

"Nano-enabled Technologies for Next Generation Materials and Devices"

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This talk will focus on potential of nanoscience and nano-technologies to enable innovation and wealth generation. I will start with the scaling issues being faced by the semiconductor industry and the need for new form factors to broaden the market and extend the reach of existing and new device technologies. One such area is flexible electronics, which has potential applications in the advertising and branding, displays and electronic paper areas, and I will outline the possible role of nanotechnology in providing cost-effective solutions. A second areas concerns end-of-the-roadmap solutions being sought by the industry for the future generation device structures and/or whether there is a life beyond silicon. I will described some of the challenges being faced by various nanomaterial based devices, the issue of power dissipation and whether there are potential for non-FET based solutions. Finally, I will discuss some exciting new insights into the mechanical properties of nanoscale systems and whether there are opportunities for nanomechanical switches to become important device elements.

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