

Workshop on **September 13, 2017**, 3 to 6 p.m.

## PIEZOCERAMIC INNOVATION – SMARTLY DONE

### Presentations

- Networked product innovations – a way to growth for SMEs (Claudia Walther, FU Berlin)
- Sixtytyten.com – how to organize and find competences digitally (André Gräning, Sixtytyten Software GbR)
- The internet portal on piezo technology ‘piezotransfer.net’ (Andreas Schönecker, Fraunhofer IKTS)

### Moderated discussion

### Perspectives

- Smart Co-Creation: Design thinking – shaping the future of piezo technology (Martin Schwemmler, HPI School of Design Thinking)

Get together: networking and snacks in exhibition

## INDUSTRIAL EXHIBITION

You are looking for attractive opportunities to promote your company at ISPA 2017? Register as exhibitor or write an e-mail to [ispa@ikts.fraunhofer.de](mailto:ispa@ikts.fraunhofer.de) for a tailor-made solution. More information on [www.ikts.fraunhofer.de/en/ispa](http://www.ikts.fraunhofer.de/en/ispa).

## VENUE

Fraunhofer Institute for Ceramic Technologies and Systems IKTS  
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SEPTEMBER 13–15, 2017, DRESDEN, GERMANY

## INTERNATIONAL SYMPOSIUM ON PIEZOCOMPOSITE APPLICATIONS

### PROGRAM



## INVITATION

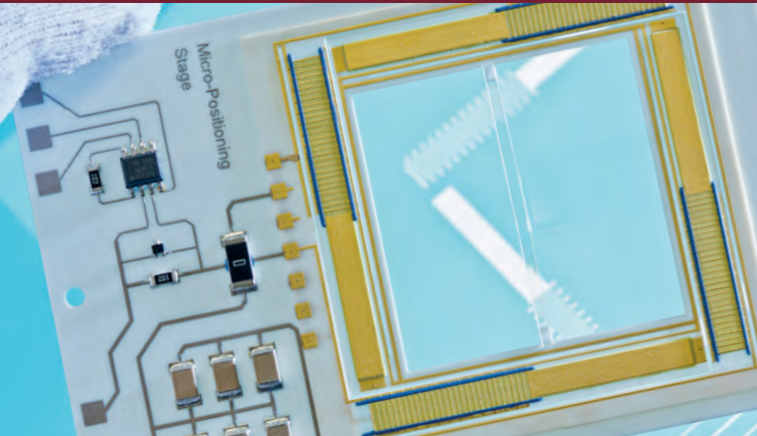
It is a great pleasure to invite you to attend the International Symposium on Piezocomposite Applications ISPA 2017 to be held in the scientific, economic and cultural center Dresden (Germany) from September 13 to 15, 2017.

The symposium will address potentials for innovative solutions related to piezoceramics in combination with various complimentary functional and structural materials and electronics to provide solutions for control and positioning tasks, measuring tasks, power supply, materials treatment, and sound and vibration applications. Essentially, current scientific and technological developments, commercial service offers and customer requirements are within the scope of the symposium. Progress in the field of piezocomposite applications arises from cross-disciplinary material technologies, innovative production technologies, design skills and market requirements. The ISPA 2017 is intended to serve as a platform and information interface enabling an exchange of information on market requirements, research interests and current results, skills and resources as well as facilitating the building of future partnerships. Engineers, designers, and managers are invited to lecture on their state-of-the-art developments and future prospects or display their products and offers as exhibitor. Together with the members of the scientific and organizing committees, I look forward to meeting you in Dresden.

Yours, Andreas Schönecker

# INTERNATIONAL SYMPOSIUM ON PIEZOCOMPOSITE APPLICATIONS

## PROGRAM



SEPTEMBER 14, 2017

### Opening

- 8:30 Alexander Michaelis (Fraunhofer IKTS, Germany)
- 8:45 Peter Nothnagel (Saxony Economic Development Corporation, Germany)
- 9:00 Robert G. Bryant (NASA Langley Research Center, USA)

### Keynote

- 9:15 NASA Langley's history and contribution to piezoelectric devices  
Robert G. Bryant (NASA Langley Research Center, USA)
- 9:45 Coffee break in exhibition area

### Session 1: Piezoelectric materials and devices

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- 10:25 PZT thick film for high frequency medical imaging  
Rasmus Lou-Møller (Meggit S/A)
- 10:45 Structure property relations in BNT – BT-based lead-free piezoceramics  
Eberhard Hennig (PI Ceramic, Germany)
- 11:05 Recent developments for lead-free ceramics  
Hans-Jürgen Schreiner (CeramTec GmbH, Germany)
- 11:25 Manufacturing technologies for ultrasonic transducers in a broad frequency range  
Sylvia Gebhardt (Fraunhofer IKTS, Germany)
- 11:45 Current status and future prospects of piezoelectric single crystals and their composites: "lead-based" and "lead-free"  
Ho-Yong Lee (Ceracomp Co., Ltd., South Korea)

12:05 Lunch break in exhibition area

### Session 2: Solutions and customer requirements: sensing and actuation

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- 13:25 Zero-volt-hold piezoelectric actuators for cryogenic applications  
John Steeves (NASA Jet Propulsion Laboratory, USA)
- 13:45 Impedance-based actuator state of health testing for deformable mirrors  
Samuel Case Bradford (NASA Jet Propulsion Laboratory, USA)
- 14:05 Transparent piezoelectric actuators on glass for haptic devices  
Emmanuel Defay (Luxembourg Institute of Science and Technology, Luxembourg)
- 14:25 Air-coupled ultrasound testing using broadband piezo composite transducers  
Ralf Steinhausen (Forschungszentrum Ultraschall gGmbH, Germany)

### Session 3: Solutions and customer requirements: ultrasound applications

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- 14:45 Ultrasonic transducers and arrays made with 1-3 connectivity piezoelectric composites for biomedical imaging, therapy and microparticle manipulation  
Yongqiang Qiu (University of Glasgow, UK)
- 15:05 Second generation piezo composite based single fibre transducers for a 3D USCT system  
Michael Zapf (Karlsruhe Institute of Technology, Germany)
- 15:25 Pursuit of the endpoint of an ultrasonic scanner  
Guy Scott (WinProbe Corp., USA)
- 15:45 Coffee break in exhibition area

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### Guided tours

- 16:15 Fraunhofer lab tour (ca. 60 min)
- 17:15 Volkswagen's The Transparent Factory (ca. 90 min)
- 19:00 Conference dinner at Café Central, Dresden Altstadt

SEPTEMBER 15, 2017

### Session 4: Solutions and customer requirements: energy supply

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- 9:00 Miniaturization of power converters by piezoelectric transformers – chances and challenges  
Matthias Radecker (Fraunhofer IIS-EAS, Germany)
- 9:20 Design and optimization of a piezoelectric energy harvesting system in logistic asset tracking applications  
Philipp Dorsch (FAU Erlangen-Nürnberg, Germany)

### Session 5: R&D services, Part 1

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- 9:40 Highly flexible measuring system for multichannel piezo-composite annular arrays  
Lukas Timmermann (TU Dresden, Germany)

- 10:00 Model-based design of electromechanical systems  
Peter Neumeister (Fraunhofer IKTS, Germany)
- 10:20 Investigation on homogenized piezoelectric patch transducers  
Manuel Weiß (FAU Erlangen-Nürnberg, Germany)

10:40 Coffee break in exhibition area

### Session 5: R&D services, Part 2

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- 11:20 Characterizing the pyroelectric coefficient for macro-fiber composites  
Krystal L. Acosta (University of Michigan, USA)
- 11:40 Investigation of piezoelectric fiber patch transducers for excitation of guided waves for structural health monitoring applications  
Uwe Lieske (Fraunhofer IKTS, Germany)

### Session 6: Market and future developments, summary

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- 12:00 A new concept for non-destructive testing of fiber-reinforced composites  
Martin Gurka (Institute for Composite Materials (IVW), Germany)
- 12:20 Self-organizing multifunctional structures for adaptive lightweight constructions  
Jörg Melcher (Campus for Functional Materials and Functional Structures, DLR, Germany)

### Closing

- 12:40 Recent developments with MFC  
Thomas Daue (Smart Material Corporation, USA)
- 13:00 Lunch break and farewell