators for medical applications (e. g. therapeutic devices)

Piezocomposite Material

Major parameters of ultrasound transducers are sensitivity and bandwidth. A piezocomposite is a diced and filled modification of a solid piezoceramic with a high coupling coefficient and low acoustic impedance. This leads to a material with high sensitivity and high bandwidth for low-noise, short-pulse transducers. A high axial resolution or high contrast is only one advantage of such a transducer. This also means a short ringdown time for measuring targets close to the transducer. IBMT offers piezocomposites as raw-material for your NDT or medical transducers. We offer composites in a frequency range between 50 kHz and 20 MHz. Our composites come with solderable multilayer electrode ready for the integration in your transducer.

Fraunhofer Institute for Biomedical Engineering IBMT
Prof. Dr. Heiko Zimmermann
Prof. Dr. Günter R. Fuhr
Joseph-von-Fraunhofer-Weg 1
66280 Sulzbach
Germany

Contact

Dipl.-Ing. Christian Degel
Technical Ultrasound
Telephone +49 6894 980 - 221
christian.degel@ibmt.fraunhofer.de

www.ibmt.fraunhofer.de