

Accepted Manuscript

Review

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PII: S2095-9273(16)30622-3
DOI: <http://dx.doi.org/10.1016/j.scib.2016.12.011>
Reference: SCIB 21

To appear in: *Science Bulletin*

Received Date: 30 October 2016
Revised Date: 18 December 2016
Accepted Date: 20 December 2016

Please cite this article as: J. Su, J. Zhou, L. Wang, L. Cong Chen, Synthesis and application of transition metal phosphides as electrocatalyst for water splitting, *Science Bulletin* (2016), doi: <http://dx.doi.org/10.1016/j.scib.2016.12.011>

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This paper belongs to a mini Special Topic “Solar Photocatalytic Energy Conversion” which will be published in an issue together with other several papers.

Review

Synthesis and application of transition metal phosphides as electrocatalyst for water splitting

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Received: 30-Oct-2016

Revised: 18-Dec-2016

Accepted: 20-Dec-2016

Abstract: With continuous research on photocatalytic water splitting, searching for efficient catalyst for hydrogen evolution reaction (HER) becomes popular topic in addition to main catalyst research. Transition metal phosphides are receiving intense attention due to its abundance in Earth's crust and comparable catalyst properties to noble metals. In this review, the synthesis approaches, HER reaction mechanism, photocatalytic reaction activity, approaches to improve the activity of transition metal phosphides were reviewed and discussed. It was showed that the transition metal phosphides have great potential to reduce the cost of photocatalyst and promising application on photocatalytic and photoelectrochemical water splitting. The stability problem and participation of poisonous reactant and product in its synthesis reaction limit its application and developing in a certain extent, but with the continuous efforts on the development and improvement of the synthesis methods, transition metal

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