



SENIC Ambassadors Webinar Series

Heat Transfer Across Length Scales – Focus on Thermal Management and Advanced Sensing

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Abstract: The rapid development of faster, cheaper, and more powerful computing has led to some of the most important technological and societal advances in modern history. However, the physical means associated with enhancing computing capabilities at the device and die levels have also created a very challenging set of circumstances for keeping electronic devices cool, a critical factor in determining their speed, efficiency, and reliability. With advances in nanoelectronics and the emergence of new application areas such as three-dimensional chip stack architectures and flexible electronics, now more than ever there are both needs and opportunities for novel materials and strategies to help address some of these pressing thermal management challenges. In this talk, our group's work in the areas of new materials, advanced sensing, and developing a more robust understanding of thermal energy transport across length scales is presented, with emphasis on research areas which leverage industry-relevant materials science and microfabrication principles.

Bio: Dr. Arden Moore is an Associate Professor of Mechanical Engineering at Louisiana Tech University and holds the Contractor's Trust #1 Endowed Chair. Dr. Moore also has a joint appointment with the Institute for Micromanufacturing (IfM) where he works on advanced materials and devices for multi-scale energy applications. Prior to joining the faculty at Louisiana Tech, Dr. Moore was a Thermal Advisory Engineer for IBM's Systems & Technology Group from 2011 to 2013 where he designed and developed electronics thermal management solutions from the die level up to full server systems. In addition to academic publications, Dr. Moore is inventor or co-inventor on over a dozen patents or patent applications related to thermal management. He is a 2019 National Science Foundation CAREER Awardee and currently serves on the advisory board of *Journal of Physics D: Applied Physics*. Dr. Moore graduated with his Ph. D. degree in mechanical engineering from the University of Texas at Austin in 2010.