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Towards Ubiquitous Cost-competitive Solar Power

There is more solar energy reaching the earth in one hour than the combined worldwide human consumption of energy in one year. Tapping into this enormous potential requires reducing the cost of solar collection and storage and increasing the efficiency of solar energy conversion to electricity. To this end, the U.S. Department of Energy SunShot Initiative calls for an aggressive reduction in the overall systems costs by 75% to make solar energy cost competitive with other forms of energy, without subsidies, by the end of the decade. In just 3 years into the decade-long initiative, we are over the halfway mark in the cost reductions needed towards achieving grid parity of solar-generated electricity. In fact, 2013 was a record year for solar with the U.S. surpassing the 10 GW milestone. While the initial cost reductions are impressive, much work remains in addressing the challenges toward fully realizing the SunShot goal. The talk will highlight the technical challenges, and the transformative and holistic approaches being pursued to address the goals of cost reduction and greater adoption of solar energy technologies. The talk will also discuss the importance of energy storage as more renewable sources join our nation's power generation fleet.



ABOUT THE SPEAKER

Dr. Ranga Pitchumani is the John R. Jones III Professor of Mechanical Engineering at Virginia Tech, currently serving in an invitational role as the Chief Scientist and Director of the Concentrating Solar Power and the Systems Integration programs of the U.S. Department of Energy (DOE) SunShot Initiative. At DOE, he sets the science and technology vision for SunShot, establishes funding priorities, directs a team of 25 professionals (program managers and technical, financial and support personnel), and oversees the solar R&D programs at the Industry, National Laboratories and Universities. At Virginia Tech, he directs the Advanced Materials and Technologies Laboratory with research in the areas of energy systems and sciences, materials manufacturing, composite materials, microsystems and uncertainty quantification. Dr. Pitchumani is the author of 200 refereed articles and book chapters, co-editor of 8 book volumes, and inventor on 2 patents or disclosures. He is an

Associate Editor of Solar Energy, past Associate Editor of the ASME Journal of Heat Transfer, and serves on the Editorial Boards of the Journal of Thermoplastic Composite Materials, Journal of Composite Materials, and Frontiers in Heat and Mass Transfer. Dr. Pitchumani is a recipient of the ONR Young Investigator Award and a Fellow of the ASME.

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2:00 - 3:30 pm, 310 Kelly Hall



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