UC RIVERSIDE UNIVERSITY OF CALIFORNIA | Bourns College of Engineering

Department of Chemical and Environmental Engineering

RUOXUE YAN

POSTDOCTORAL FELLOW
CHEMISTRY DEPARTMENT
UC BERKELEY

NANOWIRE PHOTONICS: FROM SUBCELLULAR IMAGING TO SOLAR ENERGY CONVERSION

The ability to manipulate light in subwavelength photonic and plasmonic structures, nanowire photonic building blocks in particular, has shown great potentials in revolutionizing how light is generated, transmitted, processed and converted. In my presentation, I will give an overview of two of my research directions to utilize the unique opportunities provided by nanowire photonic components: (1) multifunctional nanowire biological probes for intracellular imaging, sensing and payload delivery with high spatiotemporal resolution, which would enable in-situ monitoring of biological processes within individual living cells and greatly improve our fundamental understanding of cellular functions, intracellular physiological processes, and cellular signal pathways; (2) semiconductor nanowire/catalyst systems for efficient and cost-effective solar energy conversion aiming to address the energy and environmental challenges facing humanity.

Biography:

Dr. Ruoxue Yan received her B.S. and M.S. in Chemistry from Tsinghua University in 2002 and 2005, respectively. She joined Prof. Peidong Yang's group in University of California, Berkeley to continue her academic pursuit and received her Ph.D. in Chemistry in 2010 with her research focusing on nanowire photonics for single cell sensing and endoscopy. Dr. Yan joined the Joint Center for Artificial Photosynthesis in Laurence Berkeley National Lab in 2011 as a postdoctoral scholar. Her postdoctoral research was centered on nanowire photonic components as light absorbers in solar energy devices and their interface with potent earth-abundant catalysts. Dr. Yan has published many high impact papers in prestigious journals, including Nature Nanotechnology, Nature Photonics, Nature Materials, PNAS, Nano letters, Angew. Chem., Int. Ed. etc.

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