Journal of Electrochemistry

Volume 21
Issue 3 *Special Issue of Chemical Power Source and Its Materials (Ⅱ)*

2015-06-28

Latest and Hot Papers

Lin ZHUANG

Recommended Citation
Lin ZHUANG. Latest and Hot Papers[J]. *Journal of Electrochemistry*, 2015 , 21(3): Article 12.
DOI: 10.61558/2993-074X.2984
Available at: https://jelectrochem.xmu.edu.cn/journal/vol21/iss3/12

This Latest and Hot Paper is brought to you for free and open access by Journal of Electrochemistry. It has been accepted for inclusion in Journal of Electrochemistry by an authorized editor of Journal of Electrochemistry.

近期热点文章
Latest and Hot Papers

Electrochemical Water-Splitting Based on Hypochlorite Oxidation
K. M. Macounová, N. Simic, E. Ahlberg, P. Krtil
J. Am. Chem. Soc. DOI: 10.1021/jacs.5b02087
碱性介质中 ClO^-在 Pt 电极表面氧化生成 ClO·自由基,继而氧化 H_2O,产生 O_2 和 H_2O_2. 间接实现水分解.

Enhanced Cycling Stability of Hybrid Li-Air Batteries Enabled by Ordered Pd_3Fe Intermetallic Electrocatalyst
Z. Cui, L. Li, A. Manthiram, J. B. Goodenough
J. Am. Chem. Soc. DOI: 10.1021/jacs.5b03865
有序金属间化合物 Pd_3Fe 作为碱性双功能氧电极催化剂,应用于混合电解质锂空电池,实现 220 周充放电循环.

Phase and Composition Controllable Synthesis of Cobalt Manganese Spinel Nanoparticles Towards Efficient Oxygen Electrocatalysis
C. Li, X. Han, F. Cheng, Y. Hu, C. Chen, J. Chen
Nature Commun. DOI: 10.1038/ncomms8345
采用温和的溶液反应合成 CoMn 尖晶石纳米晶,对碱性氧还原反应(ORR)和氧析出反应(OER)具有高的催化活性和稳定性. 可用于锌空电池和锂空电池.

Elucidation of Pathways for NO Electroreduction on Pt(111) from First Principles
A. Clayborne, H. -J. Chun, R. B. Rankin, J. Greeley
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201502104
关于 Pt (111) 表面 NO 电还原的第一性原理计算. 发现在 H_2O 辅助质子化的条件下,N—O 键可在中等极化(< 0.3 V)下断裂生成 NH_3.

Mechanoelectrochemical Catalysis of the Effect of Elastic Strain on a Platinum Nanofilm for the ORR Exerted by a Shape Memory Alloy Substrate
M. Du, L. Cui, Y. Cao, A. J. Bard
J. Am. Chem. Soc. DOI: 10.1021/jacs.5b03034
采用 NiTi 形状记忆合金为基底, 分别在压缩和拉伸条件下沉积 Pt 纳米薄膜, 研究晶格变形效应对 ORR 电催化的影响.

Tin and Tin Compounds for Sodium Ion Battery Anodes: Phase Transformations and Performance
Z. Li, J. Ding, D. Mitlin
Acc. Chem. Res. DOI: 10.1021/acs.accounts.5b00114
关于 Sn 和 Sn 化合物作为钠离子电池阳极材料的综述. 引用了 56 篇参考文献.

One-Step Synthesis of Self-Supported Nickel Phosphide Nanosheet Array Cathodes for Efficient Electrocatalytic Hydrogen Generation
X. Wang, Y. V. Kolen'ko, X.-Q. Bao, K. Kovnir, L. Liu
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201502577
一步法合成磷化镍纳米片阵列电极,对碱性介质氢析出反应(HER)具有优异的催化活性和稳定性. 可应用于水电解.

Stable Cobalt Nanoparticles and Their Monolayer Array as an Efficient Electrocatalyst for Oxygen Evolution Reaction
L. Wu, Q. Li, C. H. Wu, H. Zhu, A. Mendoza-Garcia, B. Shen, J. Guo, S. Sun
J. Am. Chem. Soc. DOI: 10.1021/jacs.5b04142
通过 600 ℃ 还原气氛下煅火获得单分散的 Co 金属纳米粒子, 对碱性介质中的 OER 表现出优于 Ir 催化剂的活性和稳定性.

Self-Assembled Three-Dimensional and Compressible Interdigitated Thin-Film Supercapacitors and Batteries
G. Nyström, A. Marais, E. Karabulut, L. Wågberg, Y. Cui, M. M. Hamedi
Nature Commun. DOI: 10.1038/ncomms8259
通过在气凝胶中层层自组装,获得具有三维结构的超级电容器电极,可以 25 $F \cdot g^{-1}$ 的比容量稳定充放电超过 400 周.

Metallic WO_2-Carbon Mesoporous Nanowires as Highly Efficient Electrocatalysts for Hydrogen Evolution Reaction
R. Wu, J. Zhang, Y. Shi, D. Liu, B. Zhang
J. Am. Chem. Soc. DOI: 10.1021/jacs.5b01330
以 WO_3-EDA 为前体,制得富含氧空位的碳载 WO_2 介孔材料, 对酸性条件下的 HER 具有高的催化活性和稳定性.

Extraordinary Supercapacitor Performance of a Multicomponent and Mixed-Valence Oxyhydroxide

J. Kang, A. Hirata, L. Chen, S. Zhu, T. Fujita, M. Chen

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201500133

通过 NiCuMo 去合金化获得多组分多价态纳米多孔材料,用作超级电容器电极,具有超过 1000 $F \cdot g^{-1}$ 的比容量,以及水溶液电解质中宽达 1.8 V 的电势窗口.

Recent Advancement of Nanostructured Carbon for Energy Applications

Z. Yang, J. Ren, Z. Zhang, X. Chen, G. Guan, L. Qiu, Y. Zhang, H. Peng

Chem. Rev. DOI: 10.1021/cr5006217

纳米结构碳材料在能量转化与储存中的应用的综述. 引用参考文献超过 600 篇.

The Critical Role of Phase-Transfer Catalysis in Aprotic Sodium Oxygen Batteries

C. Xia, R. Black, R. Fernandes, B. Adams, L. F. Nazar

Nature Chem. 7 (2015) 496.

报道了 Na-O_2 电池中 H_2O 对氧电极催化过程的影响,发现 H_2O 扮演着相转移催化剂的作用,将电极表面的超氧自由基转移至电解液中,使体系具有高的可逆容量.

Nanoelectrochemical Approach to Detecting Short-Lived Intermediates of Electrocatalytic Oxygen Reduction

M. Zhou, Y. Yu, K. Hu, M. V. Mirkin

J. Am. Chem. Soc. DOI: 10.1021/ja512482n

以填充有机溶剂的纳米移液管靠近 Pt 电极表面至 1 nm 的尺度,ORR 过程产生的超氧自由基中间体转移至有机介质后可被清楚无误地检测到.

The Reaction Mechanism with Free Energy Barriers for Electrochemical Dihydrogen Evolution on MoS_2

Y. Huang, R. J. Nielsen, W. A. Goddard, M. P. Soriaga

J. Am. Chem. Soc. DOI: 10.1021/jacs.5b03329

通过密度泛函理论(DFT)计算研究 MoS_2 表面电化学析氢过程的机理和能垒,认为 Mo 位点的反应能垒是重要的反应性描述符.

The First Introduction of Graphene to Rechargeable Li-CO_2 Batteries

Z. Zhang, Q. Zhang, Y. Chen, J. Bao, X. Zhou, Z. Xie, J. Wei, Z. Zhou

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201501214

首次将石墨烯用作 Li-CO_2 电池的正极材料, 表现出更好的容量和改善的循环性能.

Versatile Electrochemical CH Amination via Zincke Intermediates

S. R. Waldvogel, S. Möhle

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201502638

介绍一种以吡啶为氮源, 将 C—H 转化为 C—NH_2 的电化学氧化偶联方法.

Electrochemical Polymerization of Pyrene Derivatives on Functionalized Carbon Nanotubes for Pseudocapacitive Electrodes

J. C. Bachman, R. Kavian, D. J. Graham, D. Y. Kim, S. Noda, D. G. Nocera, Y. Shao-Horn, S. W. Lee

Nature Commun. DOI: 10.1038/ncomms8040

通过电化学聚合在多壁碳纳米管表面修饰芳香分子,用作超级电容器电极,表现出高的电极容量和循环性能.

Ultrathin Spinel-Structured Nanosheets Rich in Oxygen Deficiencies for Enhanced Electrocatalytic Water Oxidation

J. Bao, X. Zhang, B. Fan, J. Zhang, M. Zhou, W. Yang, X. Hu, H. Wang, B. Pan, Y. Xie

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201502226

设计了一系列富含氧空位的尖晶石结构纳米片,其中 $NiCo_2O_4$ 对碱性 OER 具有高催化活性.

庄 林
(武汉大学 化学与分子科学学院)

编于 2015 年 6 月 7 日