# Hydrogen Production & Storage (2022-2025)

1. **Scalable Ir-Doped NiFe2O4/TiO2 Heterojunction Anode for Decentralized Saline Wastewater Treatment and H2 Production (Article)**
   Sukhwa Hong, Jiseon Kim, Jaebeom Park, Sunmi Im, Michael R. Hoffmann & Kangwoo Cho
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2. **Next-Generation Green Hydrogen: Progress and Perspective from Electricity, Catalyst to Electrolyte in Electrocatalytic Water Splitting (Review)**
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3. **Amorphous Iridium Oxide-Integrated Anode Electrodes with Ultrahigh Material Utilization for Hydrogen Production at Industrial Current Densities (Article)**
   Lei Ding, Kui Li, Weitian Wang, Zhiqiang Xie, Shule Yu, Haoran Yu, David A. Cullen, Alex Keane, Kathy Ayers, Christopher B. Capuano, Fangyuan Liu, Pu-Xian Gao & Feng-Yuan Zhang
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4. **Achieving Negatively Charged Pt Single Atoms on Amorphous Ni(OH)2 Nanosheets with Promoted Hydrogen Absorption in Hydrogen Evolution (Communication)**
   Yue Liu, Gui Liu, Xiangyu Chen, Chuang Xue, Mingke Sun, Yifei Liu, Jianxin Kang, Xiujuan Sun & Lin Guo
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5. **Boosting Hydrogen Storage Performance of MgH2 by Oxygen Vacancy-Rich H-V2O5 Nanosheet as an Excited H-Pump (Article)**
   Li Ren, Yinghui Li, Zi Li, Xi Lin, Chong Lu, Wenjiang Ding & Jianxin Zou
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6. **Fundamental Understanding of Hydrogen Evolution Reaction on Zinc Anode Surface: A First-Principles Study (Article)**
   Xiaoyu Liu, Yiming Guo, Fanghua Ning, Yuyu Liu, Siqi Shi, Qian Li, Jiujun Zhang, Shigang Lu & Jin Yi
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7. **Ultra-Efficient and Cost-Effective Platinum Nanomembrane Electrocatalyst for Sustainable Hydrogen Production (Article)**
   Xiang Gao, Shicheng Dai, Yun Teng, Qing Wang, Zhibo Zhang, Ziyin Yang, Minhyuk Park, Hang Wang, Zhe Jia, Yunjiang Wang & Yong Yang
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8. **Precisely Control Relationship between Sulfur Vacancy and H Absorption for Boosting Hydrogen Evolution Reaction (Article)**
   Jing Jin, Xinyao Wang, Yang Hu, Zhuang Zhang, Hongbo Liu, Jie Yin & Pinxian Xi

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9. **Exploring the Cation Regulation Mechanism for Interfacial Water Involved in the Hydrogen Evolution Reaction by In Situ Raman Spectroscopy (Article)**
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10. **Deformable Catalytic Material Derived from Mechanical Flexibility for Hydrogen Evolution Reaction (Review)**
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11. **Exploring the Roles of Single Atom in Hydrogen Peroxide Photosynthesis (Review)**
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12. **Machine Learning-Assisted Low-Dimensional Electrocatalysts Design for Hydrogen Evolution Reaction (Review)**
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13. **Graphene Quantum Dot-Mediated Atom-Layer Semiconductor Electrocatalyst for Hydrogen Evolution (Article)**
    Bingjie Hu, Kai Huang, Bijun Tang, Zhendong Lei, Zeming Wang, Huazhang Guo, Cheng Lian, Zheng Liu & Liang Wang Bingjie Hu, Kai Huang, Bijun Tang, Zhendong Lei, Zeming Wang, Huazhang Guo, Cheng Lian, Zheng Liu & Liang Wang
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14. **Adsorption Site Regulations of [W–O]-Doped CoP Boosting the Hydrazine Oxidation-Coupled Hydrogen Evolution at Elevated Current Density (Article)**
    Ge Meng, Ziwei Chang, Libo Zhu, Chang Chen, Yafeng Chen, Han Tian, Wenshu Luo, Wenping Sun, Xiangzhi Cui & Jianlin Shi
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15. **Dual-Doped Nickel Sulfide for Electro-Upgrading Polyethylene Terephthalate into Valuable Chemicals and Hydrogen Fuel (Article)**
    Zhijie Chen, Renji Zheng, Teng Bao, Tianyi Ma, Wei Wei, Yansong Shen & Bing-Jie Ni
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16. **Optimized Electronic Modification of S-Doped CuO Induced by Oxidative Reconstruction for Coupling Glycerol Electrooxidation with Hydrogen Evolution (Article)**
    Ruo-Yao Fan, Xue-Jun Zhai, Wei-Zhen Qiao, Yu-Sheng Zhang, Ning Yu, Na Xu, Qian-Xi Lv, Yong-Ming Chai & Bin Dong
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17. **Vertical 3D Nanostructures Boost Efficient Hydrogen Production Coupled with Glycerol Oxidation Under Alkaline Conditions (Article)**
    Shanlin Li, Danmin Liu, Guowei Wang, Peijie Ma, Xunlu Wang, Jiacheng Wang & Ruguang Ma
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18. **Tuning Active Metal Atomic Spacing by Filling of Light Atoms and Resulting Reversed Hydrogen Adsorption-Distance Relationship for Efficient Catalysis (Article)**
    Ding Chen, Ruihu Lu, Ruohan Yu, Hongyu Zhao, Dulan Wu, Youtao Yao, Kesong Yu, Jiawei Zhu, Pengxia Ji, Zonghua Pu, Zongkui Kou, Jun Yu, Jinsong Wu & Shichun Mu
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19. **Synergistic Effect of Dual-Doped Carbon on Mo2C Nanocrystals Facilitates Alkaline Hydrogen Evolution (Article)**
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20. **Hierarchical Interconnected NiMoN with Large Specific Surface Area and High Mechanical Strength for Efficient and Stable Alkaline Water/Seawater Hydrogen Evolution (Article)**
    Minghui Ning, Yu Wang, Libo Wu, Lun Yang, Zhaoyang Chen, Shaowei Song, Yan Yao, Jiming Bao, Shuo Chen & Zhifeng Ren
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21. **Electrochemically Grown Ultrathin Platinum Nanosheet Electrodes with Ultralow Loadings for Energy-Saving and Industrial-Level Hydrogen Evolution (Article)**
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22. **Strategies for Sustainable Production of Hydrogen Peroxide via Oxygen Reduction Reaction: From Catalyst Design to Device Setup (Review)**
    Yuhui Tian, Daijie Deng, Li Xu, Meng Li, Hao Chen, Zhenzhen Wu & Shanqing Zhang
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23. **Nanostructuring of Mg-Based Hydrogen Storage Materials: Recent Advances for Promoting Key Applications (Review)**
    Li Ren, Yinghui Li, Ning Zhang, Zi Li, Xi Lin, Wen Zhu, Chong Lu, Wenjiang Ding & Jianxin Zou
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24. **Recent Advances of Electrocatalyst and Cell Design for Hydrogen Peroxide Production (Review)**
    Xiao Huang, Min Song, Jingjing Zhang, Tao Shen, Guanyu Luo & Deli Wang
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25. **Photocatalytic and Electrocatalytic Generation of Hydrogen Peroxide: Principles, Catalyst Design and Performance (Review)**
    Yan Guo, Xili Tong & Nianjun Yang
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26. **Facet Engineering of Advanced Electrocatalysts Toward Hydrogen/Oxygen Evolution Reactions (Review)**

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27. **Waste-Derived Catalysts for Water Electrolysis: Circular Economy-Driven Sustainable Green Hydrogen Energy (Review)**

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