

Journal of Electrochemistry

Volume 19
Issue 4 *Special Issue of Environmental
Electrochemistry (I)* (Editor: Professor LIN Hai-
bo)

2013-08-28

Latest and Hot papers

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Recommended Citation

Zhuang Lin. Latest and Hot papers[J]. *Journal of Electrochemistry*, 2013 , 19(4): 388-389.

DOI: 10.61558/2993-074X.2126

Available at: <https://jelectrochem.xmu.edu.cn/journal/vol19/iss4/13>

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近期热点文章 Latest and Hot Papers

Platinum-Based Oxygen Reduction Electrocatalysts

J. Wu, H. Yang

Acc. Chem. Res. DOI:10.1021/ar300359w

关于氧还原反应 (ORR) 铂基纳米催化剂的评述. 引用了 57 篇文献.

Highly Stable, Anion Conductive, Comb-Shaped Copolymers for Alkaline Fuel Cells

N. Li, Y. Leng, M. A. Hickner, C. -Y. Wang

J. Am. Chem. Soc. DOI:10.1021/ja403671u

基于 PPO 主链的碱性聚合物电解质, 其季铵官能团带长的憎水脂肪链, 在 KOH 水溶液的稳定性有明显的提升.

Graphene Nanoelectrodes: Fabrication and Size-Dependent Electrochemistry

B. Zhang, L. Fan, H. Zhong, Y. Liu, S. Chen

J. Am. Chem. Soc. DOI:10.1021/ja402456b

在修饰了长链硫醇的 Au 超微电极表面粘附一片石墨烯, 由此构成的纳米电极可用于研究纳米尺度异相电子转移的特殊规律.

Electrochemical Synthesis of One-Dimensional Mesoporous Pt Nanorods Using the Assembly of Surfactant Micelles in Confined Space

C. Li, T. Sato, Y. Yamauchi

Angew. Chem. Int. Ed. DOI:10.1002/anie.201303035

在 Pt 电极表面覆盖一层具有直通孔的聚碳酸酯膜, 再通过电沉积获得 Pt 纳米棒阵列电极, 对甲醇氧化反应 (MOR) 和 ORR 表现出高的催化活性.

An Advanced Selenium-Carbon Cathode for Rechargeable Lithium-Selenium Batteries

C.-P. Yang, S. Xin, Y.-X. Yin, H. Ye, J. Zhang, Y.-G. Guo

Angew. Chem. Int. Ed. DOI:10.1002/anie.201303147

在介孔碳中填充 Se₈ 分子作为阴极构成可循环充放的 Li-Se 电池, 具有高的体积能量密度和循环性能.

A Highly Active and Support-Free Oxygen Reduction

Catalyst Prepared from Ultrahigh-Surface-Area Porous Polyporphyrin

S. Yuan, J. -L. Shui, L. Grabstanowicz, C. Chen, S.

Commet, B. Reprogel, T. Xu, L. Yu, D. -J. Liu

Angew. Chem. Int. Ed. DOI:10.1002/anie.201302924

以 Fe 卟啉聚合成的三维多孔体为电极, 对 ORR 表现出较高的催化活性, 组装成的 H₂-O₂ 质子交换膜燃料电池 (PEMFC) 峰值功率达 700 mW·cm⁻².

In Situ Solid-State NMR Spectroscopy of Electrochemical Cells: Batteries, Supercapacitors, and Fuel Cells

F. Blanc, M. Leskes, C. P. Grey

Acc. Chem. Res. DOI:10.1021/ar400022u

电化学现场核磁共振 (NMR) 技术及其在电池、超级电容器、燃料电池研究中的应用的综述. 引用了 43 篇文章.

Toward a Lithium-"Air" Battery: The Effect of CO₂ on the Chemistry of a Lithium-Oxygen Cell

H. -K. Lim, H. -D. Lim, K. -Y. Park, D. -H. Seo, H.

Gwon, J. Hong, W. A. Goddard, H. Kim, K. Kang

J. Am. Chem. Soc. DOI:10.1021/ja4016765

Li-空气电池中, CO₂ 的影响是一个非常重要的问题. 研究发现当使用高介电溶剂 (如 DMSO) 时, CO₂ 参与氧电极反应, 但仍具有一定的可逆性.

Three-Dimensional Hierarchical Ternary Nanostructures for High-Performance Li-Ion Battery Anodes

B. Liu, P. Soares, C. Checkles, Y. Zhao, G. Yu

Nano Lett. DOI:10.1021/nl401880v.

为解决 Si 电极在充放过程中的体积变化问题, 构建 Si 纳米粒子/导电聚合物/碳纳米管多层次三维电极, 容量可达 1600 mAh·g⁻¹, 循环性能明显提升.

Tin Anode for Sodium-Ion Batteries Using Natural Wood Fiber as a Mechanical Buffer and Electrolyte Reservoir

H. Zhu, Z. Jia, Y. Chen, N. Weadock, J. Wan, O.

Vaaland, X. Han, T. Li, L. Hu

Nano Lett. DOI:10.1021/nl400998t.

以天然树木纤维为基底包覆 Sn 薄层作为钠离子电池的阳极材料,缓解充放电过程的体积变化,植物纤维的多孔结构可储存电解液并促进离子传输.

Etched Graphite with Internally Grown Si Nanowires from Pores as an Anode for High Density Li-Ion Batteries

S. Jeong, J. -P. Lee, M. Ko, G. Kim, S. Park, J. Cho

Nano Lett. DOI:10.1021/nl401836c

在经刻蚀形成的多孔石墨球内部生长 Si 纳米线,此多级结构的锂离子电池阳极具有 $1363 \text{ mAh}\cdot\text{cm}^{-3}$ 的比能量和较好的循环性能.

Tuning Nanoparticle Catalysis for the Oxygen Reduction Reaction

S. Guo, S. Zhang, S. Sun

Angew. Chem. Int. Ed. 135 (2013) 5938.

关于燃料电池 ORR 纳米催化剂(Pt 和非 Pt)的综述. 引用了 118 篇参考文献.

Ultrathin and Ultralong Single-Crystal Platinum Nanowire Assemblies with Highly Stable Electrocatalytic Activity

B. Y. Xia, H. B. Wu, Y. Yan, X. W. Lou, X. Wang

J. Am. Chem. Soc. 135 (2013) 9480.

超长 Pt 纳米线的制备, 以及作为甲醇甲酸等小分子电氧化催化剂的研究.

Nanostructured Nickel Phosphide as an Electrocatalyst for the Hydrogen Evolution Reaction

E. J. Popczun, J. R. McKone, C. G. Read, A. J. Biacchi, A. M. Wiltrout, N. S. Lewis, R. E. Schaak

J. Am. Chem. Soc. 135 (2013) 9267.

计算与实验相结合研究 Ni_2P 作为酸性介质中的析氢反应催化剂,析氢超电势比 Pt 电极约高 0.1 V.

Facile Synthesis of Free-Standing Silicon Membranes with Three-Dimensional Nanoarchitecture for Anodes of Lithium Ion Batteries

F. Xia, S. B. Kim, H. Cheng, J. M. Lee, T. Song, Y. Huang, J. A. Rogers, U. Paik, W. I. Park

Nano Lett. DOI:10.1021/nl401629q

具有三维纳米结构的 Si 薄膜的合成以及用作锂离子电池阳极材料的研究. 所组装的电池在 100 周循环充放电后容量仍高达 $2414 \text{ mAh}\cdot\text{g}^{-1}$.

Proton-Coupled Electron Transfer Cleavage of Heavy-Atom Bonds in Electrocatalytic Processes. Cleavage of a C-O Bond in the Catalyzed Electrochemical Reduction of CO_2

C. Costentin, S. Drouet, G. Passard, M. Robert, J. -M. Savéant

J. Am. Chem. Soc. 135 (2013) 9023.

研究 Fe 卟啉分子催化剂在 Lewis 酸协助下催化 CO_2 电还原中的 C-O 断键过程.

Ultrathin PtPdTe Nanowires as Superior Catalysts for Methanol Electrooxidation

H. -H. Li, S. Zhao, M. Gong, C. -H. Cui, D. He, H. -W. Liang, L. Wu, S. -H. Yu

Angew. Chem. Int. Ed. DOI:10.1002/anie.201302090.

以 Te 纳米线为模版和牺牲剂合成超长和超薄的 PtPdTe 三元纳米线催化剂,对 MOR 具有较高的催化活性.

Stable Li-ion Battery Anodes by in-situ Polymerization of Conducting Hydrogel to Conformally Coat Silicon Nanoparticles

H. Wu, G. Yu, L. Pan, N. Liu, M. T. McDowell, Z. Bao, Y. Cui

Nature Commun. DOI:10.1038/ncomms2941

在 Si 纳米颗粒外面电聚合导电聚合物形成的多级结构作为锂离子电池阳极,经 5000 周循环(电流密度 $6 \text{ A}\cdot\text{g}^{-1}$),电池容量仍保持 90%.

Selective Conversion of CO_2 to CO with High Efficiency Using an Inexpensive Bismuth-Based Electrocatalyst

M. V. Reddy, G. V. Subba Rao, B. V. R. Chowdari

J. Am. Chem. Soc. 135 (2013) 8798.

通过电化学沉积获得的 Bi 电极可高效和高选择性地催化 CO_2 还原到 CO,电解质为离子液体.

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编于 2013 年 6 月 30 日