

近期热点文章 Latest and Hot Papers

Size-Dependent Surface Phase Change of Lithium Iron Phosphate during Carbon Coating

J. Wang, J. Yang, Y. Tang, J. Liu, Y. Zhang, G. Liang, M. Gauthier, Y. K. Chen-Wiegart, M. N. Banis, X. Li, R. Li, J. Wang, T. K. Sham, X. Sun
Nature Commun. DOI: 10.1038/ncomms4451
发现 LiFePO_4 包碳过程的界面相变与活性物质的粒径有关, 纳米粒子的界面稳定性较高, 而微米粒子在高温包碳过程中界面发生明显变化.

Ionic Liquids at Electrified Interfaces

M. V. Fedorov, A. A. Kornyshev
Chem. Rev. DOI: 10.1021/cr400374x
关于离子液体电化学应用的综述, 引用了 743 篇参考文献.

Unstacked Double-Layer Templated Graphene for High-Rate Lithium-Sulphur Batteries

M. -Q. Zhao, Q. Zhang, J. -Q. Huang, G. -L. Tian, J. -Q. Nie, H. -J. Peng, F. Wei
Nature Commun. DOI: 10.1038/ncomms4410
采用金属氧化物防止石墨烯堆积, 并应用于 Li-S 电池, 发现 1000 周循环容量仍能很好保持.

Self-Supported Pd_4Bi Catalysts for the Electrooxidation of Glycerol in Alkaline Media

A. Zalineeva, A. Serov, M. Padilla, U. Martinez, K. Artyushkova, S. Baranton, C. Coutanceau, P. B. Atanassov
J. Am. Chem. Soc. DOI: 10.1021/ja412429f
发现多孔 Pd_4Bi 对碱性介质中的甘油电氧化反应具有高的催化活性, 此材料的多孔结构与形貌对催化活性有影响.

Phase Evolution for Conversion Reaction Electrodes in Lithium-Ion Batteries

F. Lin, D. Nordlund, T. -C. Weng, Y. Zhu, C. Ban, R. M. Richards, H. L. Xin
Nature Commun. DOI: 10.1038/ncomms4358

采用谱学方法和三维成像技术研究锂离子电池 NiO 阳极材料锂嵌脱过程的结构与电极/溶液界面变化.

Capacitance of Carbon-Based Electrical Double-Layer Capacitors

H. Ji, X. Zhao, Z. Qiao, J. Jung, Y. Zhu, Y. Lu, L. Li Zhang, A. H. MacDonald, R. S. Ruoff
Nature Commun. DOI: 10.1038/ncomms4317
采用 1 至 5 层石墨烯研究碳基双层电容器的容量影响因素, 发现仅当石墨烯层数适当时才可获得较高容量.

All Organic Sodium-Ion Batteries with $\text{Na}_4\text{C}_8\text{H}_2\text{O}_6$

S. Wang, L. Wang, Z. Zhu, Z. Hu, Q. Zhao, J. Chen
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201400032
将一种有机钠盐 $\text{Na}_4\text{C}_8\text{H}_2\text{O}_6$ 用作钠离子电池的正极和负极材料, 获得 1.8 V 的电动势和 $65 \text{ Wh} \cdot \text{kg}^{-1}$ 的容量.

Building an Appropriate Active-Site Motif into a Hydrogen-Evolution Catalyst with Thiomolybdate $[\text{Mo}_3\text{S}_{13}]^{2-}$ Clusters

J. Kibsgaard, T. F. Jaramillo, F. Besenbacher
Nature Chem. 6 (2014) 248.
具有 $[\text{Mo}_3\text{S}_{13}]^{2-}$ 结构纳米团簇与 MoS_2 一样具有高的氢析出反应 (HER) 催化活性, 原因是 $[\text{Mo}_3\text{S}_{13}]^{2-}$ 团簇具有大量类似 MoS_2 晶沿的活性位点.

Low pH Electrolytic Water Splitting Using Earth-Abundant Metastable Catalysts That Self-Assemble *in Situ*

L. G. Bloor, P. I. Molina, M. D. Symes, L. Cronin
J. Am. Chem. Soc. 136 (2014) 3304.
在含 Co 盐的 pH 1.6 溶液中施加超过 2 V 的电压, 在两个电极上各生成一层催化 HER 和氧析出反应 (OER) 催化剂.

The Electrochemical Reduction Processes of Solid

Compounds in High Temperature Molten Salts

W. Xiao, D. Wang

Chem. Soc. Rev. DOI: 10.1002/anie.201308099

关于高温熔盐电化学直接还原固态化合物的综述, 引用了 50 篇参考文献.

Li Intercalation into 1D $\text{TiS}_2(\text{en})$ Chains

T. Li, Y. -H. Liu, B. Chitara, J. E. Goldberger

J. Am. Chem. Soc. 136 (2014) 2986. Li^+ 可逆嵌入金属有机材料 $\text{TiS}_2(\text{en})$ 的研究.**Mesoporous Prussian Blue Analogues: Template-Free Synthesis and Sodium-Ion Battery Applications**

Y. Yue, A. J. Binder, B. Guo, Z. Zhang, Z. -A. Qiao, C. Tian, S. Dai

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201310679.将一类普鲁士蓝化合物用作钠离子电池正极材料, 在低倍率下表现出 $65 \text{ mAh} \cdot \text{g}^{-1}$ 的可逆容量.**Predicting the Electrochemical Behavior of Lithium Nitrite in Acetonitrile with Quantum Chemical Methods**

V. S. Bryantsev, J. Uddin, V. Giordani, W. Walker, G. V. Chase, D. Addison

J. Am. Chem. Soc. 136 (2014) 3087.关于 LiNO_2 在乙腈溶液中电化学行为的量子化学计算模拟, 与实验结果有很好的吻合.**Redox Catalysis in Organic Electrosynthesis: Basic Principles and Recent Developments**

R. Francke, R. D. Little

Chem. Soc. Rev. DOI: 10.1039/C3CS60464K

关于有机电合成中氧化还原催化的综述, 引用了 181 篇参考文献.

Amorphous FeOOH Oxygen Evolution Reaction Catalyst for Photoelectrochemical Water Splitting

W. D. Chemelewski, H. -C. Le, J. -F. Lin, A. J. Bard, C. B. Mullins

J. Am. Chem. Soc. 136 (2014) 2843.以无定形 FeOOH 作为 OER 催化剂, 在 $1 \text{ mol} \cdot \text{L}^{-1}$ NaCO_3 溶液中, 550 mV 的极化约可产生 $10 \text{ mA} \cdot \text{cm}^{-2}$ 的电流密度, 可应用于光电化学水分解.**Revealing Lithium-Silicide Phase Transformations in****Nano-Structured Silicon-Based Lithium Ion Batteries via *in Situ* NMR Spectroscopy**

K. Ogata, E. Salager, C. J. Kerr, A. E. Fraser, C. Ducati, A. J. Morris, S. Hofmann, C. P. Grey

Nature Commun. DOI: 10.1038/ncomms4217

采用原位核磁共振技术研究锂嵌入硅纳米纤维过程的结构变化.

Iridium Oxide Nanotube Electrodes for Sensitive and Prolonged Intracellular Measurement of Action Potentials

Z. C. Lin, C. Xie, Y. Osakada, Y. Cui, B. Cui

Nature Commun. DOI: 10.1038/ncomms4206研究了 IrO_2 纳米管作为 OER 催化剂的性能与稳定性.**Highly Electroconductive Mesoporous Graphene Nanofibers and Their Capacitance Performance at 4 V**

C. Cui, W. Qian, Y. Yu, C. Kong, B. Yu, L. Xiang, F. Wei

J. Am. Chem. Soc. 136 (2014) 2256.将介孔石墨烯纳米纤维用作超级电容器电极材料, 电容量达 $15 \mu\text{F} \cdot \text{cm}^{-2}$, 优于单壁碳纳米管材料.**A Selective and Efficient Electrocatalyst for Carbon Dioxide Reduction**

Q. Lu, J. Rosen, Y. Zhou, G. S. Hutchings, Y. C. Kimmel, J. G. Chen, F. Jiao

Nature Commun. DOI: 10.1038/ncomms4242发现纳米多孔 Ag 催化剂可高选择性地催化 CO_2 电还原为 CO, 在极化小于 0.5 V 的条件下, 反应选择性可达 92%.**Highly Efficient Electrocatalysts for Oxygen Reduction Based on 2D Covalent Organic Polymers Complexed with Non-Precious Metals**

Z. Xiang, Y. Xue, D. Cao, L. Huang, J. -F. Chen, L. Dai

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201308896

二维共价有机聚合物与非贵金属的复合材料作为氧还原反应 (ORR) 催化剂, 在碱性和酸性介质中都表现出一定的活性.

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