Recent Development in Hydrogen Evolution Reaction Catalysts and Their Practical Implementation

The past 10 years have seen great advances in the field of electrochemical hydrogen evolution. In particular, several new nonprecious metal electrocatalysts, for example, the MoS2 or the Ni2P family of materials, have emerged as contenders for electrochemical hydrogen evolution under harsh acidic conditions offering nearly platinum like catalytic performance. The developments have been particularly fast in the last 5 years, and the present Perspective highlights key developments and discusses them, along with hydrogen evolution in general, in the context of the global energy problem.