

# Mechanical Engineering Department Seminar

3:35pm February 25, 2015  
1130 Mechanical Engineering  
111 Church Street SE, Minneapolis, MN 55455

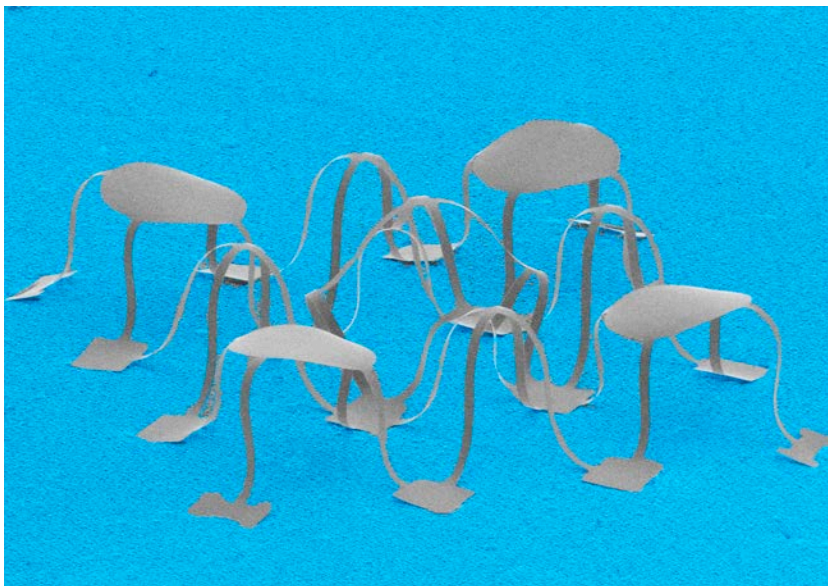
## Soft 2D and 3D Electronic Systems for the Human Body

John Rogers



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Recent advances in materials and mechanics concepts enable the construction of high performance electronic and optoelectronic systems with sizes, shapes and physical properties precisely matched to those of vital organs of the human body. Potential applications range from continuous physiological monitors, to minimally invasive surgical implements to unique tools for neuroscience. This talk describes principles in mechanics that allow for (1) 'epidermal' electronics with applications in distributed healthcare and clinical diagnostics, and (2) 3D mesoscale electronic networks for use in active cell/tissue scaffolds.



**Bio:** Professor John A. Rogers obtained BA and BS degrees in chemistry and in physics from the University of Texas, Austin, in 1989. From MIT, he received SM degrees in physics and in chemistry in 1992 and the PhD degree in physical chemistry in 1995. From 1995 to 1997, Rogers was a Junior Fellow in the Harvard University Society of Fellows. He joined Bell Laboratories as a Member of Technical Staff in the Condensed Matter Physics Research Department in 1997, and served as Director of this department from the end of 2000 to 2002. He is currently Swanlund Chair Professor at University of Illinois at Urbana/Champaign, with a primary appointment in the Department of Materials Science and Engineering. He is also Director of the Seitz Materials Research Laboratory. Rogers' research includes fundamental and applied aspects of materials, mechanics and patterning techniques for unusual electronic and photonic devices, with an emphasis on bio-integrated and bio-inspired systems. He has published more than 450 papers and is inventor on over 80 patents, more than 50 of which are licensed or in active use. Rogers is a Fellow of the IEEE, APS, MRS and AAAS, and he is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. His research has been recognized with many awards, including a MacArthur Fellowship in 2009, the Lemelson-MIT Prize in 2011, the Robert Henry Thurston Award of the American Society of Mechanical Engineers in 2013 and the Eringen Medal of the Society of Engineering Science in 2014.