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Assembly of TiO_2 Ultrathin Nanosheets with Surface Lattice Distortion for Solar-Light-Driven Photocatalytic Hydrogen Evolution

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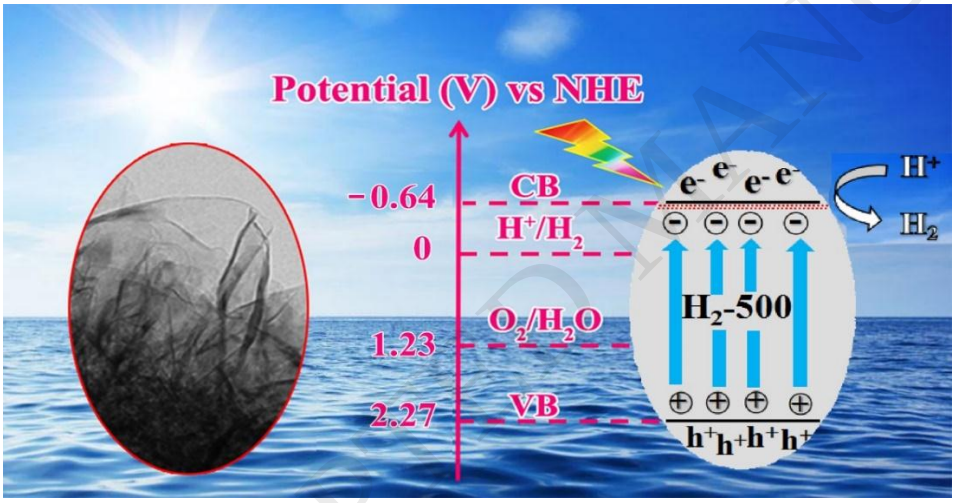
Graphical abstract



Highlight

The assembly of TiO_2 ultrathin nanosheet using the gas assisted liquid exfoliation combined with hydrogenation treatment strategy.

Homogeneous oxygen vacancies and large fraction of low-coordinated surface atoms in TiO_2 nanosheets cause surface lattice distortion.

The assembly exhibits prompted photocatalytic hydrogen evolution rate of 540.7 μmol h^{-1} and well cycling stability under simulated solar irradiation.