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A novel nanoarchitecture with optical, solar, medical and biochemical utility[1] M.J. NAUGHTON, K. KEMPA, Z.F. REN, Boston College and Solasta Inc. — We discuss a nanoscale platform offering widespread utility in nanophotonics, photovoltaics, visual prosthetics, and biological and chemical sensing. As a subwavelength wave-guide architecture, these nanostructures can be used in array form for high efficiency solar cells, as well as in a wide range of nanoscale manipulations of light without deleterious plasmonic effects. They are also being developed as a high electrode-density ($10^8/\mathrm{cm}^2$) retinal implant. Finally, a modification of the basic structure enables the fabrication of a highly sensitive "nanocavity" biochemical sensor. We will report on aspects of each application. We also thank the following collaborators: N. Argenti, D. Cai, T.C. Chiles, P. Dhakal, Y. Gao, T. Kirkpatrick, Y.C. Lan, G. McMahon, J.I. Oh, B. Rizal, J. Rybczynski.

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