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Light-sensitive gold nanoparticles designed for solar energy use SUNGSOOK AHN, SUNG YONG JUNG, SEUNGGON KIM, SANG JOON LEE, POSTECH, POSTECH TEAM — Light-sensitive organic ligands are incorporated with gold nanoparticles (AuNPs) to utilize solar energy. The physical properties of the ligand-AuNP systems are mainly modulated by the ligand/AuNP ratio. Hydrodynamic size measurement, laser Doppler electrophoresis and transmission electron microscopy are used for physical characterization. The interconnectivity of the AuNPs by dual-functional ligands also has a great impact on the physical properties. In addition, fs-THz spectroscopy is applied to evaluate electron activation of the designed AuNPs. Electron beams of different energy levels are applied to change the surface energy of AuNPs, which strongly affects the absorption energy band. This study contributes to the basic understanding on the nanoparticle technology for solar energy use.

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