

Abstract Submitted
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Manufacturing of Liquid-Embedded Elastomers for Stretchable Electronics¹ REBECCA KRAMER, Mechanical Engineering, Purdue University, CARMEL MAJIDI, Mechanical Engineering, Carnegie Mellon University, JAMES WEAVER, Wyss Institute for Biologically Inspiring Engineering, ROBERT WOOD, SEAS, Harvard University — Future generations of robots, electronics, and assistive medical devices will include systems that are soft, elastically deformable, and may adapt their functionality in unstructured environments. This will require soft active materials for power circuits and sensing of deformation and contact pressure. As the demand for increased elasticity of electrical components heightens, the challenges for functionality revert to basic questions of fabrication, materials, and design. Several designs for soft sensory skins (including strain, pressure and curvature sensors) based on a liquid-embedded-elastomer approach have been developed. This talk will highlight new “soft MEMS” manufacturing techniques based on wetting behavior between gallium-indium alloys and elastomers with varying microtextured surface topography.

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