Journal of Electrochemistry

Volume 19
Issue 5 *Special Issue of Environmental Electrochemistry (Ⅱ) (Editor: Professor LIN Hai-bo)*

2013-10-28

Latest and Hot Papers

Lin ZHUANG

Recommended Citation
Lin ZHUANG. Latest and Hot Papers[J]. *Journal of Electrochemistry*, 2013 , 19(5): Article 16.
DOI: 10.61558/2993-074X.2966
Available at: https://jelectrochem.xmu.edu.cn/journal/vol19/iss5/16

近期热点文章
Latest and Hot Papers

A Bio-Inspired, Small Molecule Electron-Coupled-Proton Buffer for Decoupling the Half-Reactions of Electrolytic Water Splitting

B. Rausch, M. D. Symes, L. Cronin

J. *Am. Chem. Soc.* DOI:10.1021/ja4071893

又一篇时空分离水电解的报道. 阳极直接析氧,但阴极不是直接析氢,而是以醌/酚电对为电子转移媒介.

Seed-Mediated Synthesis of Core/Shell FePtM/FePt (M = Pd, Au) Nanowires and Their Electrocatalysis for Oxygen Reduction Reaction

S. Guo, S. Zhang, D. Su, S. Sun

J. Am. Chem. Soc. DOI:10.1021/ja406091p

FePtPd 三元合金纳米线为核, 外面包覆一层厚度可控的 FePt,其氧还原反应(ORR)催化活性大幅提升,而且经 5000 周电势循环活性不衰退.

Selective Formation of Biphasic Thin Films of Metal-Organic Frameworks by Potential-Controlled Cathodic Electrodeposition

M. Li, M. Dinca

Chem. Sci. DOI:10.1039/C3SC51815A

金属有机框架化合物(MOF)是当前化学界的一个热门课题,本文报道一种电化学沉积合成 MOF 的方法,而且电极电势可以调控形貌.

One-Dimensional Carbon-Sulfur Composite Fibers for Na-S Rechargeable Batteries Operating at Room Temperature

T. H. Hwang, D. S. Jung, J.-S. Kim, B. G. Kim, J. W. Choi

Nano Lett. DOI:10.1021/nl402513x

采用电纺丝制备 C-S 复合纤维,用作 Na-S 电池正极材料时,工作温度可降至室温,而且可在高倍率下循环充放 500 周.

Fast and Persistent Electrocatalytic Water Oxidation by Co-Fe Prussian Blue Coordination Polymers

S. Pintado, S. Goberna-Ferrón, E. C. Escudero-Adán, J. R. Galán-Mascarós

J. Am. Chem. Soc. DOI:10.1021/ja406242y

以含 Co 和 Fe 的普鲁士蓝型配位聚合物为中性溶液中水氧化反应的分子催化剂,可稳定持续工作.

Theoretical Investigation of the Activity of Cobalt Oxides for the Electrochemical Oxidation of Water

M.Bajdich, M. García-Mota, A. Vojvodic, J. K. Nørskov, A. T. Bell

J. *Am. Chem. Soc.* DOI:10.1021/ja405997s

关于碱性介质中氧析出反应(OER)Co 催化剂的理论计算研究. 发现 β-CoOOH 是催化 OER 的活性相,而且 Ni 的取代可进一步提升催化活性.

A Nanostructured Cathode Architecture For Low Charge Overpotential in Lithium-Oxygen Batteries

J. Lu, Y. Lei, K. C. Lau, X. Luo, P. Du, J. Wen, R. S. Assary, U. Das, D. J. Miller, J. W. Elam, H. M. Albishri, D. El-Hady, Y. -K. Sun, L. A. Curtiss, K. Amine

Nature Commun. DOI:10.1038/ncomms3383

含 Pd 和氧化铝的纳米结构碳电极在 Li-O_2 电池中表现出优异的性能,充电时超电势仅 0.2 V,氧化铝对碳表面缺陷的保护也防止了电解液的分解.

Platinum-Coated Copper Nanowires with High Activity for Hydrogen Oxidation Reaction in Base

S. M. Alia, B. S. Pivovar, Y. Yan

J. Am. Chem. Soc. DOI:10.1021/ja405598a

Pt 包覆的 Cu 纳米线比 Pt/C 对碱性介质中氢氧化反应(HOR)具有更高的催化活性,作者认为 Cu 引起的 Pt 晶格收缩可能是性能提高的原因.

Cobalt Molybdenum Oxynitrides: Synthesis, Structural Characterization, and Catalytic Activity for the Oxygen Reduction Reaction

B. Cao, G. M. Veith, R. E. Diaz, J. Liu, E. A. Stach, R. R. Adzic, P. G. Khalifah

Angew. Chem. Int. Ed. DOI:10.1002/anie.201303197

碱性介质中 ORR 的非贵金属催化剂研究, 含 Co 和 Mo 的氮氧化合物,但催化活性仍然不如 Pt.

Nitrogen-Doped Carbon Nanomaterials as Non-Metal Electrocatalysts for Water Oxidation

Y. Zhao, R. Nakamura, K. Kamiya, S. Nakanishi, K. Hashimoto

Nature Commun. DOI:10.1038/ncomms3390

氮杂碳纳米材料作为碱性介质中的 OER 催化剂，在 10 mA·cm^{-2} 时超电势为 0.38 V. 没有提到这类材料作为 OER 催化剂能否稳定工作的问题.

A Zero-Strain Layered Metal Oxide as the Negative Electrode for Long-Life Sodium-Ion Batteries

Y. Wang, X. Yu, S. Xu, J. Bai, R. Xiao, Y. -S. Hu, H. Li, X. -Q. Yang, L. Chen, X. Huang

Nature Commun. DOI:10.1038/ncomms3365

以 $Na_{0.66}[Li_{0.22}Ti_{0.78}]O_2$ 为钠离子电池负极材料，充放电体积变化仅 0.77%，实用容量约 100 mAh·g^{-1}.

Enhanced Catalytic Activity in Strained Chemically Exfoliated WS_2 Nanosheets for Hydrogenevolution

D. Voiry, H. Yamaguchi, J. Li, R. Silva, D. C. B. Alves, T. Fujita, M. Chen, T. Asefa, V. B. Shenoy, G. Eda, M. Chhowalla

Nature Mater. 12 (2013) 850.

制备单层 WS_2 纳米片，并发现是氢析出反应(HER)很好的催化剂.

Reversible Anionic Redox Chemistry in High-Capacity Layered-Oxide Electrodes

M. Sathiya, G. Rousse, K. Ramesha, C. P. Laisa, H. Vezin, M. T. Sougrati, M-L. Doublet, D. Foix, D. Gonbeau, W. Walker, A. S. Prakash, M. B. Hassine, L. Dupont, J-M. Tarascon

Nature Mater. 12 (2013) 827.

报道了新型的锂离子电池正极材料 $Li_2Ru_{1-y}Sn_yO_3$，可逆容量为 230 mAh·g^{-1}，且有很好的循环性能.

Understanding the Lithiation of Silicon and Other Alloying Anodes for Lithium-Ion Batteries

M. T. McDowell, S. W. Lee, W. D. Nix, Y. Cui

Adv. Mater. DOI:10.1002/adma.201301795

关于锂离子电池 Si 负极材料的综述，引用了 145 篇参考文献.

Salts of $C_{60}(OH)_8$ Electrodeposited onto a Glassy Carbon Electrode: Surprising Catalytic Performance in the Hydrogen Evolution Reaction

J. Zhuo, T. Wang, G. Zhang, L. Liu, L. Gan, M. Li

Angew. Chem. Int. Ed. DOI:10.1002/anie.201305328

发现 $C_{60}(OH)_8$ 经电化学沉积到玻碳电极表面后，表现出非常高的 HER 催化活性. 这是一种不常见的不含金属的 HER 分子催化剂.

Water-Splitting Catalysis and Solar Fuel Devices: Artificial Leaves on the Move

K. S. Joya, Y. F. Joya, K. Ocakoglu, R. van de Krol

Angew. Chem. Int. Ed. DOI:10.1002/anie.201300136

关于人工光合作用(光电化学分解水)的近期研究进展的综述，引用了 93 篇参考文献.

Membrane-Less Hydrogen Bromine Flow Battery

W. A. Braff, M. Z. Bazant, C. R. Buie

Nature Commun. DOI:10.1038/ncomms3346

报道了一种无隔膜层流型氢溴液流电池.

Metallic Anodes for Next Generation Secondary Batteries

H. Kim, G. Jeong, Y. -U. Kim, J. -H. Kim, C. -M. Parke, H. -J. Sohn

Chem. Soc. Rev. DOI:10.1039/C3CS60177C

关于二次电池金属阳极的综述，包括 Li、Na、Mg、Zn，引用了 286 篇参考文献.

An Investigation of Thin-Film Ni-Fe Oxide Catalysts for the Electrochemical Evolution of Oxygen

M. W. Louie, A. T. Bell

J. Am. Chem. Soc. 135 (2013) 12329.

关于电沉积法获得的 Ni-Fe 氧化物薄层作为碱性介质中 OER 催化剂的研究，深入分析了 Fe 的加入对 NiOOH 的结构及性质的影响.

Reversibility of Anodic Lithium in Rechargeable Lithium-Oxygen Batteries

J. -L. Shui, J. S. Okasinski, P. Kenesei, H. A. Dobbs, D. Zhao, J. D. Almer, D. -J. Liu

Nature Commun. DOI:10.1038/ncomms3255

采用基于同步加速器的 X 射线方法研究锂空电池中金属 Li 电极在循环充放过程中的变化.

庄 林
(武汉大学 化学与分子科学学院)

编于 2013 年 9 月 8 日