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Cover story

(Hao-Yu Wang, Chen-Chen Weng, Jin-Tao Ren, Zhong-Yong Yuan, pp. 1408–1426)

The development of earth-abundant electrocatalysts for hydrogen production from low-grade and saline water with renewable electricity is highly desired but very challenging due to the interference of side reactions and various impurities. Yuan et al. give a conceptual understanding of direct seawater splitting with the difference to the electrolysis in pure water. Effective strategies for the rational construction of electrocatalysts with improved selectivity and stability on both anode and cathode based on possible electrochemistry involved in this process are discussed, including thermodynamically restricting chloride chemistry, designing selective active species and constructing protecting layers. Rational design of highly efficient and stable electrolysers is also required for the implement of direct seawater electrolysis. For the guidelines of future research, recent achievements are discussed and issues to be solved are provided.

This cover picture is also to the celebration of the 95th birthday of Professor Hexuan Li, wishing him good health and happiness in life.

Professor Hexuan Li is a physical chemist. He has been engaged in the research and teaching of zeolite materials and catalysis for a long time, established and led the Laboratory of Catalysis and Kinetics in Department of Chemistry, Nankai University. He has made many distinctive achievements in synthesis and modification of zeolite materials, development of new catalysts and catalysis theory. He has published over 200 papers and authorized 14 invention patents. Six achievements have been devoted in industrial production, creating remarkable economic and social benefit. He received numerous prizes, awards and honors, and was recognized as "National Advanced Scientific and Technological Worker in Universities".

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