

## **ACTUATOR off to a successful start after the pandemic**

The restriction measures due to the Corona pandemic, which expired in early summer 2022, have made it possible to hold ACTUATOR - 19th International Conference and 12th Exhibition on New Actuator Systems and Applications - as a face-to-face-event in the Mannheim Rosengarten Congress Centre in Germany.

Due to continuing travel restrictions in the Asian region, the number of participants (170) could not quite reach the size of past events. Nevertheless, the participants were offered a comprehensive programme on innovations in the field of actuators and actuator-driven system applications during the two-day event. After the opening there were three high profile plenary lectures from research and industry, followed by three parallel sessions, moderated by a professional team of international session chairs.

The more than 100 contributions from 14 different nations covered a broad and current range of topics - from miniaturised actuators and actuator systems based on smart materials to diverse applications in medical and automation technology, aerospace and soft robotics. The programme was complemented by intensively discussed poster contributions and an international exhibition of companies active in this innovative market.

### **Broad programme spectrum with focused topics**

The conference offered a broad spectrum of actuator and system-relevant topics in a total of 15 parallel sessions and one cross-thematic poster session. The main focus was on actuators and applications with shape memory (Thermal Shape Memory Alloy (MSA) and Magnetic Shape Memory Alloy (MSMA)) as well as medical devices. In the plenary lecture by Dr. Laufenberg (ETO Magnetic), the progress made in the industrial production of the relatively new MSMA technology was impressively demonstrated. The compact MSMA sticks close the gap between piezo technology and small electromagnetic actuators and have very high dynamics and precision. In addition to safety-relevant applications within energy technology, the potential of the small sticks was demonstrated by a microfluidic lab-on-a-chip application from the exhibitor HPN Mikrosysteme. In the plenary lecture by Dr. Köllnberger (Wacker Chemie), the arc was drawn between university research and industrial application regarding the dielectric elastomer technology (DE). With the announced product Nexipal, an industrially manufactured, multi-layer DE composite will be available from 2023, which can be further processed in a customised manner and used in a variety of ways for DE-based sensors and actuators in the field of soft material applications.

From a scientific point of view, the highlights of the congress included the plenary lectures by Professor Salvador Pané (ETH Zurich) and Professor Paul Breedveld (TU Delft). While Professor Pané's contribution impressed the participants with his diverse approaches of smart materials for small-scale robotics, Professor Breedveld was able to set completely new accents for minimally invasive medical technology with his Bio-Inspired Surgical Instruments. The event also included presentations of current results from the DFG priority programme KOMMMA, in which young scientists are researching micro- and nanotechnological actuator systems with synergetic properties such as self-sensing and multistability.

Unfortunately, the congress was saddened by the loss of our chairman and long-time colleague Prof. Dr. Helmut Schlaak (TU Darmstadt) and the initiator of ACTUATOR and former chairman Dr. Hubert Borgmann (Messe Bremen), who we sorely missed at the congress.

We hope to continue the congress successfully in the future in their memory and spirit. Professor Ulrike Wallrabe (University of Freiburg) from our committee was kind enough to take over the office of Chairman at short notice.

Prof. Dr.-Ing. Jürgen Maas, Technical University Berlin,  
in the name of the ACTUATOR Conference Committee 2022