



## This Week's News

We are entering the final phase of the Transducers-Eurosensors 2019 preparation. We are pleased to announce a high-quality technical program of contributed and invited talks.

### Tuesday, 25 June

On **Tuesday, 25 June**, the Transducers-Eurosensors technical program features following highlights: First we start with the plenary presentation by **Prof. Di Li** from the **Chinese Academy of Sciences** who will present recent advances in big-telescope science and technology. We will then split into parallel sessions.

In a dedicated session on **Lab-on-a-Disc systems**, 4 contributions present recent advances from 2 academic groups (**Pennsylvania State University** and **University of California, Berkeley** with **National Chiao Tung University** in Taiwan) and from 1 industry (**Hahn-Schickard**) along with the **University of Freiburg**. In this session we will learn about novel methods to reach **lower detection limits** for diagnosis applications, novel **manufacturing** approaches to obtain these systems, and the latest advances on state of the art **commercial systems**.

After the morning break, we will follow with a session on **Microfluidics**. In this session, 6 papers will report on the progress on microfluidics for **nanostructure formation**, **nanodyalisis** for **neurochemical probing**, spiral-shaped **micro-swimmers**, to combining **deep learning with microfluidic based sensing**. This is a true global session, with contributions originating from **Vietnam, Japan, Australia, USA, Korea, Taiwan** and **France**.

After the lunch break, exhibit inspection, industrial session and poster session, we will resume with a technical paper session on **In-Vivo Sensing**. Papers presented in this session will include **Bio-degradable polymer micro actuator**, **wireless wearable** bio-potential system, **needle array** for chronic recording, **contact lens** with drug delivery, multi-sensor for **hydrocephalus monitoring**, **integrated capsule** sampling system. The authors of these novel results come from **University of Tokyo, Japan, Peking University, China, Toyohashi University of Technology, University of Yamanishi, Japan, National Institute of Advanced Industrial Science and Technology, Japan, Iowa State University, USA, University of Southern California, USA** and **Children's Hospital Los Angeles, USA** and from the **University of Maryland, USA**.

In parallel sessions, **Advances in Electro-Magnetic Field Sensors** will be discussed, with 4 presentations. Performance improvements resulting from a **CMOS-based Hall Sensor**, novel **torsional MEMS magnetometer** and a **molded metal on-chip suspended power inductors** will be featured, along with two new **piezoelectric-based Lorentz force magnetometers**. Please join us to hear these exciting

developments from Melexis, Switzerland, University of Freiburg, Germany, SIMIT, the Chinese Academy of Science, Hong Kong University of Science and Technology, Shenzhen CoilEasy Technologies, Ltd, University of Electronic Science and Technology of China and Mornsun Guangzhou Science & Technology Co., Ltd. in China, and City University of Hong Kong.

After the morning break, we will feature an invited paper by **Prof. Christian Degen from ETH Zurich** who will present the state of the art of **quantum sensing** and 3 additional contributed papers that will demonstrate innovations in the measurement of **electric fields, infrared radiation and ultra-low voltages**. The presentations are the **Chinese Academy of Sciences, China, Northwestern Polytechnical University, China and by Boston University, USA**.

After the lunch break, six papers dedicated to **Hydrogen-Based Material Sensing** will be presented. The new systems rely on **nanoparticles** made of **Pd** and other materials, exploring a range of architectures from **nanoneedle** to **microcantilever** to **CMOS thermo-catalytic** to self-contained **solar-powered sensors**. The papers come from institutions including **ams Sensors, University of Cambridge, Sogang University, Toyohashi University of Technology, University of Yamanashi, and Korea Advanced Institute of Science and Technology**.

**Ultrasound Devices** will be presented in two dedicated sessions and will focus on piezoelectric micromachined ultrasonic transducers (PMUTs), 4 contributions present progresses from 3 academic groups (**Northeastern University, Zhejiang University, and University of Leuven**) and 1 from a leading R&D organization, **IMEC**. The latest technology about display compatible **PMUT array** for mid-air haptic feedback will be presented. The **reflective rangefinder** in air by multi-frequency continuous waves shows very attractive performance. A **zero-power wake-up** receiver using DMUT transmitter, PMUT array receivers and mems switches for **medical application** will be reported. Finally, the research results of a highly efficient PMUT array to perform **underwater communication** will be addressed.

In a second session devoted to **Ultrasonic Devices** and comprises 1 invited talk by **Prof. Hyunjoo Lee from KAIST**, Korea, and 4 contributions dealing with innovations on **PMUT devices**. The first contribution presents a **totally transparent PMUT** for displays applications by researchers from **University of California, Berkeley**; the second paper presents **spurious modes free PMUTs** arrays by researchers from the same **University of California, Davis**; the third contribution in a collaboration between **Tohoku University** and **Panasonic Corporation** in Japan will present the results on an **epitaxial PZT thin film PMUT** and the last contribution by researchers at **Leuven University** in Belgium presents a **totally flexible PMUT arrays**.

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