Special Issue

Photofuel Cells

Message from the Guest Editor

Photofuel cells can oxidatively decompose organic wastes such as biomass and generate electricity via a photocatalytic reaction during light irradiation. Over the past decade, titania and other photocatalysts have been investigated as the photoanodes of photofuel cells. These fuels can be not only small water-soluble molecules but also large molecules and their solution or suspensions. Most organic wastes contain water-insoluble saccharides such as cellulose. Close contact between the photoanode and fuel molecules is important for highly efficient decomposition: the molecules should be adsorbed and oxidized on the photocatalyst particle surface. The reaction also requires dissolved oxygen in the liquid phase. In the future, biomass or organic wastes will be effectively utilized as fuels and recycled to obtain sustainable and environment-friendly energy resources. In this regard, we invite authors to submit original research articles on the science and technology of such photofuel cells.

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