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Materials for energy and sustainability

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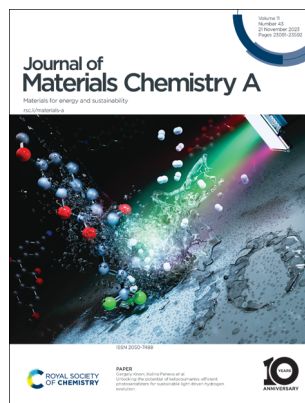
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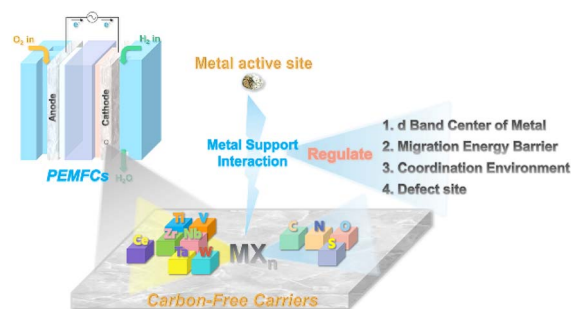
See Gergely Knorr, Kalina Peneva *et al.*, pp. 23260–23269. Image reproduced by permission of Kalina Peneva from *J. Mater. Chem. A*, 2023, **11**, 23260.

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The metal–support interaction effect in the carbon-free PEMFC cathode catalysts

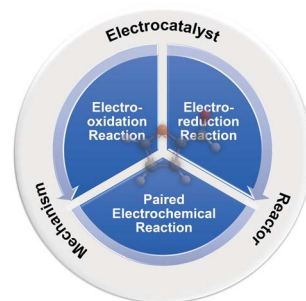
Feilong Dong, Yarong Liu, Zunhang Lv, Changli Wang, Wenxiu Yang* and Bo Wang*



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Efficient electrochemical upgradation strategies for the biomass derivative furfural

Xinxin Li, Linchuan Cong, Nan Lin and Cheng Tang*



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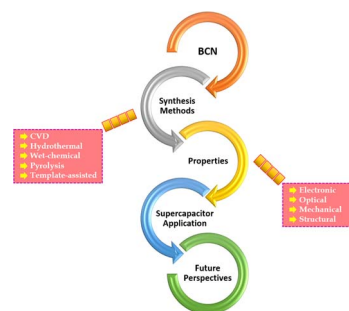


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Boron carbon nitride (BCN): an emerging two-dimensional nanomaterial for supercapacitors

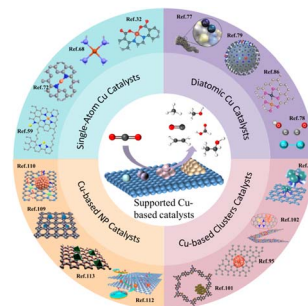
Susmi Anna Thomas* and Jayesh Cherusseri*



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Size effects of supported Cu-based catalysts for the electrocatalytic CO₂ reduction reaction

Xiaoran Su, Caiyue Wang, Fang Zhao, Tianxin Wei, Di Zhao* and Jiatao Zhang*

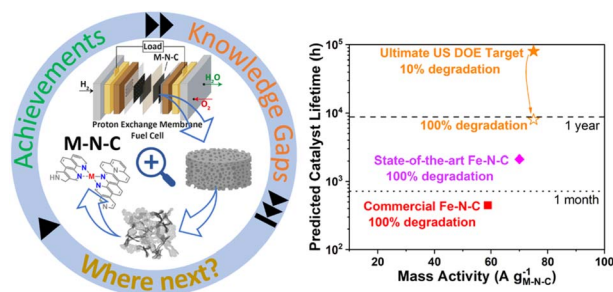


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Atomic metal coordinated to nitrogen-doped carbon electrocatalysts for proton exchange membrane fuel cells: a perspective on progress, pitfalls and prospectives

Angus Pedersen,* Alexander Bagger, Jesús Barrio, Frédéric Maillard, Ifan E. L. Stephens and Maria-Magdalena Titirici*

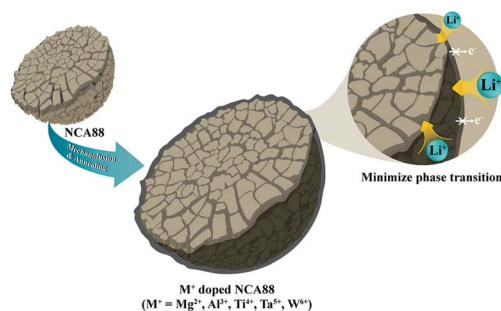


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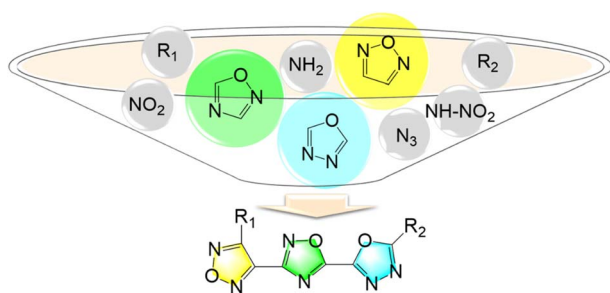
Exploring the impact of metal oxide coating and metal atom doping on the electrochemical performance of Ni-rich cathode materials

Panyawee Bunyanidhi, Nutthaphon Phattharasupakun, Salatan Duangdangchote, Surat Prempluem, Nattanon Joraleechanchai and Montree Sawangphruk*



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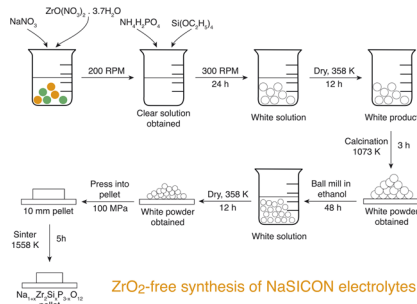
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Assembly of three oxadiazole isomers toward versatile energetics

Qi Sun, Zhiyi Jiang, Ning Ding, Chaofeng Zhao, Baojing Tian, Shenghua Li* and Siping Pang*

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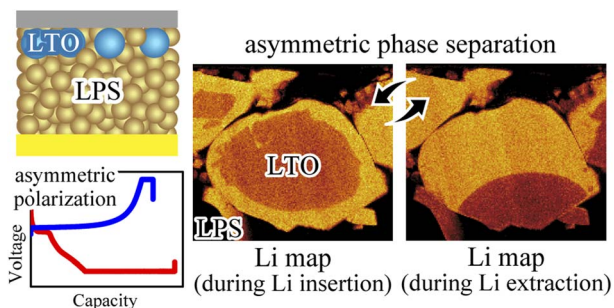


ZrO₂-free synthesis of NaSiCON electrolytes

Zirconia-free NaSiCON solid electrolyte materials for sodium all-solid-state batteries

Aaron Jue Kang Tieu, Eunike Mahayoni, Yuheng Li, Zeyu Deng, François Fauth, Jean-Noël Chotard, Vincent Seznec, Stefan Adams,* Christian Masquelier* and Pieremanuele Canepa*

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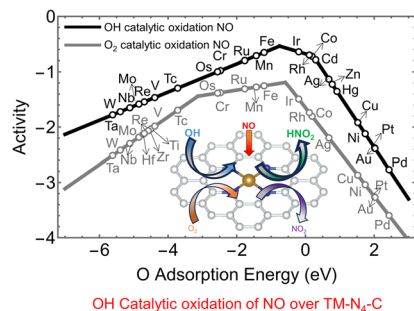


Visualizing asymmetric phase separation driven by surface ionic diffusion in lithium titanate

Yuki Nomura,* Kazuo Yamamoto and Tsukasa Hirayama

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Design of single-atom catalysts for NO oxidation using OH radicals

Weijie Yang,* Liugang Chen, Zhenhe Jia, Binghui Zhou, Yanfeng Liu, Chongchong Wu and Zhengyang Gao*

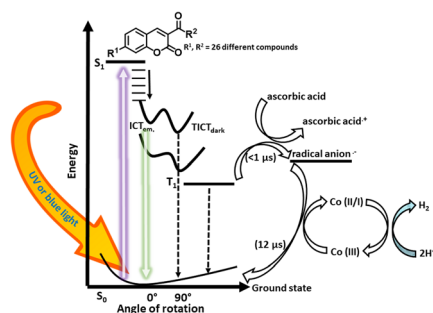


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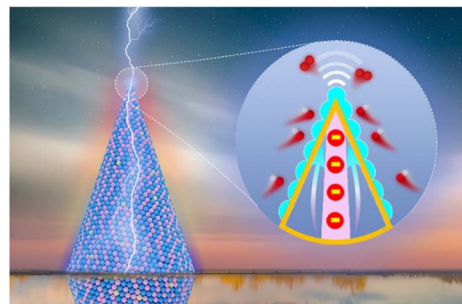
Gergely Knorr,^{*} Konrad Hotzel, Avinash Chettri, Artem Skabeev, Maria Wächtler, Benjamin Dietzek-Ivanšić and Kalina Peneva^{*}



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Tip effect assisted high active sites for oxygen evolution reaction tuned using transition metals (Cr, Fe and Mo) doped with CoP

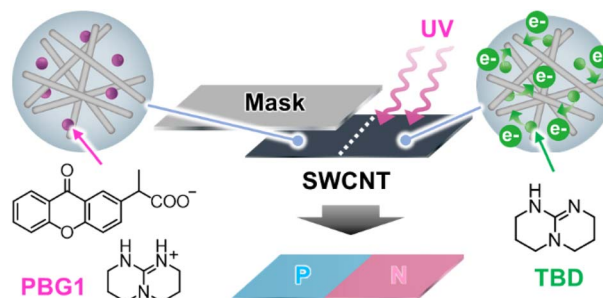
Xiaoyun Zhang, Shifan Zhu, Yixue Xu and Yuqiao Wang^{*}



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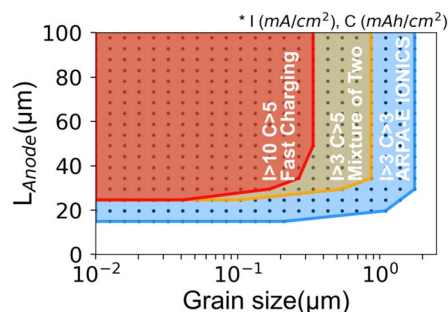
Naoki Tanaka, Mei Yamamoto, Itsuki Yamaguchi, Aoi Hamasuna, Emi Honjo and Tsuyohiko Fujigaya^{*}



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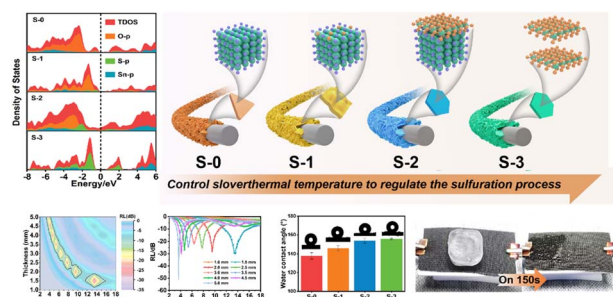
Exploiting grain boundary diffusion to minimize dendrite formation in lithium metal-solid state batteries

Jeong Seop Yoon, Hafeez Sulaimon and Donald J. Siegel^{*}



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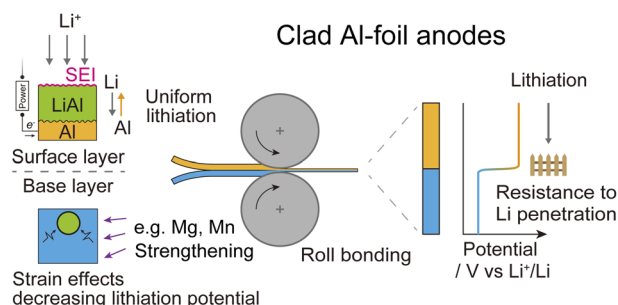
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Boosted interfacial charge dynamics on the SnO₂/SnS₂ heterointerface by gradient sulfur diffusion for microwave absorption and electric–thermal conversion

Zhenkuang Lei, Mingqiang Ning,^{*} Xueheng Zhuang, Qikui Man^{*} and Baogen Shen

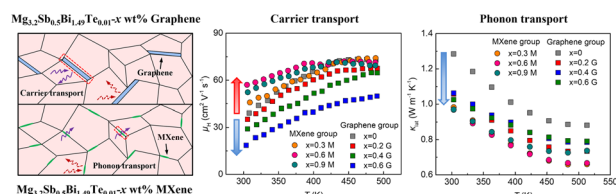
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Inserting a lithiation potential gap as a factor for degradation control in aluminum-foil anodes by utilizing roll-bonding processes

Hongyi Li,^{*} Shohei Nishimura, Yuki Nakata, Shingo Matsumoto, Takitaro Yamaguchi, Hiroaki Hoshikawa, Toshiaki Kumagai and Tetsu Ichitsubo^{*}

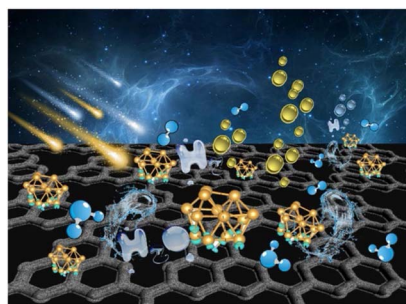
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Interfacial modulation to achieve low lattice thermal conductivity and enhanced thermoelectric performance in n-type Mg₃(Sb, Bi)₂-based materials via graphene and MXene

Bang-Zhou Tian, Yi-Yan Liao, Fang Xu, Xiao-Ling Qiu, Fu-Jie Zhang and Ran Ang^{*}

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Nanoengineered Au–carbon nitride interfaces enhance photocatalytic pure water splitting to hydrogen

Ingrid F. Silva, Soumyabrata Roy,^{*} Pawan Kumar, Zhi Wen Chen, Ivo F. Teixeira, Astrid Campos-Mata, Loudiana M. Antônio, Luiz O. Ladeira, Humberto O. Stumpf, Chandra Veer Singh, Ana Paula C. Teixeira, Md Golam Kibria^{*} and Pulickel M. Ajayan^{*}

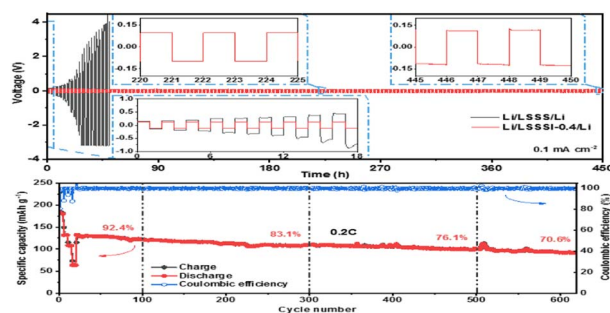


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Sn-doped thioantimonate superionic conductors with high air stability and enhanced Li-ion conduction for all-solid-state lithium batteries

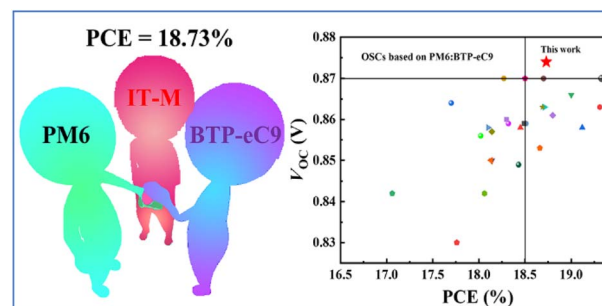
Zhihui Ma, Jie Shi, Di Wu, Dishuang Chen, Shuai Shang, Xuanhui Qu and Ping Li*



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18.73% efficiency organic solar cells with a medium bandgap acceptor as a third component

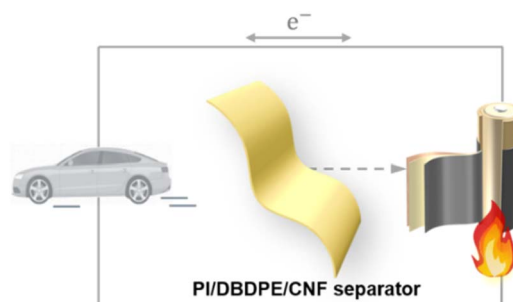
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Porous, robust, thermally stable, and flame retardant nanocellulose/polyimide separators for safe lithium-ion batteries

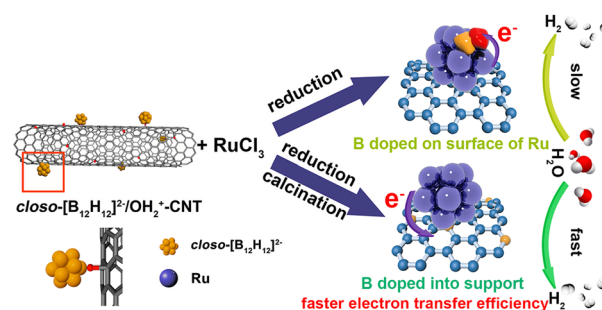
Yi Liu, Chao Li, Chunxing Li, Linhe Xu, Shuang Zhou, Ze Zhang, Junxian Zhang, Das Soham, Rong Fan, Hao Liu, Gang Chen, Yuanyuan Li, Tong Ling, Zhipeng Li, Jinsong Tao* and Jiayu Wan*



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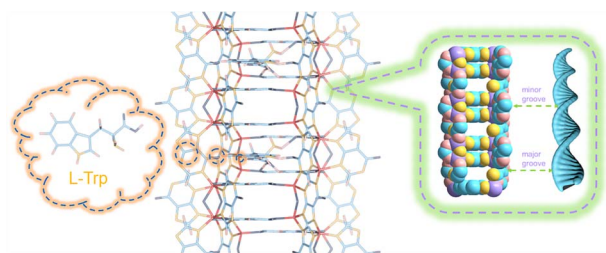
Engineering different B doping modes on Ru active sites for efficient alkaline hydrogen evolution

Xuzhuo Sun, Cancan Cao, Yuying Fu, Jing Chen, Bo Li,* Liuqing Fan, Jing Yang* and Haibo Zhang*



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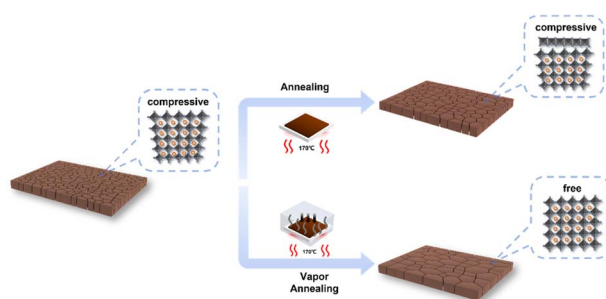
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Adaptive host–guest chiral recognition in nanoarchitectonics with biomimetic MOF mimicking DNA

Xiaohui Niu,^{*} Rui Zhao, Yongqi Liu, Mei Yuan, Hongfang Zhao, Hongxia Li, Xing Yang, Hui Xu and Kunjie Wang^{*}

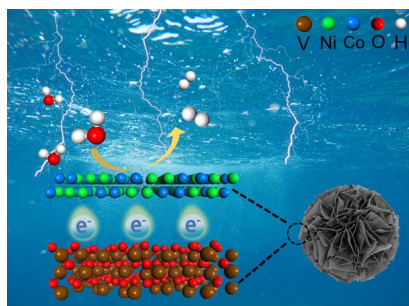
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A stress relaxation strategy for preparing high-quality organic–inorganic perovskite thin films via a vapor–solid reaction

Shenghan Hu, Changyu Duan, Hongqiang Du, Shuang Zeng, Anqi Kong, Yuanyuan Chen, Yong Peng, Yi-Bing Cheng and Zhiliang Ku^{*}

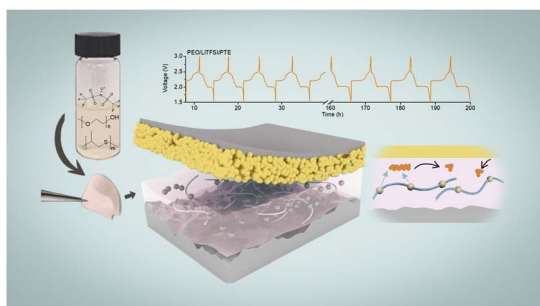
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An interface engineering induced hierarchical NiCo/V₂O₃/C Schottky heterojunction catalyst for large-current-density hydrogen evolution reaction

Danyang Li, Jingkai Wang, Shenghui Wang, Bingxian Chu, Rongyao Li, Bin Li, Lihui Dong, Minguang Fan^{*} and Zhengjun Chen^{*}

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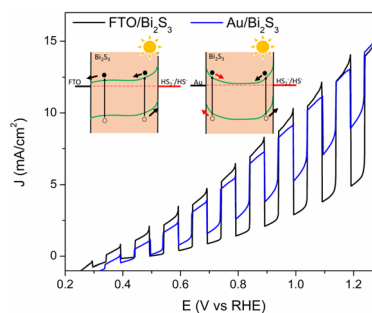
Interfacial chemistry and ion-transfer mechanism for a tailored poly(thioether)-enabled hybrid solid polymer electrolyte with electrochemical properties in all-solid-state lithium–sulfur batteries

Yuhan Li, Kai Xi, Mingbo Ma, Shiyao Lu, Hu Wu, Xiaohan Cao, Xinghong Zhang^{*} and Shujiang Ding^{*}



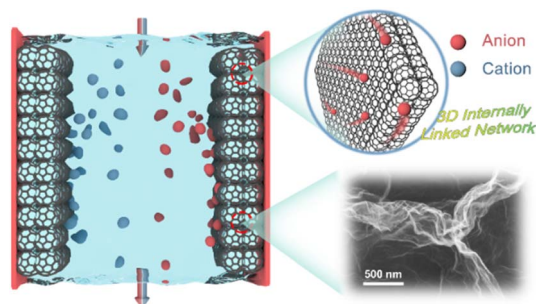
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Substrate controls photovoltage, photocurrent and carrier separation in nanostructured Bi_2S_3 filmsSherdil Khan,^{*} Sahar Daemi, Maria Kanwal, Chengcan Xiao and Frank E. Osterloh^{*}

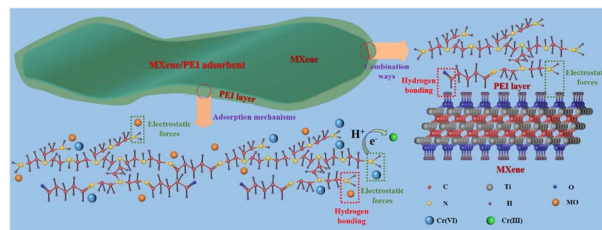
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Large-surface-area porous monolith of graphene for electrochemical capacitive deionization

Jinjue Zeng, Tao Wang, Yue Wang, Lei Gao, Dandan Sun, Cong Ge, Dingfei Deng, Hongda Zhu, Yoshio Bando, Ruiqing Li,^{*} Pengcheng Dai^{*} and Xuebin Wang^{*}

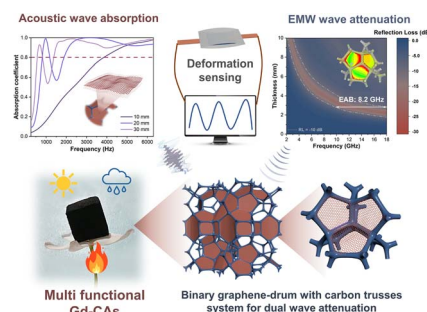
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Synchronously enhanced storage stability and adsorption ability of MXene achieved by grafting polyethylenimine

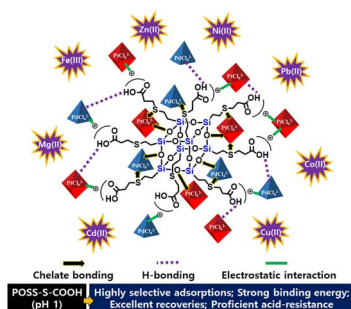
Liang Li, Xian-ying Shi, Ting Huang,^{*} Nan Zhang and Yong Wang^{*}

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Robust graphene-drum bridged carbon aerogels for broadband acoustic and electromagnetic attenuation

Yijing Zhao, Tianxiao Niu, Xinyu Dong, Yong Yang^{*} and Wei Zhai^{*}

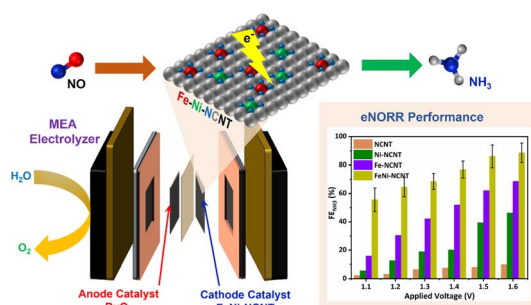
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Single-step synthesis of prominently selective and easily regenerable POSS functionalized with high loadings of sulfur and carboxylic acids

Haribandhu Chaudhuri, Che-Ryong Lim and Yeoung-Sang Yun*

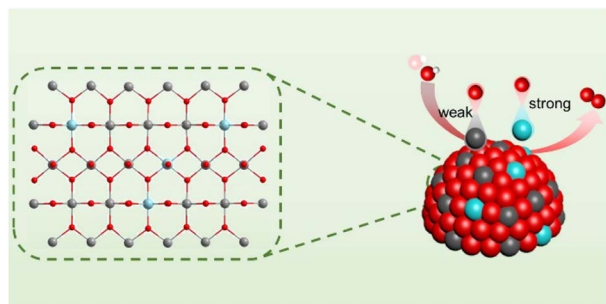
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Electrochemical synthesis of ammonia from nitric oxide in a membrane electrode assembly electrolyzer over a dual Fe–Ni single atom catalyst

Sridhar Sethuram Markandaraj, Dinesh Dhanabal and Sangaraju Shanmugam*

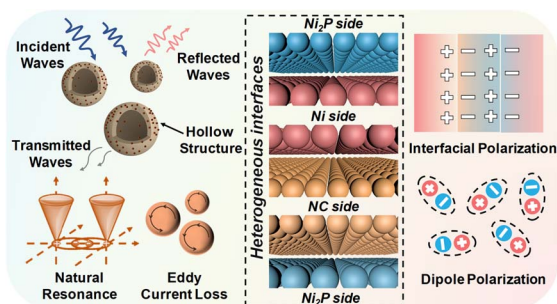
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Competitive adsorption of oxygen-containing intermediates on ruthenium–tin solid-solution oxides for alkaline oxygen evolution

Shuyu Jia, Jiachen Zhang, Qicheng Liu, Caini Ma, Yawen Tang* and Hanjun Sun*

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Optimizing dielectric polarization for electromagnetic wave attenuation via an enhanced Maxwell–Wagner–Sillars effect in hollow carbon microspheres

Baojun Wang, Hao Wu, Wenxuan Hou, Zhifeng Fang, Heqin Liu, Fangzhi Huang, Shikuo Li* and Hui Zhang*

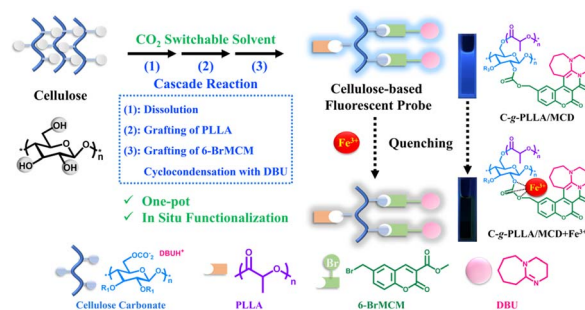


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One-pot *in situ* functionalization of cellulose in a CO₂ switchable solvent for the fluorescent detection of Fe³⁺

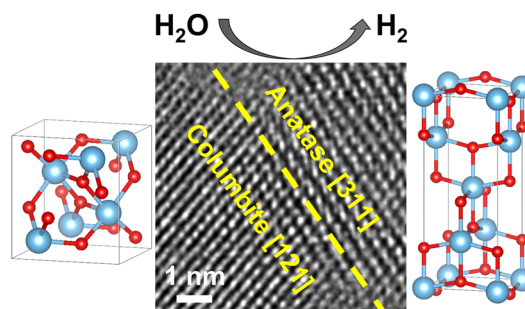
Xiaobo Yu, Yiting Xu, Fei Liu,* Wei Zhang, Yi Sun, Yajin Fang, Lanyun Fang, Xiaofeng He, Haining Na* and Jin Zhu



23523

Understanding high photocatalytic activity of the TiO₂ high-pressure columbite phase by experiments and first-principles calculations

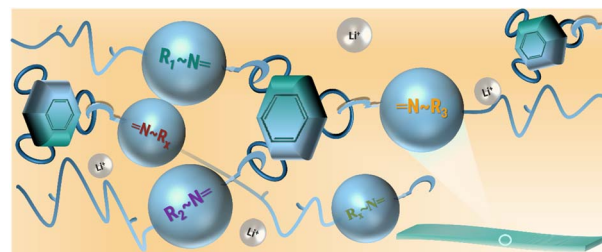
Jacqueline Hidalgo-Jiménez, Taner Akbay, Tatsumi Ishihara and Kaveh Edalati*



23536

Self-curing solid-state electrolytes based on transamination bond exchange for reliable lithium batteries

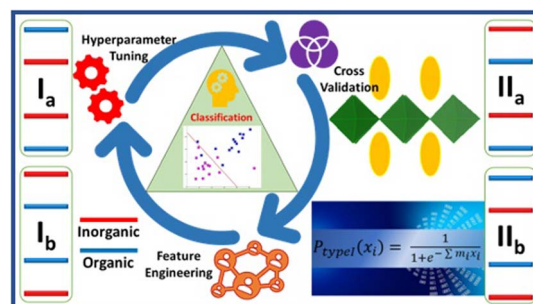
Yu-Te Chen, Rohan Paste, Hong-Cheu Lin* and Chih Wei Chu*



23547

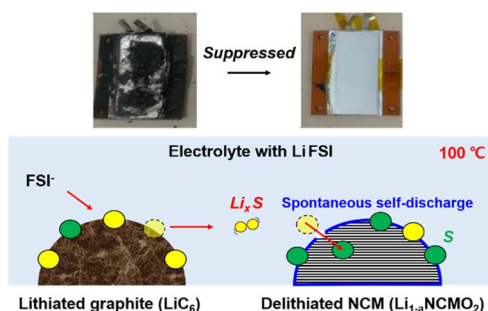
Machine learning-driven prediction of band-alignment types in 2D hybrid perovskites

Eti Mahal, Diptendu Roy, Surya Sekhar Manna and Biswarup Pathak*



PAPERS

23556

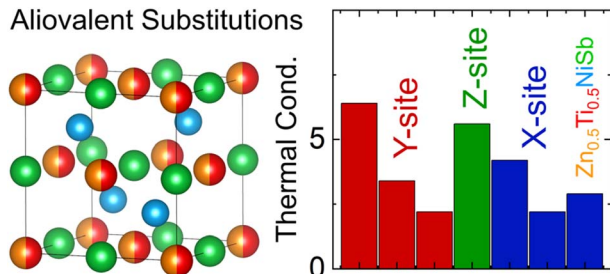


A self-discharging reaction mediated by imide salt enables the prevention of explosive thermal runaway in high-Ni material/graphite full cells

Yongho Shin, Kyungho Ahn, Chulhaeng Lee and Byoungwoo Kang*

23566

Aliovalent Substitutions



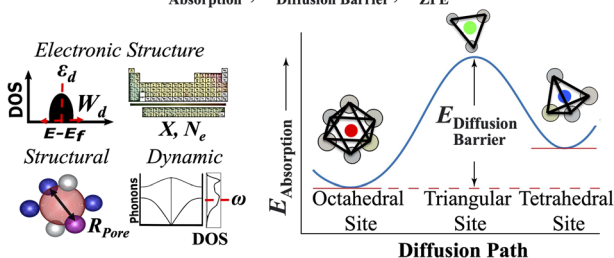
Thermoelectric properties of the aliovalent half-Heusler alloy Zn_{0.5}Ti_{0.5}NiSb with intrinsic low thermal conductivity

Blair F. Kennedy, Simon A. J. Kimber, Stefano Checchia, A. K. M. Ashiquzzaman Shawon, Alexandra Zevalkink, Emmanuelle Suard, Jim Buckman and Jan-Willem G. Bos*

23576

Physics-based descriptors for predicting

$E_{\text{Absorption}}$, $E_{\text{Diffusion Barrier}}$, E_{ZPE}



Simple local environment descriptors for accurate prediction of hydrogen absorption and migration in metal alloys

Vladislav Korostelev, James Wagner and Konstantin Klyukin*

CORRECTIONS

23589

Correction: Controllable design of multi-metallic aerogels as efficient electrocatalysts for methanol fuel cells

Lanqing Li, Wei Gao, Jianqi Ye, Haoxin Fan and Dan Wen*



CORRECTIONS

23590

Correction: Prussian blue and its analogues as functional template materials: control of derived structure compositions and morphologiesBehnoosh Bornamehr,^{*} Volker Presser,^{*} Aldo J. G. Zarbin,^{*} Yusuke Yamauchi^{*} and Samantha Husmann^{*}