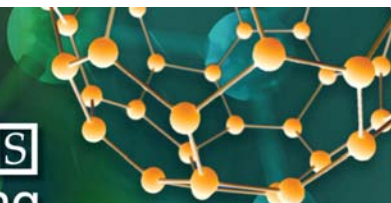




2009 MRS
spring meeting
San Francisco, CA • April 13-17



Abstract Deadline: November 3, 2008

www.mrs.org/spring2009

REMINDER:
In fairness to all potential authors,
late abstracts will not be accepted.

CALL FOR PAPERS

MRS Symposium PP: Materials and Devices for Flexible and Stretchable Electronics

The realization of stretchability in electronics is expected to open up the possibility of many new applications ranging from long-term bionic implants and limbs to robotic sensory skins, ubiquitous electronic displays, and large-area electronics. One of the most difficult hurdles in the development of stretchable electronics is the simultaneous achievement of excellent mechanical robustness and electronic performance. While meeting the usual electrical requirements, materials and circuit architecture for conformable and stretchable electronics must be designed such that their mechanical integrity and electrical functionality are preserved during both fabrication and use of the compliant product. For biomedical applications, an added challenge is the biocompatibility of the component materials, the fabrication process, and physical design of the conformable product with biological tissues.

This symposium aims to gather and evaluate the materials, designs, modeling, and technologies that will enable the fabrication of fully elastic electronic devices (strain \gg 1%), and to review specific applications that will directly benefit from highly compliant electronics, including transistors, photonic devices, and sensors.

Although the symposium is mainly concerned with stretchable devices, flexible electronics will also be considered as a topic where industrial participation in the symposium is expected. Industry working in flexible devices needs to have a profound knowledge of mechanical properties of materials used in flexible electronic goods.

Relevant submissions to this symposium will detail the latest research results in the following topical areas of interest:

- Mechanics
 - Thin-film mechanics on, or embedded in, polymeric substrates
 - Mechanical architecture for deformable electronics
 - Biomechanics: bridging the mechanical mismatch between hard artificial devices and soft biological tissues
- Materials and fabrication processes
 - Substrate and encapsulation materials
 - Active device materials (metals, dielectrics, and semiconductors—organic and inorganic)
 - Unconventional device materials (CNTs, graphene, etc.)
 - Nanomaterials
 - Novel patterning methods compatible with elastic materials
 - Ultralow-temperature, printing, and nonplanar-fabrication processes
- Applications
 - Electronics: stretchable electronic circuits
 - Photonics: stretchable imagers, waveguides, and other optical components
 - Biomedical: soft neural interfaces; *in vitro* instrumentation tools and *in vivo* neuroprostheses; bioMEMS on polymeric substrates; and prosthetic skin
 - Transducers: compliant and elastic microsensors and MEMS; wearable electronics, e-textile, e-skin, and actuators
 - Power, interconnect, and packaging issues

Invited speakers (tentative) include:

James Fawcett (Cambridge Ctr. for Brain Repair, United Kingdom), Olle Inganäs (Linköping Univ., Sweden), Guggi Kofod (Potsdam Univ., Germany), Gabor Kovacs (EMPA, Switzerland), Chang Liu (Univ. of Illinois, Urbana-Champaign), Barclay Morrison III (Columbia Univ.), John A. Rogers (Univ. of Illinois-Urbana Champaign), Tsuyoshi Sekitani (Univ. of Tokyo, Japan), Robert Street (Palo Alto Research Ctr.), Zhigang Suo (Harvard Univ.), Jan Vanfleteren (Univ. of Gent, Belgium), Sigurd Wagner (Princeton Univ.), and Ellen D. William (Univ. of Maryland).

Symposium Organizers

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