

Journal of Materials Chemistry A

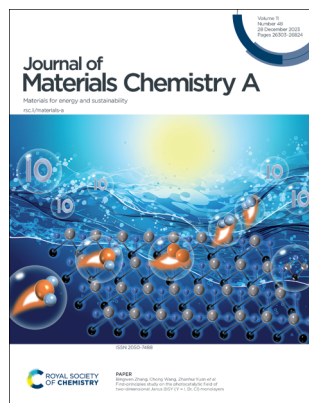
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 11(48) 26303–26824 (2023)



Cover

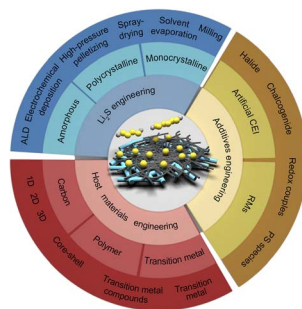
See Bingwen Zhang, Chong Wang, Zhanhui Yuan *et al.*, pp. 26442–26451. Image reproduced by permission of Bingwen Zhang from *J. Mater. Chem. A*, 2023, **11**, 26442.

REVIEWS

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Advanced engineering strategies for Li_2S cathodes in lithium–sulfur batteries

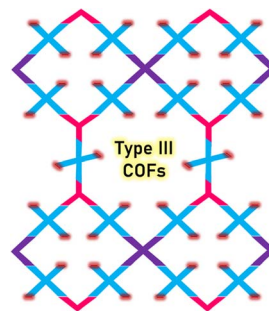
Guowei Gao, Xiaochen Yang, Jingxuan Bi, Wanqing Guan, Zhuzhu Du* and Wei Ai*



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Expanding the horizons of covalent organic frameworks: sub-stoichiometric synthesis as an emerging toolkit for functional COFs

Samiyappan Vijayakumar, Ayyappanpillai Ajayaghosh* and Sreejith Shankar*



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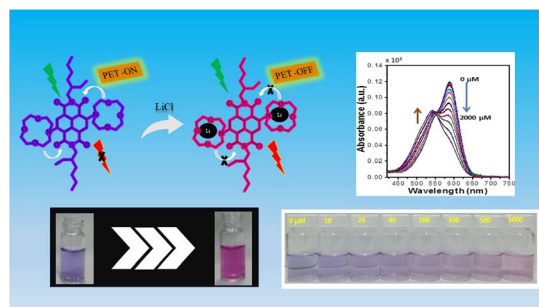


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A review on photochemical sensors for lithium ion detection: relationship between the structure and performance

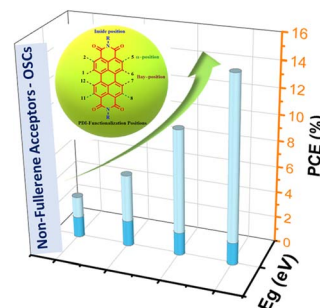
Fatemeh Javanbakht, Hossein Najafi, Kiyumars Jalili and Mehdi Salami-Kalajahi*



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Perylene-diimide for organic solar cells: current scenario and prospects in molecular geometric, functionalization, and optoelectronic properties

Pachaiyappan Murugan, Ezhakudiyan Ravindran, Vajjiram Sangeetha, Shi-Yong Liu and Jae Woong Jung*

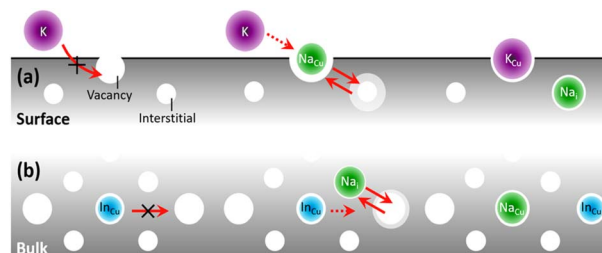


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Revani diffusion model in Cu(In,Ga)Se₂

Diego Colombara,* Billy J. Stanbery and Giovanna Sozzi

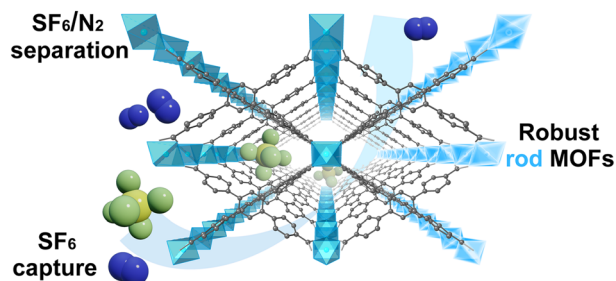


COMMUNICATION

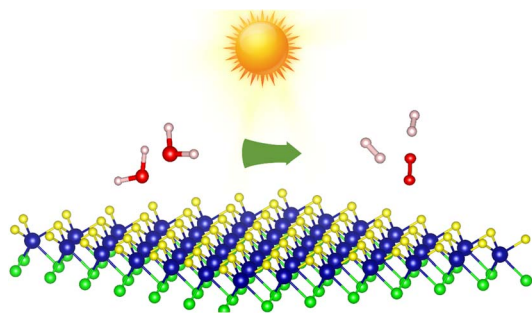
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Efficient SF₆ capture and separation in robust gallium- and vanadium-based metal–organic frameworks

Michelle Åhlén, Yi Zhou,* Daniel Hedborn, Hae Sung Cho, Maria Strømme, Osamu Terasaki and Ocean Cheung*



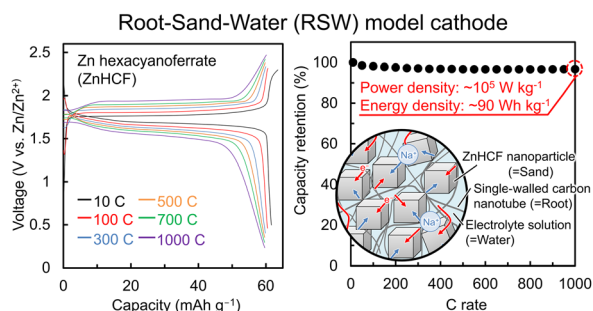
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First-principles study on the photocatalytic field of two-dimensional Janus BiSY (Y = I, Br, Cl) monolayers

Yingzhi Ye, Swellam Sharshir, Jun Wang, Bingwen Zhang,^{*} Chong Wang^{*} and Zhanhui Yuan^{*}

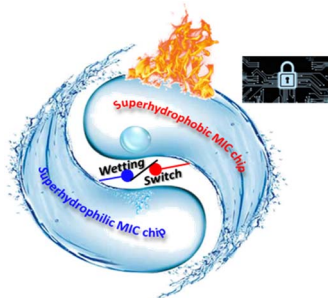
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High-density cathode structure of independently acting Prussian-blue-analog nanoparticles: a high-power Zn–Na-ion battery discharging ~ 200 mA cm^{-2} at 1000C

Yuta Asahina, Ryo Terashima, Manabu Ishizaki,^{*} Hideo Ando, Jun Matsui, Hirofumi Yoshikawa and Masato Kurihara^{*}

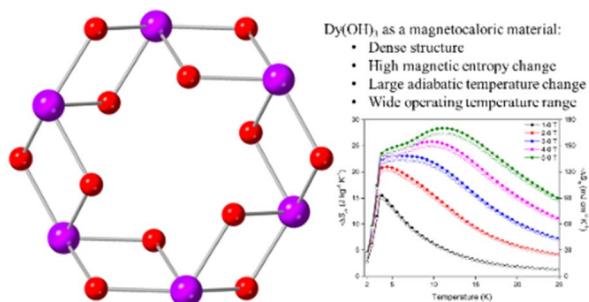
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In situ molecule-level interface tailoring of metastable intermolecular composite chips toward on-demand heat release and information encryption

Xiaogang Guo,^{*} Taotao Liang, Ankamfio Julius Tetteh, Md Labu Islam, Huisheng Huang, Binfang Yuan and Xun Cui^{*}

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Dy(OH)₃: a paramagnetic magnetocaloric material for hydrogen liquefaction

Patrick W. Doherty, Jiasheng Chen, Thomas Gruner, F. Malte Grosche and Paul J. Saines^{*}

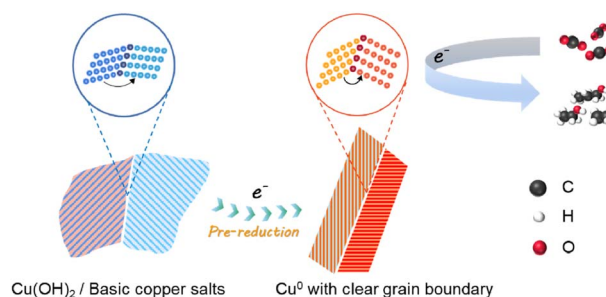


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Copper hydroxide/basic copper salt derived Cu⁰ with a clear grain boundary for selective electrocatalytic CO₂ reduction to produce multicarbon products

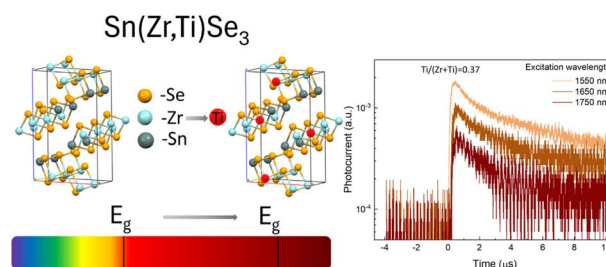
Shuchang Song, Haoyang Wu, Benqiang Tian, Ying Zhang,* Yun Kuang* and Xiaoming Sun



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Band gap engineering by cationic substitution in Sn(Zr_{1-x}Ti_x)Se₃ alloy for bottom sub-cell application in solar cells

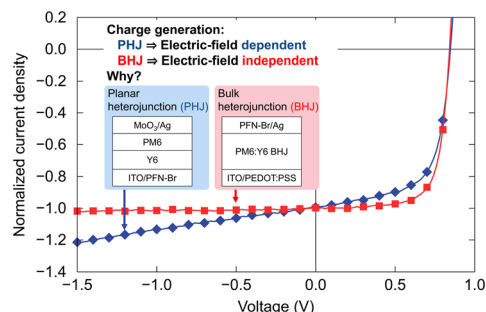
Rokas Kondrotas,* Vidas Pakštas, Marius Franckevičius, Artūras Suchodolskis, Saulius Tumėnas, Vidmantas Jašinskas, Remigijus Juškėnas, Arūnas Krotkus, Katri Muska and Marit Kauk-Kuusik



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Origin of electric field-dependent charge generation in organic photovoltaics with planar and bulk heterojunctions

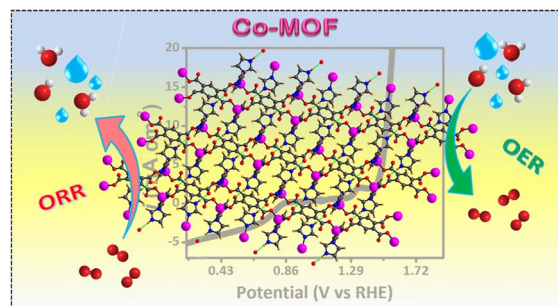
Kyohei Nakano,* Yumiko Kaji and Keisuke Tajima*



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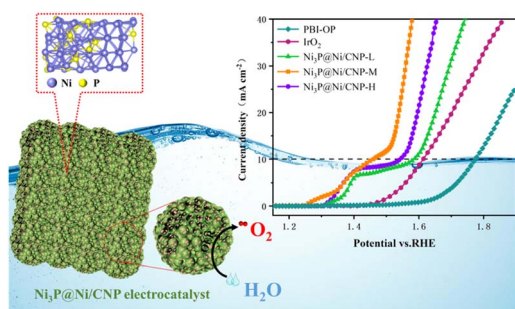
Mechanistic insight into a Co-based metal–organic framework as an efficient oxygen electrocatalyst via an *in situ* FT-IR study

Greesh Kumar, Rajashi Halder, Maheswaran Shanmugam and Ramendra Sundar Dey*



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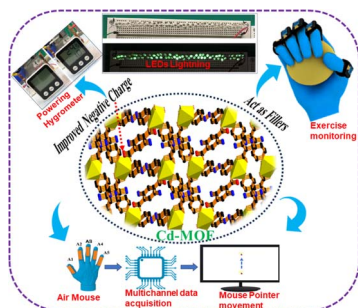
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The N, P co-doped carbon-loading $\text{Ni}_3\text{P@Ni}$ heterojunction nanocomposites derived from polybenzimidazoles grafted with oxygen-phosphorus group as high-efficiency electrocatalyst for oxygen evolution reaction

Gang Wang,* Wenshuai Tang, Shuai Yang, Mingxia Lu, Hongliang Wei, Lifeng Cui* and Xiaodong Chen*

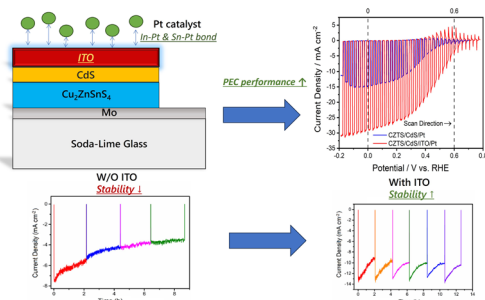
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Triboelectric nanogenerators enhanced by a metal-organic framework for sustainable power generation and air mouse technology

Zahir Abbas, Monunith Anithkumar, Asokan Poorani Sathya Prasanna, Nissar Hussain, Sang-Jae Kim* and Shaikh M. Mobin*

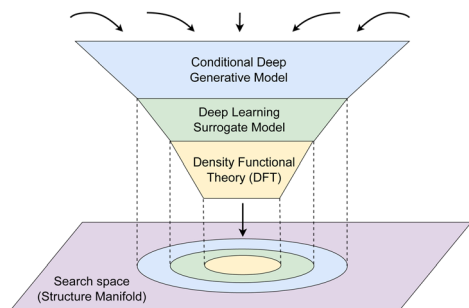
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Charge transfer enhancement at the CZTS photocathode interface using ITO for efficient solar water reduction

Ying Fan Tay, Mengyuan Zhang, Shuo Zhang, Stener Lie, Sing Yang Chiam and Lydia Helena Wong*

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Materials funnel 2.0 – data-driven hierarchical search for exploration of vast chemical spaces

Raul Ortega Ochoa, Bardi Benediktsson, Renata Sechi, Peter Bjørn Jørgensen and Arghya Bhowmik*

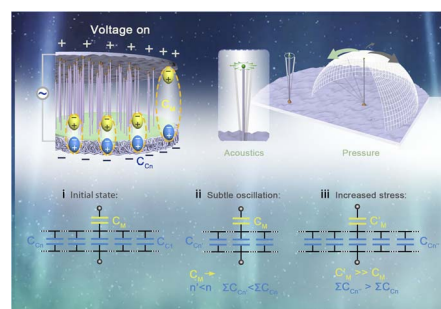


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A cilia-inspired micropatterned sensor with a high-permittivity dielectric hydrogel for ultrasensitive mechanoreception both in air and underwater

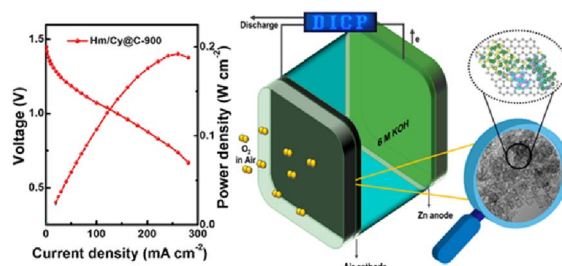
Yuanyuan Wang, Jiaqi Liao, Chencong Liu, Qingfeng Sun,^{*} Julia L. Shamshina^{*} and Xiaoping Shen^{*}



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The promotional effect of multiple active sites on Fe-based oxygen reduction electrocatalysts for a zinc–air battery

Zhiwen Li, Yan Xie, Jianxin Gao, Xiaoke Zhang, Jia Zhang, Yu Liu and Gao Li^{*}

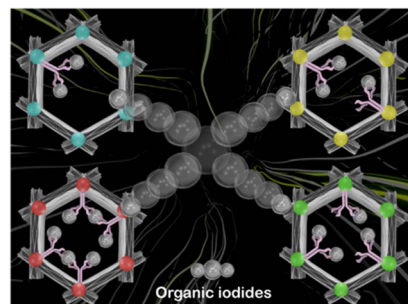


Fe-Based Nanocomposites for Zinc-Air Battery

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Unraveling mechanistic insights into covalent organic frameworks for highly efficient sequestration of organic iodides from simulated nuclear waste

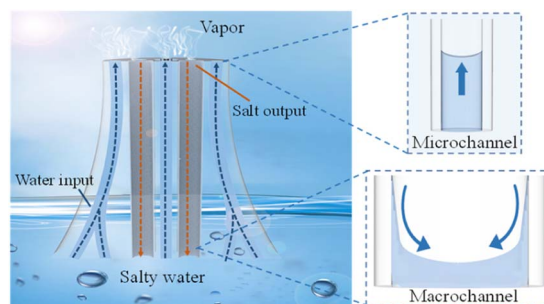
Sahel Fajal, Dipanjan Majumder, Writakshi Mandal, Sumanta Let, Gourab K. Dam, Mandar M. Shirolkar and Sujit K. Ghosh^{*}



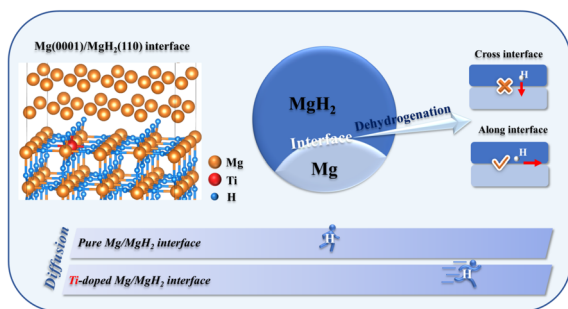
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A tree-root mimicked Janus evaporator for solar evaporation of saturated saline water

Zhaolong Wang, Ziheng Zhan, Yinfeng Li, Mingzhu Xie, Hui Kong, Huigao Duan^{*} and Yongping Chen^{*}



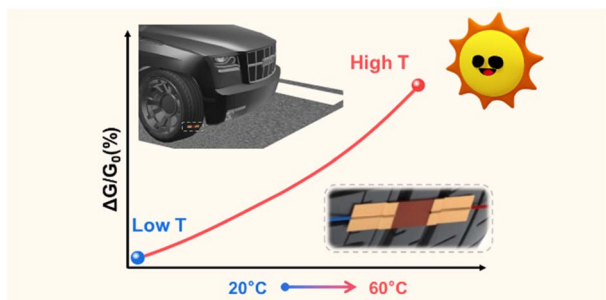
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The structural, energetic and dehydrogenation properties of pure and Ti-doped Mg(0001)/MgH₂(110) interfaces

Bo Han, Yuxiao Jia, Jianchuan Wang,* Xuezhong Xiao, Lixin Chen, Lixian Sun and Yong Du

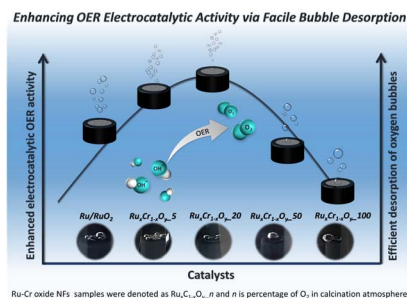
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Tailoring the supramolecular interaction of ionic liquids for high-sensitivity temperature monitoring under high pressure

Beihang Xu, Yao An, Xinjia Zheng, Zhiwu Chen, Zhaoxiang Yang, Yongjia Yang, An Zhang, Yapei Wang and Yonglin He*

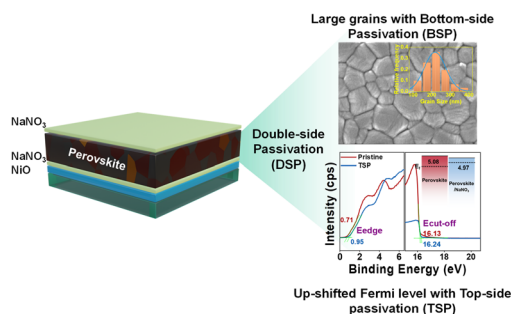
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Fiber-in-tube Ru_xCr_{1-x}O_y as highly efficient electrocatalysts for pH-universal water oxidation via facile bubble desorption

Chaewon Song, Dasol Jin, Subin Choi and Youngmi Lee*

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Oxysalt based synergistic dual interfacial engineering for high performance p-i-n structured perovskite solar cells

Pramila Patil, Sung-Nam Kwon, Sushil S. Sangale, Dilpreet Singh Mann and Seok-In Na*

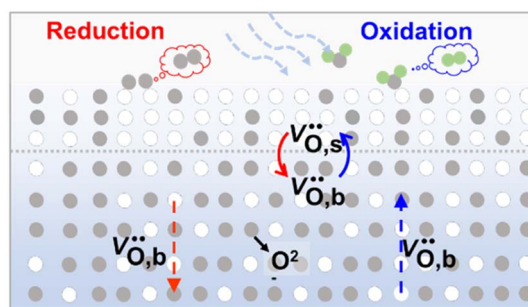


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Optimizing dense particles for efficient thermochemical fuel generation through a unified particle-level model

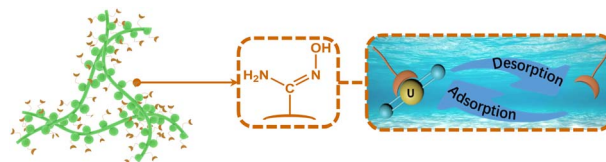
Lei Zhao, Shuai Deng* and Meng Lin*



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Surface wettability guiding *in situ* cultivation engineering of hollow polymer nanospheres for persistent efficient uranium extraction

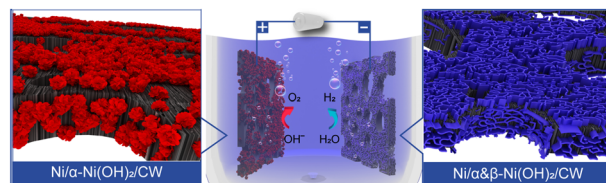
Fan Wu, Hao Li,* Jing Tang, Abdul Haleem and Jianming Pan*



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Green and sustainable bifunctional carbonized wood electrodes decorated with controlled nickel/ $\alpha(\beta)$ -nickel(II) hydroxide to boost overall water splitting

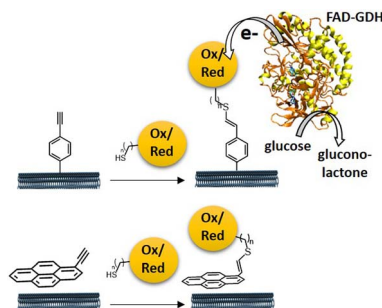
Jun Yong Yang, Jae Gyu Ahn, Boemjin Ko, Taeyoung Park, Soon-Jik Hong, Do Kyoung Han, Dongju Lee,* Cheng Ai Li* and Sung Ho Song*



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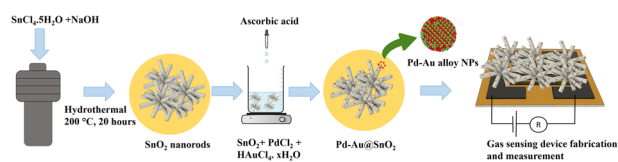
Thiol–yne click chemistry on carbon nanotubes for mediated bioelectrocatalytic glucose oxidation

Monica Brachi, Fabien Giroud, Serge Cosnier and Alan Le Goff*



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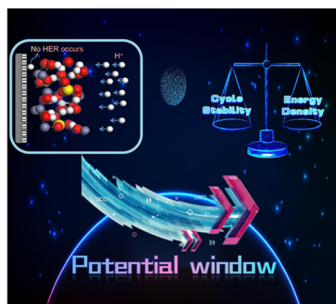
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A highly selective, efficient hydrogen gas sensor based on bimetallic (Pd–Au) alloy nanoparticle (NP)-decorated SnO₂ nanorods

Gaurav Pandey, Shiv Dutta Lawaniya, Sanjay Kumar, Prabhat K. Dwivedi and Kamendra Awasthi*

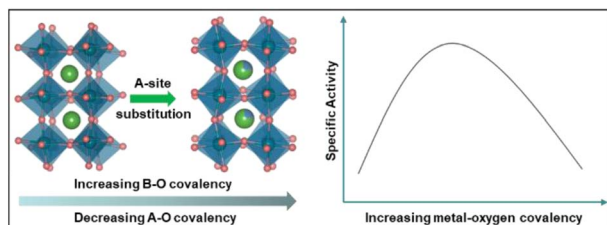
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A new selection criterion for voltage windows of aqueous zinc ion hybrid capacitors: achieving a balance between energy density and cycle stability

Fanda Zeng, Xiliang Gong, Zijin Xu, Zhengyan Du, Jian Xu, Ting Deng, Dong Wang, Yi Zeng, Shansheng Yu, Zeshuo Meng,* Xiaoying Hu* and Hongwei Tian*

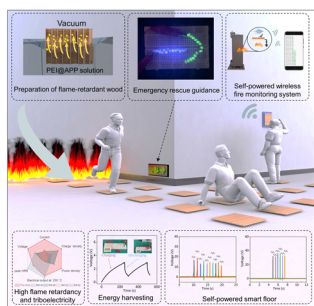
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Perovskite manganese oxides with tunable metal–oxygen covalency for efficient bisphenol A degradation

Yilan Jiang, Peifang Wang,* Yiran Xiong, Tingyue Chen, Chi Zhang, Keyi Gao, Xiaoguang Duan and Dawei Wang*

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Natural wood-based triboelectric nanogenerators with high fire-safety for energy harvesting toward intelligent buildings

Bo Tang, Ze-Peng Deng, Jia-Min Wu, Yu-Yao Zhao, Qiang-Wu Tan, Fei Song,* Xiu-Li Wang* and Yu-Zhong Wang

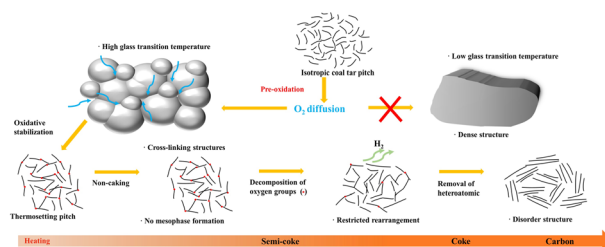


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A fundamental understanding of structure evolution in the synthesis of hard carbon from coal tar pitch for high-performance sodium storage

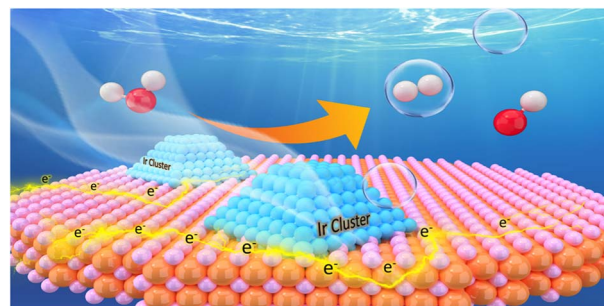
Lichang Ji, Yun Zhao,* Lijuan Cao, Yong Li, Canliang Ma, Xingguo Qi and Zongping Shao*



26742

Electronic perturbation by interfacial coupling of iridium cluster and Cu₃P accelerates water splitting kinetics

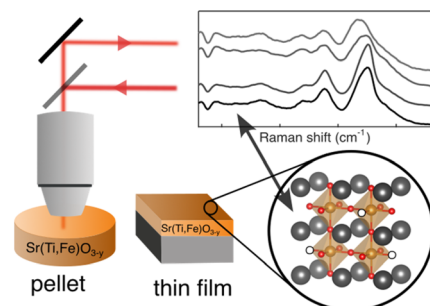
Payam Ahmadian Koudakan, Xiaobin Hao, Amirabbas Mosallanezhad, Cong Wei, Jinyan Cai, Junxin Xiao, Yuqing Yang, Bo Liu, Jun Liu,* Yanyan Fang* and Gongming Wang*



26752

Raman spectra and defect chemical characteristics of Sr(Ti,Fe)O_{3-y} solid solution of bulk pellets vs. thin films

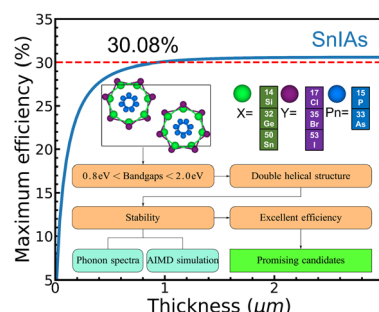
Eva Sediva and Jennifer L. M. Rupp*



26764

Inorganic SnIP-type double helices: promising candidates for high-efficiency photovoltaic cells

Haozhe Li, Xin-Gao Gong and Ji-Hui Yang*

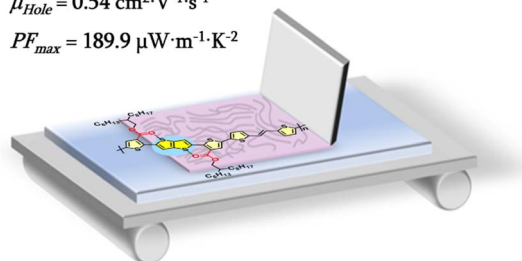


PAPERS

26774

$$\mu_{\text{Hole}} = 0.54 \text{ cm}^2 \cdot \text{V}^{-1} \cdot \text{s}^{-1}$$

$$PF_{\text{max}} = 189.9 \text{ } \mu\text{W} \cdot \text{m}^{-1} \cdot \text{K}^{-2}$$

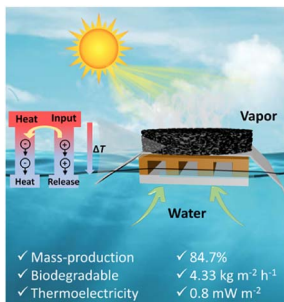


Room-temperature blade coating

Conformationally locked polythiophene processed by room-temperature blade coating enables a breakthrough of the power factor

Feiyan Wu, Qi Zhu, Jing Wang, Wanli Yang, Sang Young Jeong, Li Du, Zhiping Fan, Han Young Woo, Xugang Guo,* Lie Chen* and Yiwang Chen*

26784

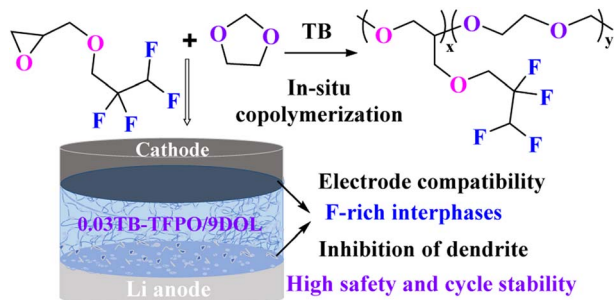


- ✓ Mass-production
- ✓ Biodegradable
- ✓ Thermoelectricity
- ✓ 84.7%
- ✓ 4.33 kg m⁻² h⁻¹
- ✓ 0.8 mW m⁻²

Mass production of biodegradable porous foam for simultaneous solar evaporation and thermoelectricity generation

Zhipeng Liu, Zhi Gong, Xiaolong Li, Jiaxin Ren, Jiang Gong,* Jinping Qu and Ran Niu*

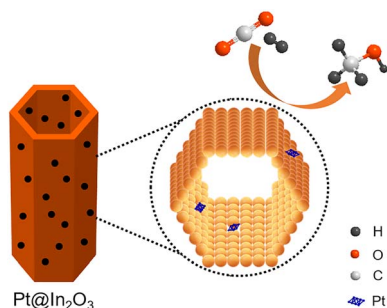
26794



Lithium metal batteries with *in situ* copolymerized fluorinated polyether electrolytes

Zhichun Chen, Ji Xian, Xiaobo Pan,* Fangping Ren, Yuju Li, Yan Tan, Yunfei Bai and Jincai Wu*

26804



Confining ultrafine Pt nanoparticles on In₂O₃ nanotubes for enhanced selective methanol production by CO₂ hydrogenation

Yuhan Wang, Yue Liu, Li Tan,* Xiahui Lin, Yuanxing Fang,* Xue Feng Lu, Yidong Hou, Guigang Zhang and Sibao Wang*

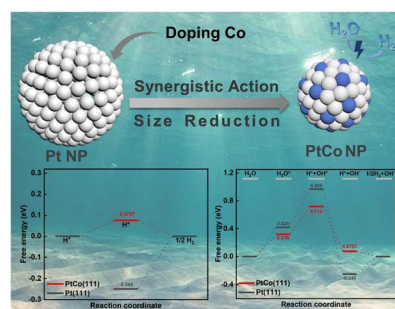


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26812

Monodispersed PtCo alloy nanoparticles with a modulated d-band center exhibiting highly efficient hydrogen evolution

Chengcheng Yan, Wei An, Tongjun Shen, Ling Ma, Mengyang Zhang, Fuming Gao, Tuo Yang, Chunxia Wang,* Guoyong Huang* and Shengming Xu



CORRECTION

26821

Correction: Designer hydrogenated wrinkled yolk@shell TiO₂ architectures towards advanced visible light photocatalysts for selective alcohol oxidation

Abolfazl Ziarati, Alireza Badiei,* Rafael Luque* and Weiyi Ouyang

