Nano Structuring for Efficient Energy Conversion Stacey F. Bent, Turgut Gür, and Fritz B. Prinz Stanford University

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The overarching goal of the Stanford 'Center on Nano Structuring for Efficient Energy Conversion' (CNEEC), an Energy Frontier Research Center supported by the the Department Of Energy, is to develop the fundamental understanding needed to increase the efficiency of energy conversion devices by manipulating materials at the nanometer scale. This involves developing the fabrication and characterization methodologies to understand how nanostructuring can optimize transport, light absorption, and reaction kinetics. Based on these fundamental advances, we aim to demonstrate ways to improve the performance and efficiency of energy conversion devices that rely on shared physical and chemical phenomena. In particular, we rely on nanostructuring to (1) optimize light absorption through quantum and optical confinement, and (2) improve catalysis through theory-driven design. This talk will summarize examples of recent progress towards achieving center goals.