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**Novel nanostructured high efficiency light-harvesting device structure for a solar cell application** KYUNG-MIN LEE, POOJA SINGH, ARUP NEOGI, SANG-KWON LEE, TAE-YOUL CHOI — In this study, we present a novel photoconductive device structure for a solar cell application.  $\beta$ -Silicon Carbide ( $\beta$ -SiC) nanowire(NW) was placed in between silver (Ag) nanodot(ND) array. With much shorter size than an incoming photon wavelength, Ag ND created plasmonic oscillation, mainly attributed to dipole oscillating term, according to Mie scattering theory. Because of more optical modes in the higher refractive index, the radiation pattern from the dipole oscillation was mostly expanded onto the  $\beta$ -SiC NW rather than free space. We found that Ag ND array played role as collecting and concentrating light to create denser optical paths into the semiconducting  $\beta$ -SiC NW, which in turn provided higher quantum yield for photoconductivity. Since the structure was nanoscaled (i.e. NW and ND), this novel device structure can be a miniaturized building block for high demanding solar cell applications as one of the energy solutions.

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