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Latest and Hot Papers

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近期热点文章
Latest and Hot Papers

Scalable Dry-Production of Superior 3D Net-Like FeO_x/C Composite Anode Material for Lithium Ion Battery
M. Li, H. Du, L. Kuai, K. Huang, Y. Xia, B. Geng
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201707647
碳包覆的 FeO_x 材料,具有三维网络结构,用作锂离子电池负极材料,300 周 1 $A\cdot g^{-1}$ 循环充放电后容量保持在 714.7 $mAh\cdot g^{-1}$.

Insoluble Benzoquinone Derivative Cathode with Rigid Ring for Organic Rechargeable Lithium-Ion Battery
Z. Luo, L. Liu, Q. Zhao, F. Li, J. Chen
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201706604
通过引入 4 个邻苯二甲酰基, 使苯醌分子不溶于有机电解质,用作储锂电极材料,获得 55 $mAh\cdot g^{-1}$@10C 的性能.

Potential-Cycling Synthesis of Single Pt Atoms for Efficient Hydrogen Evolution in Neutral Media
J. Luo, L. Zhang, L. Han, H. Liu, X. Liu
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201706921
通过电势循环的方法获得 Pt 单原子分散于 CoP 纳米管阵列的催化剂, 对中心溶液中的氢析出反应(HER)具有高的催化活性和稳定性.

A Review of Flexible Lithium-Sulfur and Analogous Alkali Metal-Chalcogen Rechargeable Batteries
H.-J. Peng, J.-Q. Huang, Q. Zhang
Chem. Soc. Rev. DOI: 10.1039/C7CS00139H
关于锂硫电池和金属硫族电池电极材料的综述文章,引用了 368 篇参考文献.

Processable and Moldable Sodium Metal Anodes
A. Wang, X. Hu, H. Tang, C. Zhang, S. Liu, Y. Yang, Q. Yang, J. Luo
Angew. Chem. Int. Ed. DOI: 10.1002/anie.201703937
一种可用于钠离子电池的参比电极. 金属钠与少量(仅 4.5%)石墨烯氧化物构成的复合材料,可加工性、硬度、抗腐蚀等性能大幅提升.

Bismuth as a New Chloride-Storage Electrode Enabling the Construction of a Practical High Capacity Desalination Battery
D.-H. Nam, K.-S. Choi
J. Am. Chem. Soc. DOI: 10.1021/jacs.7b01119
以金属铋泡沫作为储氯电极, 充电氧化时转化为 BiOCl. 与储钠电极 $NaTi_2(PO_4)_3$ 配合使用,0.2 V 电压即可实现电解除盐.

Promoter Effects of Alkali Metal Cations on the Electrochemical Reduction of Carbon Dioxide
J. Resasco, L. D. Chen, E. Clark, C. Tsai, C. Hahn, T. F. Jaramillo, K. Chan, A. T. Bell
J. Am. Chem. Soc. DOI: 10.1021/jacs.7b06765
实验与计算相结合研究 CO_2 还原反应(CO_2RR)金属催化剂的活性与电解质阳离子的关系. 发现外 Helmholtz 层中水合阳离子影响电极表面的极性吸附物种,从而改变反应选择性.

Microbial-Phosphorus-Enabled Synthesis of Phosphide Nanocomposites for Efficient Electrocatalysts
T.-Q. Zhang, J. Liu, L.-B. Huang, X.-D. Zhang, Y.-G. Sun, X.-C. Liu, D.-S. Bin, X. Chen, A.-M. Cao, J.-S. Hu, L.-J. Wan
J. Am. Chem. Soc. DOI: 10.1021/jacs.7b06123
将生物质与金属盐通过水热反应再碳化, 获得纳米多孔碳载的金属磷化物电催化剂, 对氢析出反应(HOR)具有高的催化活性.

Identifying and Breaking Scaling Relations in Molecular Catalysis of Electrochemical Reactions
M. L. Pegis, C. F. Wise, B. Koronkiewicz, J. M. Mayer
J. Am. Chem. Soc. DOI: 10.1021/jacs.7b05642
发现在分子电催化中, 通过改变反应介质的某些性质(如 pK_a),可使减小超电势所引起的催化转化频率(TOF)降低并不显著,这个规律与改变分子催化剂结构所产生的效果不同.

Direct Atomic-Level Insight into the Active Sites of a High-Performance PGM-Free ORR Catalyst
H. T. Chung, D. A. Cullen, D. Higgins, B. T. Sneed, E. F. Holby, K. L. More, P. Zelenay
Science 357 (2017) 479.
制备多孔的 Fe/N/C 催化剂, 并用球差校正扫描透射电子显微与能量损失谱识别 $Fe\text{-}N_4$ 活性位点. 催化剂载量 4 $mg\cdot cm^{-2}$、80 ℃ 条件下,$H_2\text{-}O_2$ 质子交换膜燃料电池的峰值功率达 0.9 $W\cdot cm^{-2}$.

Single Graphene Layer on Pt(111) Creates Confined Electrochemical Environment via Selective Ion Transport

Y. Fu, A. Rudnev, G. Wiberg, M. Arenz

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201705952

Pt(111)电极表面覆盖石墨烯造成一个二维限域空间,对溶液中离子的进入表现出高度的选择性,循环伏安(CV)仅观察到质子吸脱附信号,而没有硫酸根等阴离子吸脱附的信号.

Surfactant-Assisted Phase-Selective Synthesis of New Cobalt MOFs and Their Efficient Electrocatalytic Hydrogen Evolution Reaction

X. Bu, Y.-P. Wu, W. Zhou, J. Zhao, W.-W. Dong, Y.-Q. Lan, D.-S. Li, C. Sun

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201707238

使用表面活性剂辅助合成了二维和三维的含 Co 金属有机框架化合物(MOF),表现出高的 HER 催化活性,特别是加入了乙炔黑导电剂之后.

Toward Safe Lithium Metal Anode in Rechargeable Batteries: A Review

X.-B. Cheng, R. Zhang, C.-Z. Zhao, Q. Zhang

Chem. Rev. DOI: 10.1002/acs.chemrev.7b00115

关于锂金属阳极的综述,引用了 550 篇参考文献.

Influence of Lattice Polarizability on the Ionic Conductivity in the Lithium Superionic Argyrodites Li_6PS_5X (X = Cl, Br, I)

M. A. Kraft, S. P. Culver, M. Calderon, F. Böcher, T. Krauskopf, A. Senyshyn, C. Dietrich, A. Zevalkink, J. Janek, W. G. Zeier

J. Am. Chem. Soc. DOI: 10.1021/jacs.7b06327

通过改变固态锂离子导体 Li_6PS_5X 中的卤离子,调节晶体中阴离子环境的可极化度(晶体软度),发现减小晶体软度可降低锂离子传导能垒.

Universal Quinone Electrodes for Long Cycle Life Aqueous Rechargeable Batteries

Y. Liang, Y. Jing, S. Gheytani, K.-Y. Lee, P. Liu, A. Facchetti, Y. Yao

Nature Mater. 16 (2017) 841.

报道了一类可作为水溶液二次电池负极材料的苯醌化合物,具有长寿命(3000 周)、高容量(200 ~ 395 $mAh\cdot g^{-1}$)和大倍率(≥ 20C)的优点,且可在各种 pH 下工作.

Frontiers of Water Oxidation: the Quest for True Catalysts

J. Li, R. Guttinger, R. More, F. Song, W. Wan, G. R. Patzke

Chem. Soc. Rev. DOI: 10.1039/C7CS00306D

关于水氧化反应分子催化剂的综述, 引用了 283 篇参考文献.

Spinels: Controlled Preparation, Oxygen Reduction/Evolution Reaction Application, and Beyond

Q. Zhao, Z. Yan, C. Chen, J. Chen

Chem. Rev. DOI: 10.1021/acs.chemrev.7b00051

关于尖晶石化合物的制备与氧电极电催化应用的综述,引用了 786 篇参考文献.

Exclusive Formation of Formic Acid from CO_2 Electroreduction by Tunable Pd-Sn Alloy

X. Bai, W. Chen, C. Zhao, S. Li, Y. Song, R. Ge, W. Wei, Y. Sun

Angew. Chem. Int. Ed. DOI: 10.1002/anie.201707098

发现 Pd-Sn 合金可高选择性催化 CO_2RR 产生甲酸,超电势仅 0.26 V. DFT 计算发现活性位点可能为 Pd-SnO_2.

High Performance Platinum Single Atom Electrocatalyst for Oxygen Reduction Reaction

J. Liu, M. Jiao, L. Lu, H. M. Barkholtz, Y. Li, Y. Wang, L. Jiang, Z. Wu, D.-j. Liu, L. Zhuang, C. Ma, J. Zeng, B. Zhang, D. Su, P. Song, W. Xing, W. Xu, Y. Wang, Z. Jiang, G. Sun

Nature Commun. DOI: 10.1038/ncomms15938

合成 Pt 单原子催化剂,阴极 Pt 载量仅 0.09 $mg\cdot cm^{-2}$ 时,氢氧 PEMFC 峰值功率密度可达 680 $mW\cdot cm^{-2}$@ 80 ℃.

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