

Journal of Materials Chemistry A

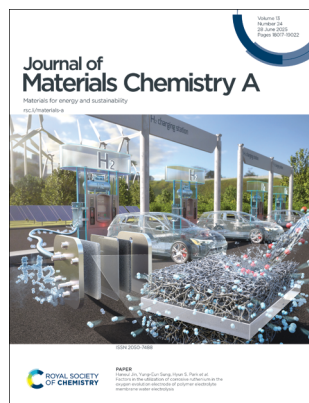
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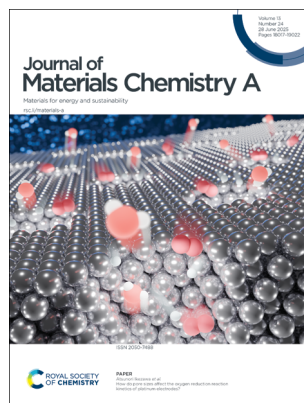
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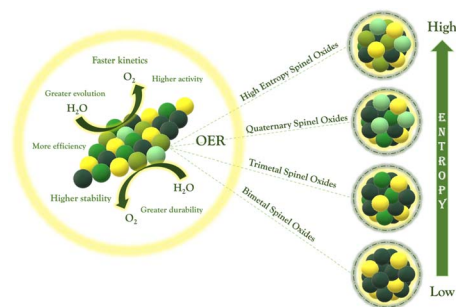
Inside cover
See Atsunori Ikezawa *et al.*, pp. 18338–18347. Image reproduced by permission of Atsunori Ikezawa from *J. Mater. Chem. A*, 2025, **13**, 18338.

REVIEWS

18040

Exploring spinel oxides from bimetallic to high-entropy with a focus on the structure and performance in the oxygen evolution reaction

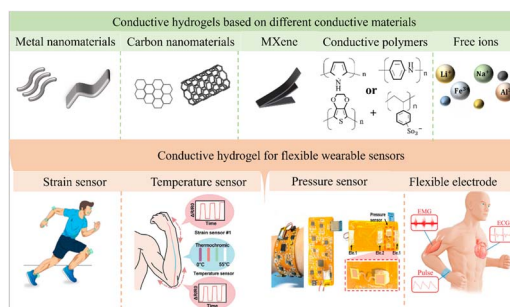
Mahalakshmi Vedanarayanan, Chandrasekaran Pitchai and Chih-Ming Chen*



18062

Research progress onconductive hydrogels and their applications in flexible sensors: a review

Mina Han, Dan Luo, Khan Talha, Jun He, Mengze Xing, Li Chen* and Hao Liu*



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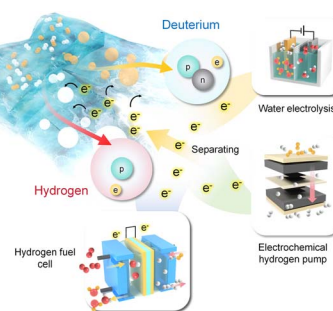
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REVIEWS

18081

Electrochemical H/D isotope separation

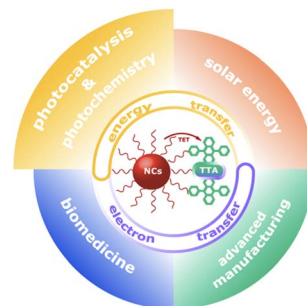
Boran Wang, Xiao Xiao, Chengshuai Chang, Fang Huang, Tingting Y. K. Qin, Huibing He and Jing Xu*



18115

Triplet–triplet annihilation upconversion sensitized with nanocrystals for a new generation of photocatalytic systems

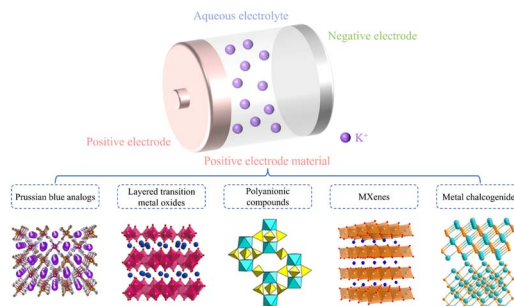
Michele Bucchieri, Francesca S. Freyria* and Barbara Bonelli



18146

Cutting-edge advances for the positive electrode in aqueous K-ion batteries: exploring electrochemical properties, structural designs, and applicable perspectives

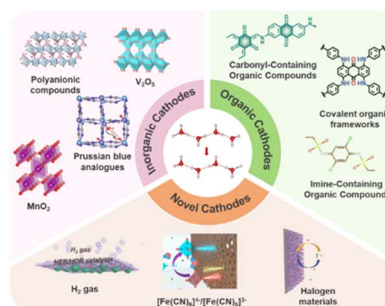
Xiao Liu, Ming-Chun Zhao,* Andrej Atrens and Fuqin Zhang*



18183

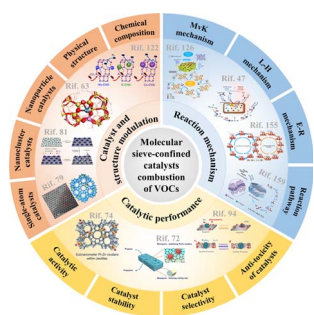
Cathode materials for proton batteries: recent advances and perspectives

Bofeng Zhang, Jianhua Zhang, Yingxue He, Yongbo Yu, Kailing Zhou* and Hao Wang*



REVIEWS

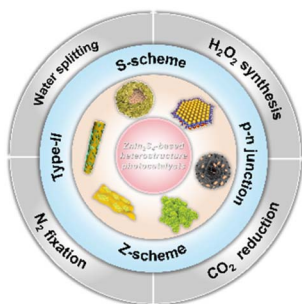
18209



Molecular sieve confined catalysts for the catalytic combustion of VOCs: preparation, application and future development

Lei Wang, Fang Dong,* Yu Meng, Yuhong Kang, Haitao Zhang and Zhicheng Tang*

18253

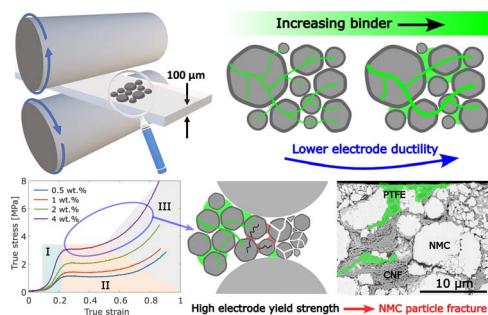


ZnIn₂S₄-based heterostructure photocatalysts for solar energy conversion: a comprehensive review

Zhao Jing, Qiang Wang,* Chen-Ming Fan, Xiao-Fan Yang, Peng-Yi Tang* and Bing Li*

COMMUNICATIONS

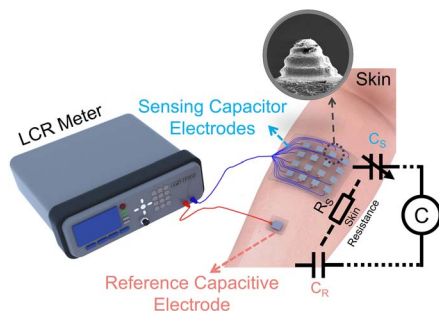
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Impact of binder content on particle fracture and microstructure of solvent-free electrodes for Li-ion batteries

Guillaume Matthews,* Benjamin Meyer, Christopher Doerrer, Julia Ramírez-González, Ed Darnbrough, Noël Halleman, David Armstrong and Patrick S. Grant

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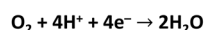
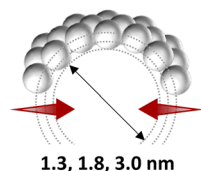
Facile patterning of hierarchical ionic microstructures for a pressure-sensitive ionic capacitive interface

Jiahong Yang, Yao Xiong, Yang Liu, Rui Gu, Shishuo Wu, Chao Liu, Zhong Lin Wang* and Qijun Sun*

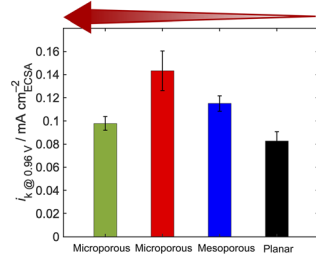


18338

Compression on porous Pt



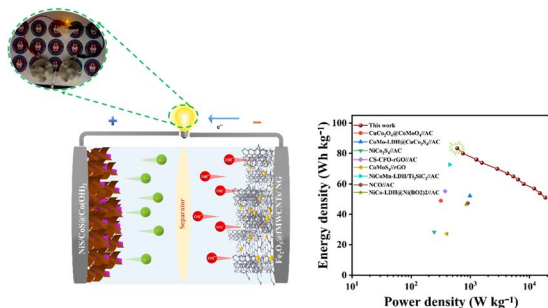
d-band center downshift



How do pore sizes affect the oxygen reduction reaction kinetics of platinum electrodes?

Kota Nakahara, Atsunori Ikezawa,* Junichi Inamoto, Takeyoshi Okajima and Hajime Arai

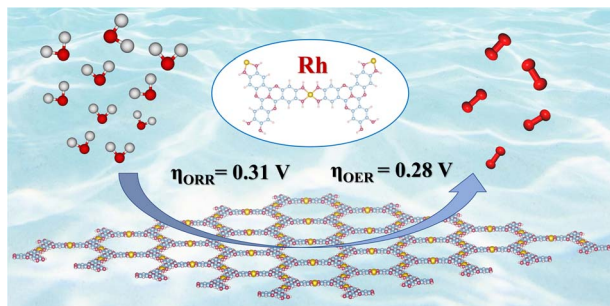
18348



Surface modification and heterointerface engineering into cobalt-hydroxide nanowires by ion exchange for high-energy asymmetric supercapacitors

Mahmoud Dardeer, Hamouda M. Mousa, Kyoungin Kang, Devendra Shrestha* and Chan Hee Park*

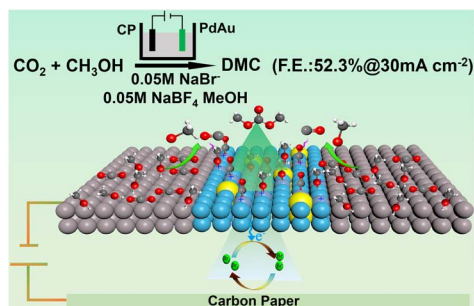
18358



Rational design of a two-dimensional metal-organic framework for high-efficiency bifunctional oxygen electrocatalysis

Lijuan Wang, Anyang Wang, Xuhao Wan, Wei Yu, Xiting Wang,* Zhen Li, Li Li, Yuzheng Guo, Zhaofu Zhang* and Yan Zhao*

18367



Au atom tailoring of palladium nanocatalysts to boost cathodic coupling of carbon dioxide and methanol into dimethyl carbonate

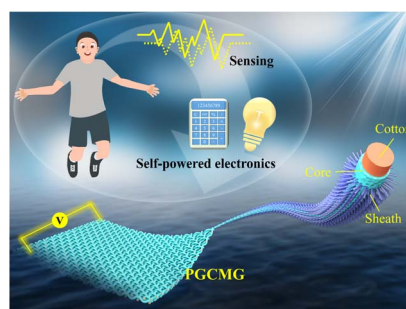
Xue-Han Guan, Ke-An Wang, Zhen-Long Wang, Huan-Chuan Hu, Biao Feng, Li-Jun Yang, Hai-Bin Zhu* and Hui Yang*



18378

A highly flexible fabric-based hydrovoltaic generator with a core-sheath structure for wearable applications

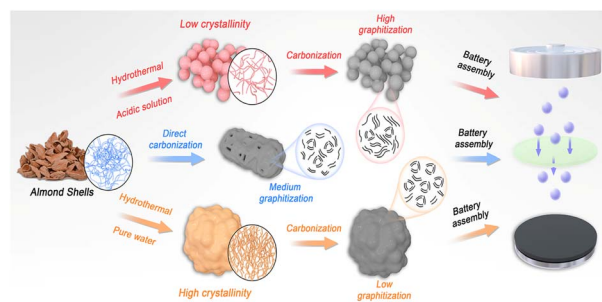
Xiaoyang Zhang, Xuefei Zhang, Hai-Tao Ren, Ting-Ting Li* and Ching-Wen Lou*



18388

Deciphering the role of hydrothermal pretreatment in the conversion of biomass waste into hard carbon with superior electrochemical performance in sodium-ion batteries

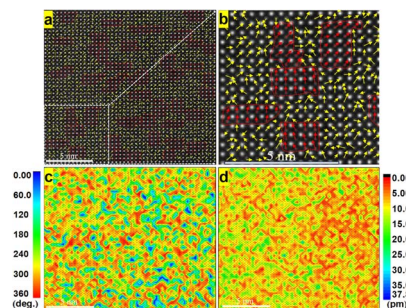
Wenxiu Li, Jian Cui, Wendong Ye, Panpan Su,* Xuefen Song, Tai Yang,* Yongguang Zhang* and Zhongwei Chen*



18398

Improved capacitive energy storage in $K_{0.5}Na_{0.5}NbO_3$ -based high-entropy ceramics with order-disorder polarization configurations

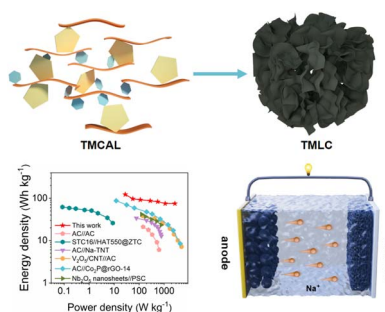
Minquan Wang, Ying Lin,* Binglong Zheng, Qibin Yuan,* Hongmei Jing* and Haibo Yang*



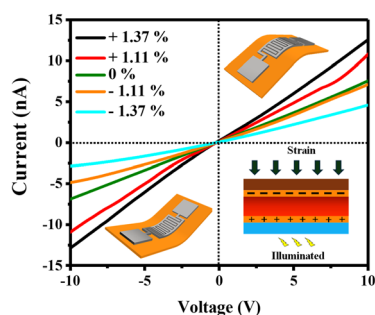
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Bionic liquid-liquid phase separation phenomenon inspired lignin molecular aggregates toward highly nitrogen-doped nanocarbon anode for sodium-ion hybrid capacitors

Huiting Zhang, Wei Song,* Zhenqiang Zhang, Jianhui Ma, Liheng Chen, Fangbao Fu, Xihong Zu, Dongjie Yang, Xueqing Qiu* and Wenli Zhang*



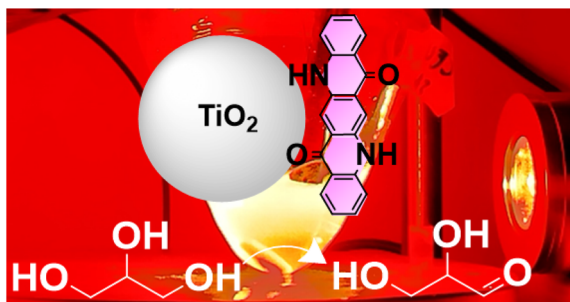
18420



Harnessing self-powered and photoresponsive biomechanical activity sensors by exploring the piezo-phototronic effect in lead-free layered halide perovskite/PVDF composites

Prabhat Kumar, Tufan Paul, Aditi Sahoo, Manoj Singh, Arupjyoti Pathak, Ranjit Thapa and Rupak Banerjee*

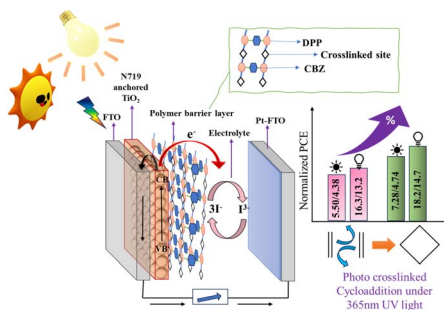
18436



Photocatalytic oxidation of glycerol with red light employing quinacridone sensitized TiO₂ nanoparticles

Yunshuo Yang, Marco Nalesso, Andrea Basagni, Ruggero Bonetto, Raffaella Signorini, Stefano Agnoli, Luka Đorđević* and Andrea Sartorel*

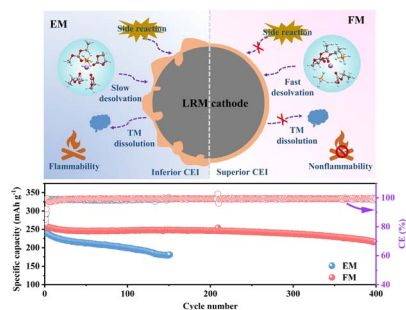
18445



Covalent photo-crosslinking of diketopyrrolopyrrole based polymeric layers for cutting-edge near-IR absorption and DSSC performance

Pranshula Panigrahi, Manoj Kumar Mallick, Debashish Nayak, Smita Mohanty and Akshaya Kumar Palai*

18462



Nonflammable single-solvent electrolyte towards highly stable Li-rich Mn-based cathode materials

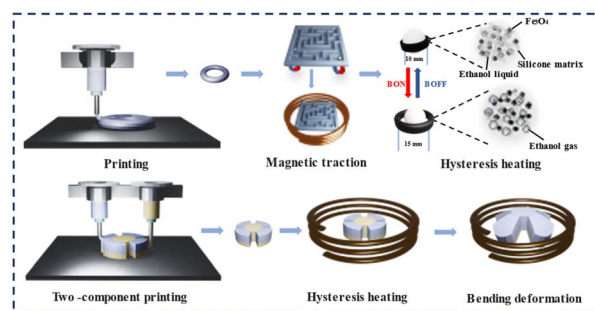
Dongwei Zhou, Shihao Wang, Jiansen Wen, Jie Mei, Guiyang Gao, Saichao Li, Baisheng Sa, Jie Lin,* Laisen Wang, Guoying Wei,* Dong-Liang Peng and Qingshui Xie*



18473

4D printing of programmable liquid–vapor phase change composites for multi-responsive flexible actuators

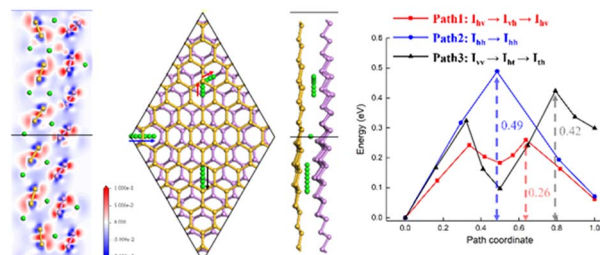
Hongru Zheng, Mingquan Fang, Fei Long, Huilan Jing, Bing Wang, Xunye Fan, Jianjun Guo, Yuchuan Cheng* and Aihua Sun



18484

First principles study of blue phosphorene heterostructures as Li-ion battery anode materials

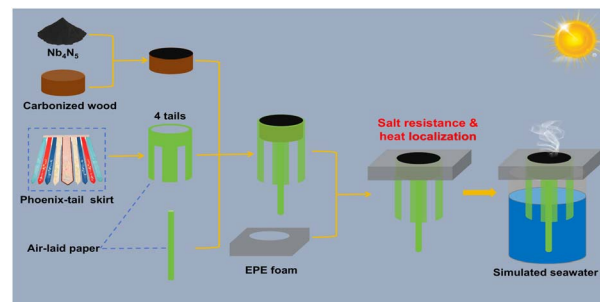
Yu-Shan Chiu, Mohanapriya Subramani, Chieh-Ming Hsieh* and Bor Kae Chang*



18494

An elaborate balance between water transport and heat localization: a phoenix-tail skirt inspired solar evaporator

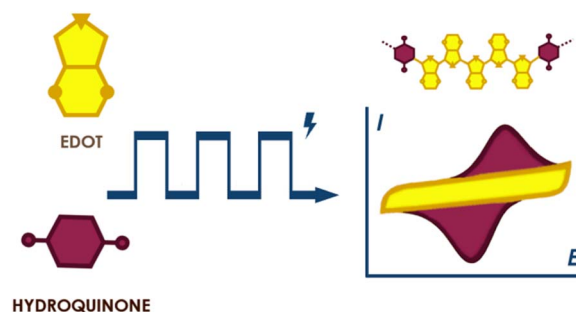
Yuhan Lin,* Jie Feng, Junjie Li, Qiang Wang, Yi He, Bo Sheng and Chuanyi Wang*



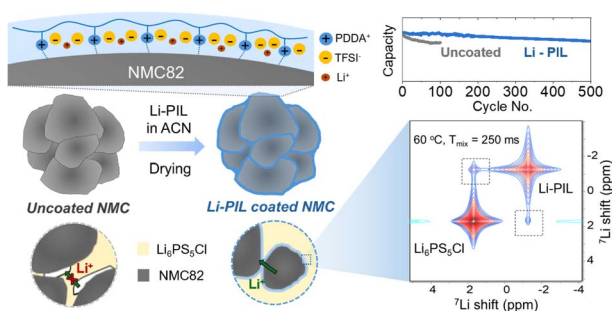
18503

Direct electrochemical co-polymerization of EDOT and hydroquinone

Alexey I. Volkov, Alexander S. Konev,* Elena V. Alekseeva and Oleg V. Levin*



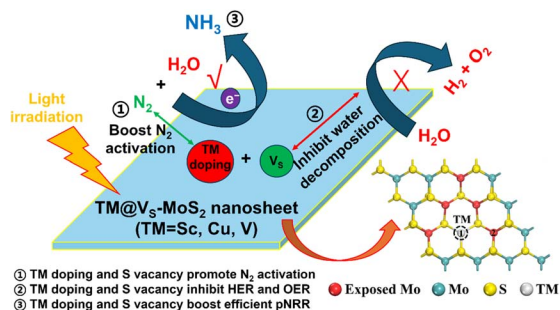
18518



Multifunctional ion-conductive polymer coatings for high-performance sulfide solid-state batteries with Ni-rich cathodes

Pranav Karanth, Jelle H. Prins, Ajay Gautam, Zhu Cheng, Jef Canals-Riclot, Swapna Ganapathy, Pierfrancesco Ombrini, Alix Ladam, Sebastien Fantini, Marnix Wagemaker and Fokko M. Mulder*

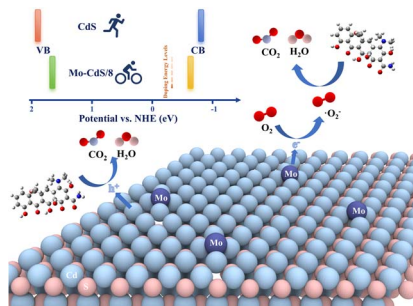
18532



Efficient photocatalytic nitrogen reduction by MoS₂ doped with transition metal and containing sulfur vacancies: enhanced nitrogen activation and inhibition of water decomposition

Qiang Fu, Zhiling Huang, Zheming Ni and Shengjie Xia*

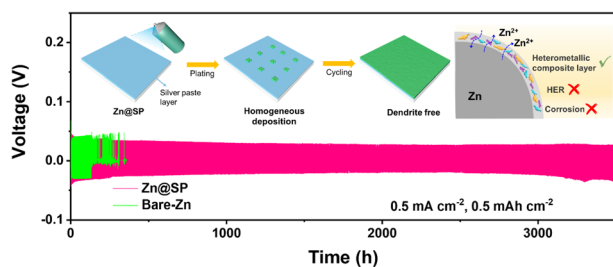
18546



Mo-doped CdS: optimized electronic structure boosts carrier separation

Ning Zhang, Hui Zhao, Xiaoyu Liu, Jiyue Ding, Huachi Yu, Yan Liu, Qingyang Xu, Ke Cui, Yi Wang, Qian Zhang* and Hailin Cong*

18560



A silver paste engineered interphase enables highly reversible and dendrite-free Zn metal anodes

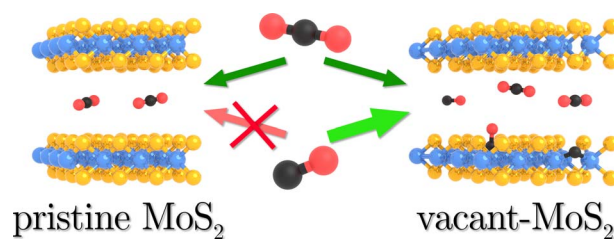
Yi Ding, Min Guo,* Song Lu, Tiancun Liu, Qi Shen, Jiadi Ying, Yeqing Wang and Zhixin Yu*



18571

Toward enhanced combustion gas monitoring and capture: sulfur vacancies as vectors for selective CO and CO₂ intercalation in MoS₂

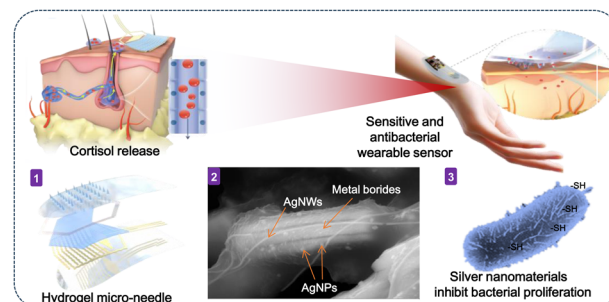
Dominik M. Florjan, Piotr Radomski and Maciej J. Szary*



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An antibacterial sensitive wearable biosensor enabled by engineered metal-boride-based organic electrochemical transistors and hydrogel microneedles

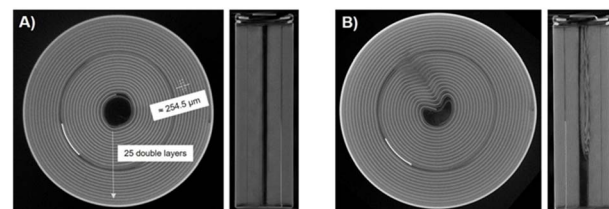
Ru Zhang,* Md. Sohel Rana, Lin Huang* and Kun Qian*



18600

Impact of external short circuit on lithium-ion batteries: a post-mortem case study

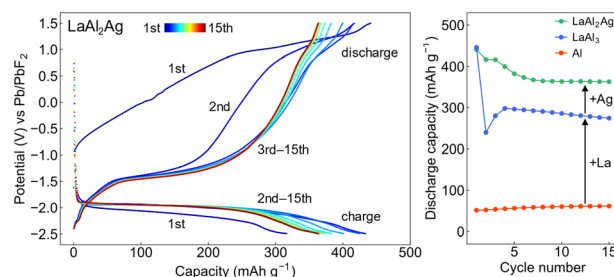
Shagor Chowdhury,* Ana Barrera, Maya Marinova, Alexandre Fadel, Severine Bellayer, Jérôme Hosdez, Clément Vandingenen, Fadi Soubhie, Martial Belhache, Philippe Suptot and Ulrich Maschke*



18610

Capacity enhancement of LaAl₂Ag ternary alloy anode for fluoride-ion batteries

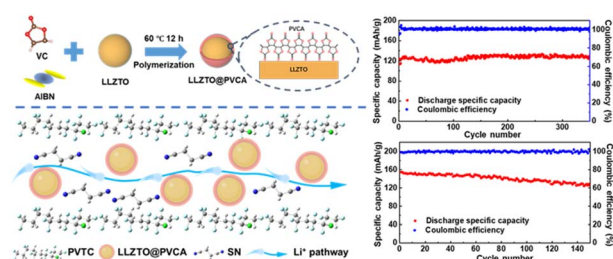
Shun Sasano,* Ryo Ishikawa, Kazuaki Kawahara, Naoya Shibata and Yuichi Ikuhara



18670

Enhancing ionic conductivity and electrochemical stability via an ultrathin coating for interfacial side reaction suppression

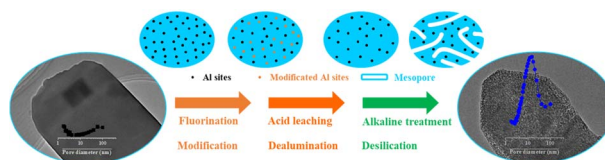
Gefei Zhang, Yanan Xu,* Xudong Zhang, Qifan Peng, Xiong Zhang, Xianzhong Sun, Kai Wang* and Yanwei Ma*



18680

Enabling mesopore engineering inside Al-rich MOR zeolites via a sequential fluorination–acid leaching–alkaline treatment strategy

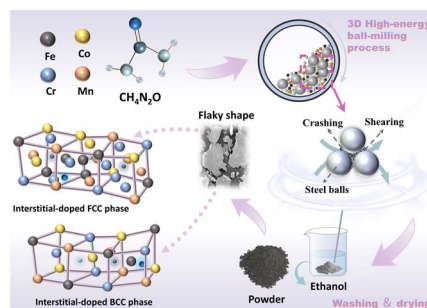
Ning Wei,* Yonghong Chen,* Yuxuan Miao, Ju Wang,* Zhijun Xing, Chao Yin and Jiaruo Sun



18693

Multi-element co-penetration engineering in high-entropy alloys for efficient electromagnetic-wave absorption

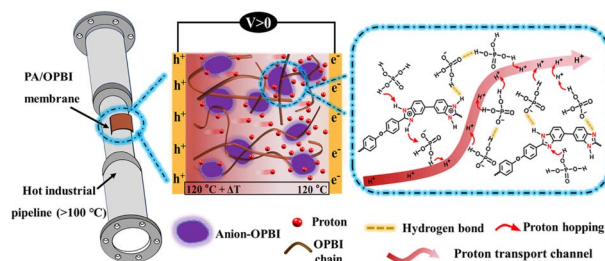
Jiawen Hu, Linwen Jiang,* Hang Liu, Jiawei Jin, Anhua Wu and Xiaofeng Zhang*



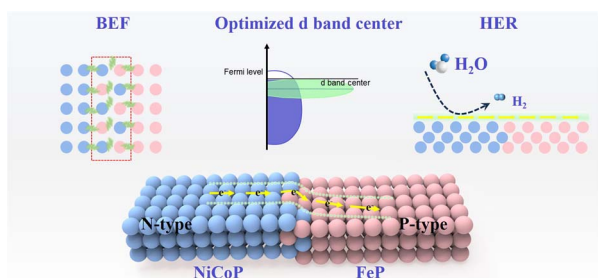
18705

Stable ionic thermopower materials for waste heat recovery above 100 °C

Yongxin Liang, Yueting Huang, Zhifu Chen, Chunmei Gao* and Lei Wang*



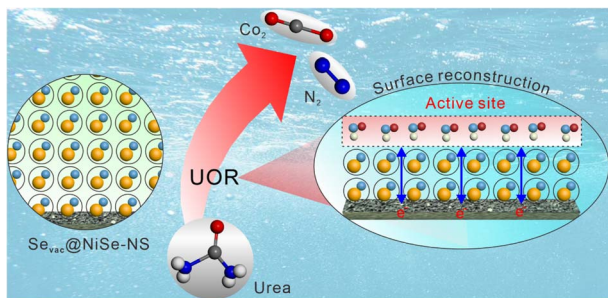
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Constructing a NiCoP/FeP p–n heterojunction with built-in electric field regulation as an efficient alkaline hydrogen evolution electrode

Yingying Xu, Yingxia Zhao, Shaomin Peng, Ming Sun, Gao Cheng, Yuanhong Zhong and Lin Yu*

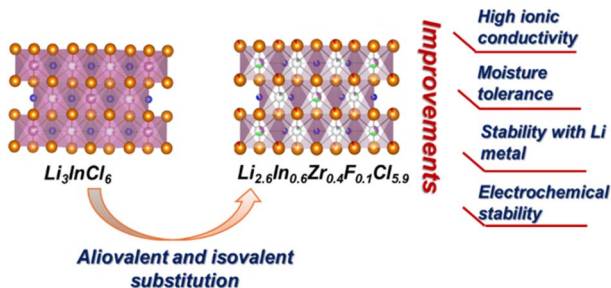
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Boosting surface reconstruction in engineered nickel sites through selenium vacancies to enhance urea oxidation reaction

Fakhr uz Zaman, Azhar Saeed, Fekadu Tsegaye Dajan, Usman Ghani, Amir Said, Muhammad Ahmad, Shemsu Ligani, Khan Abdul Sammed, Sikandar Iqbal* and Felix Ofori Boakye*

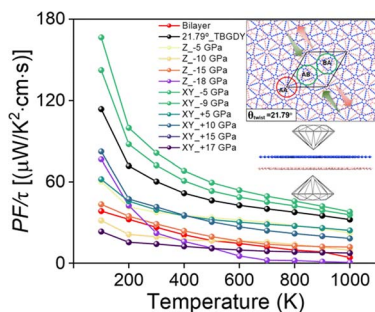
18732



Dual substitution in cationic and anionic sublattices of lithium indium chloride for high-performance solid-state lithium metal batteries

Farzaneh Bahmani* and Alevtina White Smirnova*

18743



Enhanced thermoelectric properties of bilayer graphdiyne through twist angle and pressure regulation

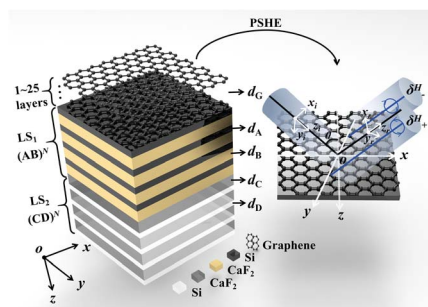
Qiaohan Liu, Dapeng Wu* and Jingang Wang*



18755

Highly sensitive and stable identification of graphene layers *via* the topological edge states and graphene regulation to enhance the photonic spin Hall effect

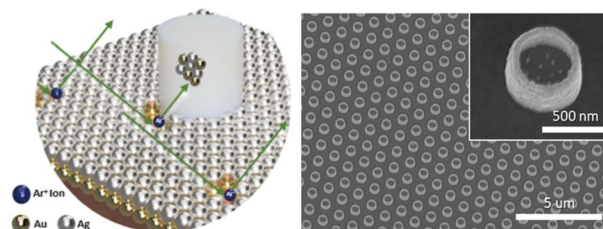
Junyang Sui, Yuxin Wei and Haifeng Zhang*



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Highly ordered and high-aspect-ratio Au nanopatterns directly fabricated on Cu for efficient anode-less Li metal batteries

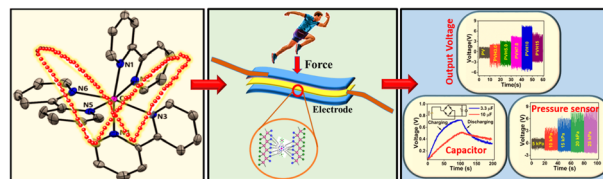
Hyunju Jung and Hee-Tae Jung*



18776

Co(II) complex promoted PVDF β -phase crystallization: innovations in pressure sensing and energy harvesting

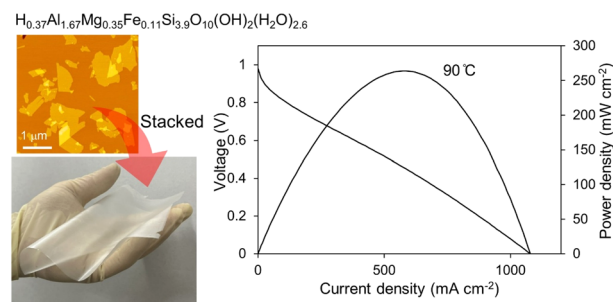
Bapan Jana, Shewli Pratihari, Rajashi Haldar, Akash M. Chandran, Dipanti Borah, Prasanna Kumar S Mural* and Maheswaran Shanmugam*



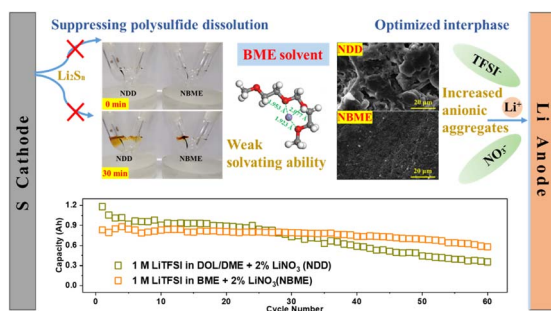
18784

Low-temperature fuel cells using proton-conducting silicate solid electrolyte

Kazuto Hatakeyama,* Tatsuki Tsugawa, Haruki Watanabe, Kanako Oka, Sho Kinoshita, Keisuke Awaya, Michio Koinuma and Shintaro Ida*



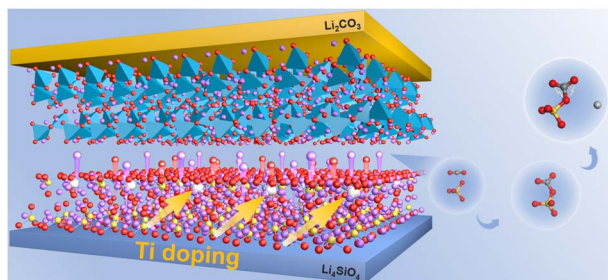
18793



Electrolyte design enabling practical lithium/sulfur batteries via interfacial manipulation and inhibited polysulfide dissolution

Yilong Lin,^{*} Zexian Zhang, Junru Wu, Jiayi Wang, Yuqing Jia, Xiaojin Jin, Feng Liu, Sheng Huang,^{*} Yanwu Chen and Yuezhong Meng^{*}

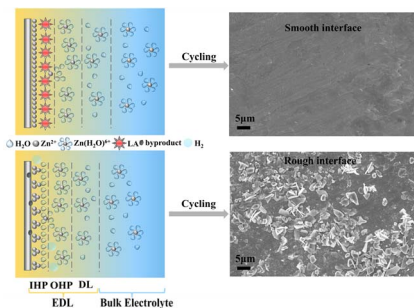
18800



Unraveling the performance enhancement mechanism of Ti doping for Li_4SiO_4 -based solar energy storage: a combined experimental, kinetic, and DFT study

Jianchen Yi, Ziyi Ye, Yuan Wei, Ruicheng Fu, Haiqiu He, Xiya Liu and Yingchao Hu^{*}

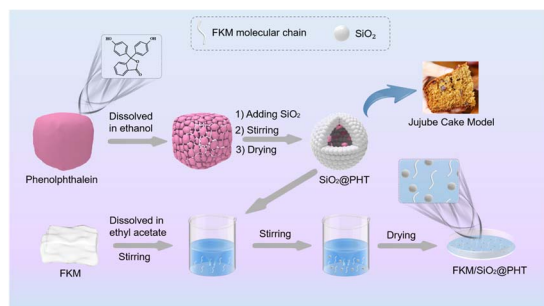
18814



Lactulose modulation of the inner Helmholtz plane for stable and dendrite-free zinc anodes in aqueous Zn-ion batteries

Zhiyong Liao, Ruizhe Zhang, Yongbo Fan,^{*} Lixing Song, Fang Yan, Ning Yang, Peizhi Dong, Zhuo Zhang, Zexue Lin, Weijia Wang^{*} and Huiqing Fan^{*}

18824



Developing a jujube cake structured composite filler $\text{SiO}_2\text{@PHT-1}$ for preparing a pH-indicating film with high pH measurement precision and strong reusability

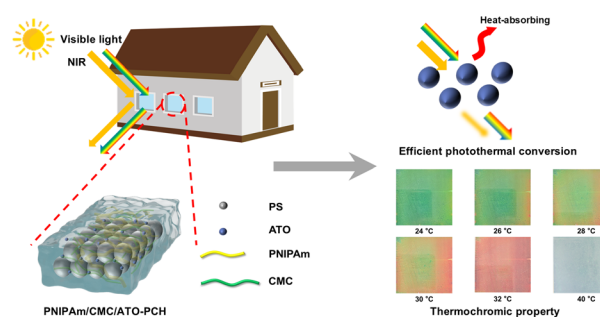
Yurou Chen, Yili Wei, Wenjun Song, Yiwen Zhang, Wenjie Tan, Jun Li, Shun Wang, Yadong Wu^{*} and Huile Jin^{*}



18833

Photonic crystal-integrated thermo-responsive smart windows with multicolor and enhanced NIR shielding

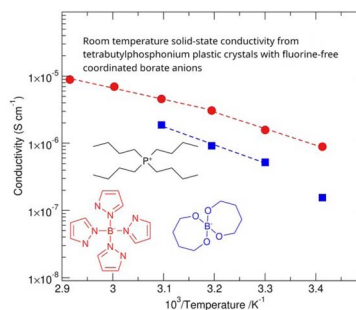
Chunhao Li, Aojue Ke, Huifang Shen* and Xinya Zhang*



18842

New tetrabutylphosphonium organic ionic plastic crystals incorporating borate anions

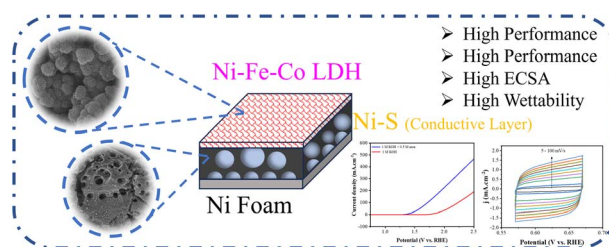
Haris Amir, Mega Kar, Luke A. O'Dell, Maria Forsyth, Małgorzata Swadźba-Kwaśny and John D. Holbrey*



18851

A facile surface engineering approach for fabricating the superwetting Ni–Fe–Co LDH@Ni–S heterojunction as a bi-functional electrode for green hydrogen production: experiment and theory

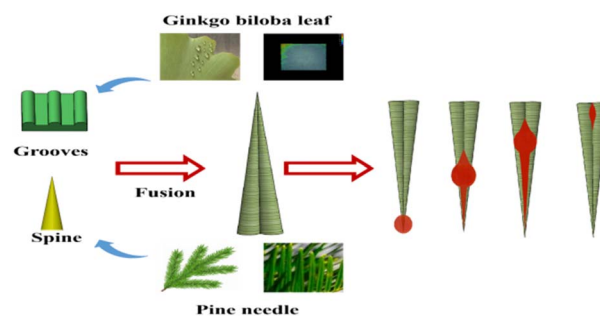
Amirreza Fathollahi, Taghi Shahrabi,* Abdolvahab Seif, Feihong Du, Jinyang Li* and Ghasem Barati Darband*



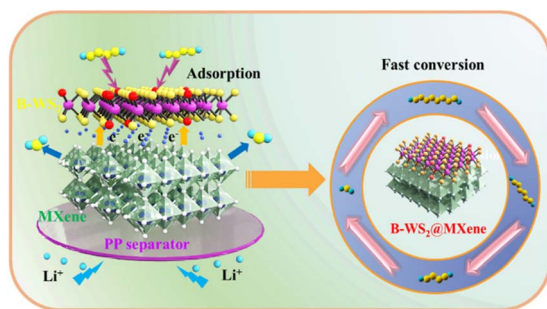
18870

Microdroplet self-driven transport on the surface with a bionic coupled cone-gradient groove

Xuyao Huo, Xinkun Chen, Zhen Cao and Xueye Chen*



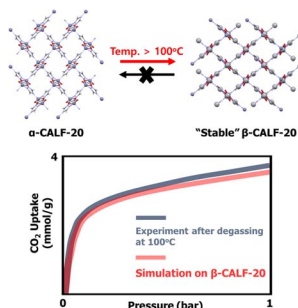
18880



Morphology and electron regulation of B-WS₂@MXene nanosheet array heterojunctions to upgrade the capacity and longevity of lithium–sulfur batteries

Jiayu Huang, Dan Wang,^{*} Zhibin Cheng, Xiaofei Xie, Bowen Chang, Xiaojun Li^{*} and Ruihu Wang^{*}

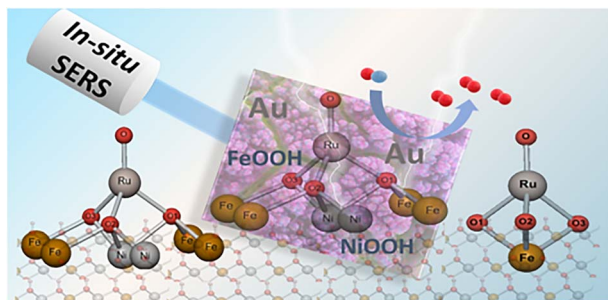
18892



Thermally-induced phase transformations of CALF-20: insights into its phase stability and carbon capture properties

Dong A. Kang, Navaporn Suphavilai, Amro M. O. Mohamed, Ioannis G. Economou, Manish Shetty, Jinsoo Kim^{*} and Hae-Kwon Jeong^{*}

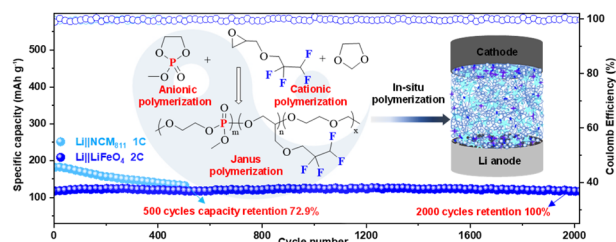
18900



Surface amorphized *in situ* RuO-NiFeOOH/Au islands for electrocatalytic oxygen evolution reaction

Karthick Kannimuthu, Pawan Kumar, Pooja Gakhad, Hadi Shaker Shiran, Xiyang Wang, Ali Shayesteh Zeraati, Sangeetha Kumaravel, Shariful Kibria Nabil, Rajangam Vinodh, Md Abdullah Al Bari, Maria Molina, George Shimizu, Yimin A. Wu, Pulickel M. Ajayan, Abhishek Kumar Singh, Soumyabrata Roy and Md Golam Kibria^{*}

18911



In situ Janus polymerization of cyclic phosphate and ethers affording fluorine/phosphorus copolymer electrolyte for high-safety lithium metal batteries with long-cycle life

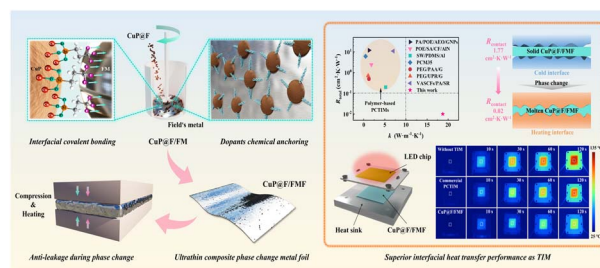
Zhichun Chen, Yuju Li, Yan Tan, Ji Xian, Dawei Yu, Wenbing Yang,^{*} Xiaobo Pan^{*} and Jincal Wu^{*}



18920

Dopant chemical anchoring enables ultra-low interfacial thermal resistance composite phase-change metal foil with high reliability for efficient heat dissipation

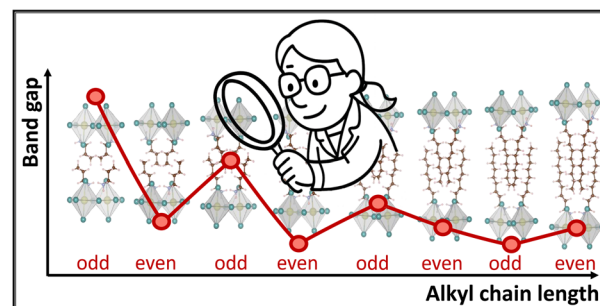
Yu Zhao, Weihua Liu, Ziyi Ling, Zhengguo Zhang* and Xiaoming Fang*



18935

Odd-even effects in lead-iodide-based Ruddlesden–Popper 2D perovskites

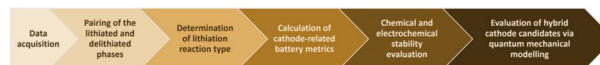
Maryam Choghaei, Maximilian Schiffer, Viren Tyagi, Marcello Righetto, Jiaxing Du, Maximilian Buchmüller, Kai Oliver Brinkmann, Geert Brocks, Patrick Görrn, Laura M. Herz, Shuxia Tao, Thomas Riedl and Selina Olthof*



18948

A data-driven framework to accelerate the discovery of hybrid cathode materials for metal-based batteries

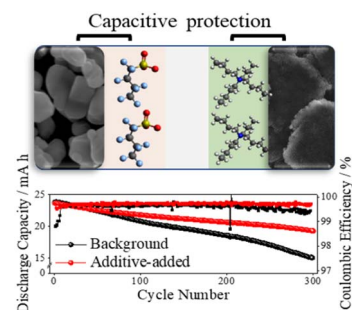
Ahmed H. Biby, Benjamin S. Rich and Charles B. Musgrave*



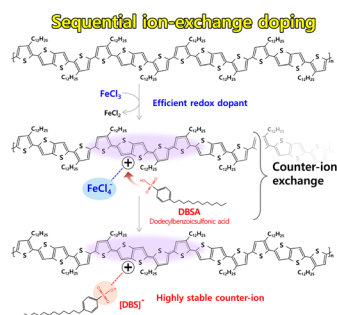
18959

An ionic protector to proactively mitigate interfacial degradation induced by electrolyte decomposition in lithium-ion batteries

Wontak Kim, Joon Ha Chang, Miseung Kim, Chihyun Hwang, Boseong Heo, Jun Ho Song, Ji-Sang Yu, Youngjin Kim* and Hyun-seung Kim*



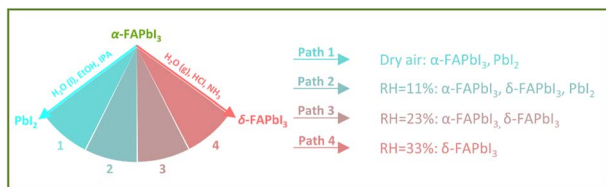
18966



Stoichiometric anion exchange by a low-dielectric-constant solvent for highly-doped conjugated polymers with enhanced environmental stability

Daegun Kim, Jiwoo Min, Kyeong-Jun Jeong, Eunsol Ok, Jaemin Im, Hyun Ho Choi, Giwon Lee, Chang Yun Son* and Kilwon Cho*

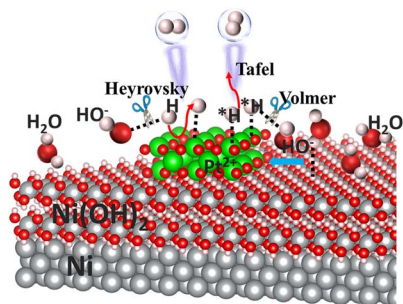
18978



Dispersive precipitation of Pbl₂ for the formation of α -FAPbI₃ solar cells with optimized optoelectronic properties

Yongjun Liu, Long Yao, Haoyu Cai, Wenjian Shen, Biqi He, Lingmin Liu, Wei Wang, Shengqiang Xiao, Juan Zhao,* Yi-Bing Cheng and Jie Zhong*

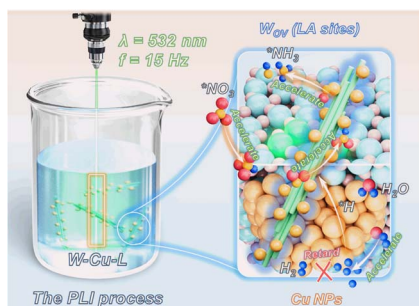
18987



Pt(II) as an active site supported on superhydrophilic nickel foam with boosted electrocatalytic hydrogen evolution performance

Yi Wei, Caleb Gyan-Barimah, Ling Li, Jong Hun Sung, Muhammad Irfansyah Maulana, Ha-Young Lee, Chao Han* and Jong-Sung Yu*

18996



Promotion of nitrite and nitrate conversion into ammonia by improving *H utilization via the construction of dual active centers

Kun Huang, Mohan Wang, Yujiao Wang, Shan Wang, Kaiwen Wang, Tongtong Jiang* and Mingzai Wu*



PAPERS

19007

One-pot scalable production of conjugated microporous polymers with exceptional functionalityDuanlian Tang, Zhuo Xiong, John D. Worth, Ting Qiu,*
Charl F. J. Faul* and Jie Chen*

CORRECTIONS

19015

Correction: Reversible lattice oxygen participation in $\text{Ru}_{1-x}\text{O}_{2-x}$ for superior acidic oxygen evolution reactionJia Cao, Xiongyi Liang, Wei Gao, Di Yin, Xiuming Bu,* Siwei Yang, Chuqian Xiao, Shaoyan Wang, Xiao Cheng Zeng,*
Johnny C. Ho* and Xianying Wang*

19018

Correction: Multimetallic assembly of concave-shaped rectangular Mn_4 clusters as efficient hydrogen evolution electrocatalystsChandan Sarkar, Aditi De, Arindam Gupta, Ranjay K. Tiwari, Tapan Sarkar, J. N. Behera, Sanjit Konar,* Subrata Kundu*
and Manindranath Bera*