

Abstract Submitted  
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**Nanowire electrodeposition for advanced photovoltaics** ERIK MENKE, JUSTIN HUJDIC, SOMNATH GHOSH, University of California, Merced — According to the Department of Energy’s “Basic Research Needs for Solar Energy Utilization” report, there are a number of fundamental scientific issues that need to be addressed for nanostructure based solar cells, including: a. Control of nanoarchitecture b. Light harvesting c. Control of charge separation and recombination d. Control of charge carrier transport to the contacts Here, I will describe how lithographically patterned nanowire electrodeposition (LPNE) can address these issues by discussing the synthesis of high-density semiconductor nanowire arrays, as well as their optical and electronic properties. This talk consists of three parts. Part 1 presents a brief overview of how LPNE, essentially the combination of photolithography and electrodeposition, can be used as a general method to prepare high-density nanowire arrays. Part 2 demonstrates this method specifically for CIS/CdS core-shell nanowire arrays by discussing the electrodeposition of the nanowire arrays as well as the physical and chemical properties of the resulting nanowires. Finally, part 3 presents the optoelectronic properties of the resulting nanowire arrays and their potential application as solar cells.

Erik Menke  
University of California, Merced

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