

Smart Material Systems – Future Trends and Applications

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Abstract

Smart materials have become attractive alternatives for the replacement of state-of-the-art actuators and sensors because of the demand for more functionality in industrial, consumer and biomedical products. Their versatility and variability in form factors combined with their actuation and sensing abilities allow for the design and construction of smart material based multifunctional systems, which add value for industry and consumers. This talk focuses on the presentation of various actuator-sensor prototypes and smart systems based on thermal shape memory alloys and dielectric elastomers. These systems cover applications in the fields of production, automotive industry, bio-medicine also the emerging field of elastocaloric cooling.

Biography

Dr. Paul Motzki is the head of the research division “sensors and actuators” at the Center for Mechatronics and Automation Technologies (ZeMA gGmbH) in Saarbruecken, Germany. He received his B.Sc., M.Sc. and PhD degrees in Mechatronics and Systems Engineering from Saarland University,

Germany. His research interests cover the design and development of multifunctional actuator-sensor-systems based on smart materials like shape memory alloys, electroactive polymers, piezo materials or magnetorheological fluids and the emerging field of elastocaloric cooling.