Journal of Electrochemistry

Volume 23 | Issue 1

2017-02-28

Latest and Hot Papers

ZHUANG Lin
lzhuang@whu.edu.cn

近期热点文章
Latest and Hot Papers

Nanostructured Material-Based Biofuel Cells: Recent Advances and Future Prospects
C. Zhao, P. Gai, R. Song, Y. Chen, J. Zhang, J.-J. Zhu
Chem. Soc. Rev. DOI: 10.1039/C6CS00044D
关于生物燃料电池纳米结构电极材料的综述,引用了 265 篇参考文献.

A Half-Wave Rectified Alternating Current Electrochemical Method for Uranium Extraction from Seawater
C. Liu, P.-C. Hsu, J. Xie, J. Zhao, T. Wu, H. Wang, W. Liu, J. Zhang, S. Chu, Y. Cui
Nat. Energy DOI: 10.1038/nenergy.2017.7
以偕胺肟分子修饰碳电极,采用半波整流的交流电化学方法从海水中提取铀,比常规的物理化学方法具有更高的效率.

Surface and Interface Engineering of Noble-Metal-Free Electrocatalysts for Efficient Energy Conversion Processes
Y. P. Zhu, C. Guo, Y. Zheng, S.-Z. Qiao
Acc. Chem. Res. DOI: 10.1021/acs.accounts.6b00635
关于非贵金属电催化剂的研究进展报告, 引用了 63 篇参考文献.

Formation of Reversible Solid Electrolyte Interface on Graphite Surface from Concentrated Electrolytes
D. Lu, J. Tao, P. Yan, W. A. Henderson, Q. Li, Y. Shao, M. L. Helm, O. Borodin, G. L. Graff, B. Polzin, C.-M. Wang, M. Engelhard, J.-G. Zhang, J. J. De Yoreo, J. Liu, J. Xiao
Nano Lett. DOI: 10.1021/acs.nanolett.6b04766
采用浓电解液,屏蔽溶剂分子嵌入石墨负极表面的固体电解质界面(SEI)层,从而避免 SEI 层随充放电不断生长引起电解液消耗的问题.

Highly Stable Red-Light-Emitting Electrochemical Cells
C. D. Ertl, C. Momblona, A. Pertegás, J. M. Junquera-Hernández, M.-G. La-Placa, A. Prescimone, E. Ortí, C. E. Housecroft, E. C. Constable, H. J. Bolink
J. Am. Chem. Soc. DOI: 10.1021/jacs.6b13311
合成表征了一系列 Ir(III)大环配合物,用作电化学发光电极材料,可几千小时稳定地发红光.

Hollow Iron-Vanadium Composite Spheres: A Highly Efficient Iron-Based Water Oxidation Electrocatalyst without the Need for Nickel or Cobalt
K. Fan, Y. Ji, H. Zou, J. Zhang, B. Zhu, H. Chen, Q. Daniel, Y. Luo, J. Yu, L. Sun
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201611863
报道了一种具有层级结构的空心 FeV 双金属催化剂,对碱性介质中的氧析出反应(OER)具有好的催化性能,超电势 0.39 V@10 mA·cm^{-2}.

Odyssey of Multivalent Cathode Materials: Open Questions and Future Challenges
P. Canepa, G. S. Gautam, D. C. Hannah, R. Malik, M. Liu, K. G. Gallagher, K. A. Persson, G. Ceder
Chem. Rev. DOI: 10.1021/acs.chemrev.6b00614
关于多电子正极材料的综述,引用了 341 篇参考文献.

Hydronium-Ion Batteries with Perylenetetracarboxylic Dianhydride Crystals as An Electrode
X. Wang, C. Bommier, Z. Jian, Z. Li, R. S. Chandrabose, I. A. Rodríguez-Pérez, P. A. Greaney, X. Ji
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201700148
以苝四甲酸酐为电极材料,实现水合氢离子嵌入电极,容量为 85 mAh·g^{-1}@1 A·g^{-1}.

Nanostructured Materials for Heterogeneous Electrocatalytic CO_2 Reduction and Related Reaction Mechanisms
J. Gong, L. Zhang, Z.-J. Zhao
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201612214
关于 CO_2 电还原纳米结构电极材料和反应机理的综述,引用了 198 篇参考文献.

A Review of High Temperature Co-Electrolysis of H_2O and CO_2 to Produce Sustainable Fuels Using Solid Oxide Electrolysis Cells (SOECs): Advanced Materials and Technology
Y. Zheng, J. Wang, B. Yu, W. Zhang, J. Chen, J. Qiao, J. Zhang
Chem. Soc. Rev. DOI: 10.1039/C6CS00403B
关于以高温固体氧化物电解 H_2O+CO_2 制备碳氢燃料的综述,引用了 359 篇参考文献.

Shape-Dependent Electrocatalytic Reduction of

CO_2 to CO on Triangular Silver Nanoplates

S. Liu, H. Tao, L. Zeng, Q. Liu, Z. Xu, Q. Liu, J.-L. Luo

J. Am. Chem. Soc. DOI: 10.1021/jacs.6b12103

以三角形 Ag 纳米片为催化剂,CO_2 电还原为 CO 的法拉第效率为 96.8%, 能量转化效率可达 61.7%,且保持稳定达 7 天.

Mechanistic Investigation of Water Oxidation Catalyzed by Uniform, Assembled MnO Nanoparticles

K. Jin, H. Seo, T. Hayashi, M. Balamurugan, D. Jeong, Y. K. Go, J. S. Hong, K. H. Cho, H. Kakizaki, N. Bonnet-Mercier, M. G. Kim, S. H. Kim, R. Nakamura, K. T. Nam

J. Am. Chem. Soc. DOI: 10.1021/jacs. 6b10657

采用 X-射线吸收近沿光谱(XANES)等原位谱学手段, 研究 MnO 纳米粒子组装的电极催化 OER 的机理,发现存在 Mn(IV)=O 反应中间体.

Simple-Cubic Carbon Frameworks with Atomically Dispersed Iron Dopants toward High-Efficiency Oxygen Reduction

B. Wang, X. Wang, J. Zou, Y. Yan, S. Xie, G. Hu, Y. Li, A. Dong

Nano Lett. DOI: 10.1021/acs.nanolett.7b00004

以 Fe_3O_4 纳米立方体自组装阵列为模版灌注有机物,碳化和氨化后获得均匀分布的、每个活性位点都暴露的 Fe-N-C 有序结构催化剂,对氧还原反应(ORR)的催化性能优于 Pt/C.

From Carbon-Based Nanotubes to Nanocages for Advanced Energy Conversion and Storage

Q. Wu, L. Yang, X. Wang, Z. Hu

Acc. Chem. Res. DOI: 10.1021/acs.accounts.6b00541

关于碳纳米管和纳米笼材料用于能量转化与储存的研究进展报告,引用了 53 篇参考文献.

Efficient Hydrogen Evolution Electrocatalysis Using Cobalt Nanotubes Decorated with Titanium Dioxide Nanodots

J.-X. Feng, H. Xu, Y.-T. Dong, X.-F. Lu, Y.-X. Tong, G.-R. Li

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201611767

TiO_2 纳米粒子修饰的 Co 纳米管,可活化界面水分子,从而对碱性条件下氢吸出反应(HER)具有高的催化活性.

Low-Cost High-Energy Potassium Cathode

L. Xue, Y. Li, H. Gao, W. Zhou, X. Lü , W. Kaveevivitchai, A. Manthiram, J. B. Goodenough

J. Am. Chem. Soc. DOI:10.1021/jacs.6b12598

以 $K_xMnFe(CN)_6$ ($0 \leqslant x \leqslant 2$)为钾离子电池正极材料,充放电平台电压在 3.6 V 左右,电极容量为 142 $mAh \cdot g^{-1}$.

Effect of Interlayer Spacing on the Activity of Layered Manganese Oxide Bilayer Catalysts for the Oxygen Evolution Reaction

Q. Kang, L. Vernisse, R. C. Remsing, A. C. Thenuwara, S. L. Shumlas, I. G. McKendry, M. L. Klein, E. Borguet, M.l J. Zdilla, D. R. Strongin

J. Am. Chem. Soc. DOI: 10.1021/jacs.6b09184

发现两个 MnO_2 纳米片之间的距离对 OER 的催化性能有重要影响,Cs^+ 插入时超电势为 0.45 V;而 Li^+ 插入时超电势为 0.68 V@1 $mA \cdot cm^{-2}$.

The Importance of Cannizzaro-Type Reactions during Electrocatalytic Reduction of Carbon Dioxide

Y. Y. Birdja, M. T. M. Koper

J. Am. Chem. Soc. DOI: 10.1021/jacs.6b12008

发现当超电势较大时, 由于 HER 造成的电极表面局部 pH 增大,使原本没有活性的硼杂金刚石电极可将 CO_2 催化还原为甲醛甚至甲烷.

庄 林
(武汉大学 化学与分子科学学院)
编于 2017 年 2 月 19 日