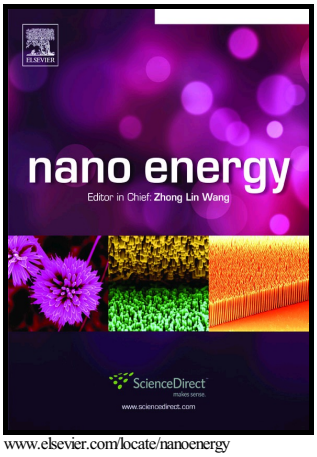

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Drastic enhancement of photoelectrochemical water splitting performance over plasmonic Al@TiO_2 heterostructured nanocavity arrays

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ABSTRACT

Herein, we presented nonprecious plasmonic Al@TiO_2 heterostructures for efficient photoelectrochemical (PEC) water splitting by controllably isolating Aluminum (Al) nanoparticles (NPs) individually into TiO_2 nanocavity arrays (NCAs). Compared with bare TiO_2, the Al@TiO_2 shows the most prominently enhanced PEC performance under solar light illumination. The significantly enhanced PEC activity of Al@TiO_2 photoanode is attributed to the localized surface plasmonic resonance (LSPR) induced electromagnetic field enhancement in

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