

PRESENTER INFORMATION



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BIOGRAPHICAL SKETCH

Kaiying Wang received his PhD in condensed matter physics from the Institute of Physics, Chinese Academy of Sciences in 1995. He joined the University of South-Eastern Norway (USN) in 2007 as an associate professor and was promoted to professor in 2010. His research interests focus on micro-fabrication and nanotechnology, electrochemistry, photochemistry and nanodevices for environment and energy applications.

TITLE Micro/nano structured silicon materials for solar energy conversion

ABSTRACT

Black silicon is expected to be a promising material for photoelectric, photothermic, photocatalytic, and microfluidic applications due to its remarkably anti-reflectivity, antibacterial effect, hydrophilicity, and hydrophobicity. These properties are attributed to the light trapping and surface tension interaction abilities of black silicon surface structures such as pores, pillars, cones, needles, and wires.

In this presentation, I will talk about innovative fabrication approaches that enable novel black silicon with multi-scale surface structures. Their photothermal conversion properties will be reported, and potential applications will be discussed, such as black silicon materials for the next generation of photovoltaic and photodetector.