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Photocatalytic Water Splitting

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Message from the Guest Editors

Photocatalytic water splitting constitutes one major goal that addresses both the fundamental science and practical applications of renewable energy production. The Oxygen Evolving Complex (OEC) is the native enzyme that catalyzes the oxidation of water in natural photosynthesis to release oxygen. The creation of biomimetic systems to reproduce the basic chemistry of this process gives us more insight into better understanding this crucial natural reaction which is responsible of the atmospheric oxygen that we breathe. On the other hand, the growing world energy demand, along with the need for control of gas emissions, explains the current relevance of the conversion of solar energy to hydrogen by means of water splitting process. Decomposing water is the more direct way to produce hydrogen, which can be stored and utilized as a transportable fuel or converted into energy-rich organic molecules, to cope with the intermittent character of the solar radiation.