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Journal of Materials Chemistry A

Materials for energy and sustainability

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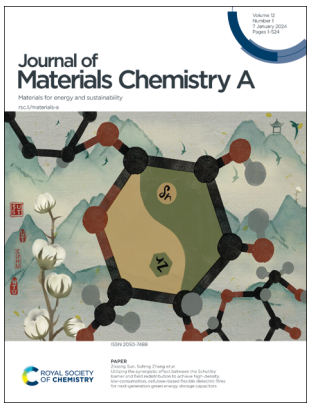

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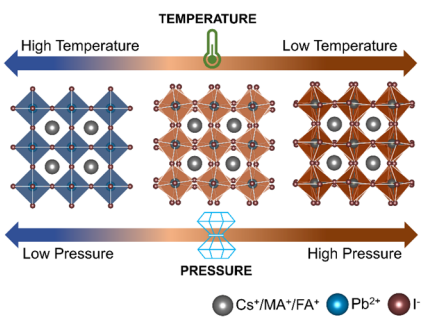

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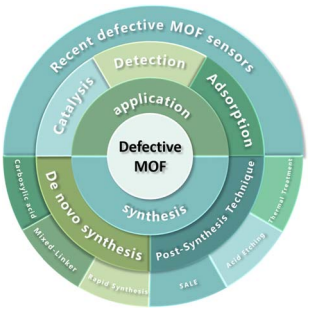
Defect-containing metal–organic framework materials for sensor applications

Dahui An, Long Chen,* Yun Liang, Juan Hou* and Jiangzhao Chen*



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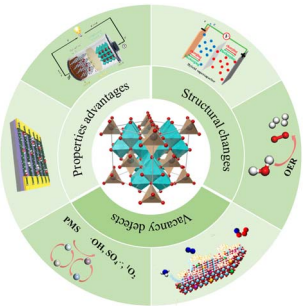

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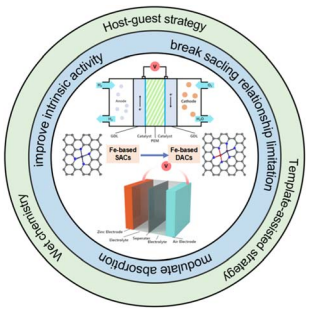
Wuyi Zhang, Shiyuan Yi, Yihong Yu, Hui Liu, Anthony Kucernak, Jun Wu* and Song Li*



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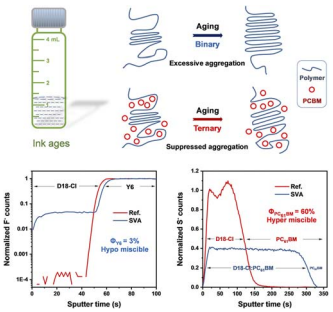

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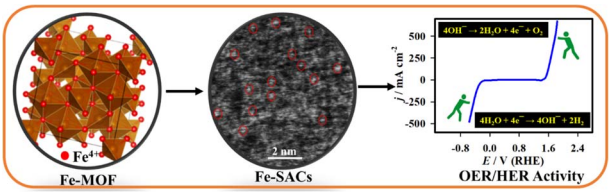

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Ayyavu Shankar, Sundaramoorthy Marimuthu and Govindhan Maduraiveeran*

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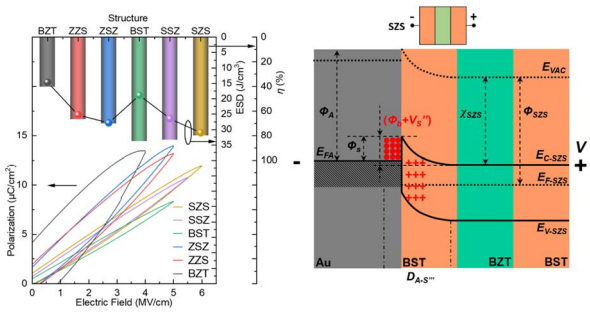

Utilizing the synergistic effect between the Schottky barrier and field redistribution to achieve high-density, low-consumption, cellulose-based flexible dielectric films for next-generation green energy storage capacitors

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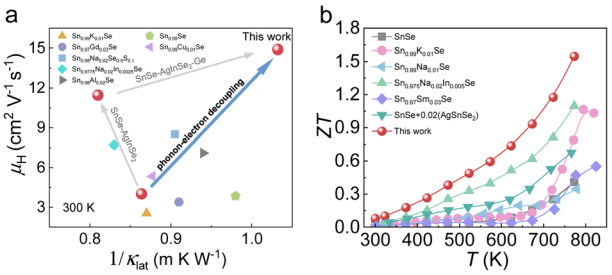

Modulating structures to decouple thermoelectric transport leads to high performance in polycrystalline SnSe

Yuping Wang, Shulin Bai, Haonan Shi, Qian Cao, Bingchao Qin* and Li-Dong Zhao*

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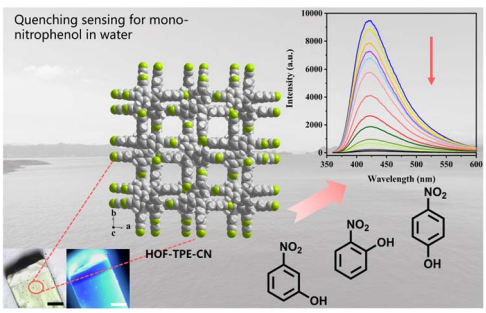

A fluorescent hydrogen-bonded organic framework for highly selective sensing of mono-nitrophenol isomers in water

Yu-Xin Lin, Chenghao Jiang, Yu-Bo Wang, Jia-Xin Wang, Bin Li* and Guodong Qian*

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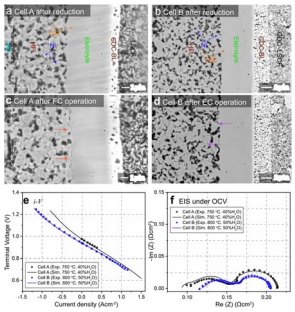
Integrated 3D modeling unravels the measures to mitigate nickel migration in solid oxide fuel/electrolysis cells

Zhenjun Jiao,* Yunpeng Su, Wenyue Yang, Jianli Zhou, Jin Zhang, Xiaofeng Tong, Yijing Shang and Ming Chen*



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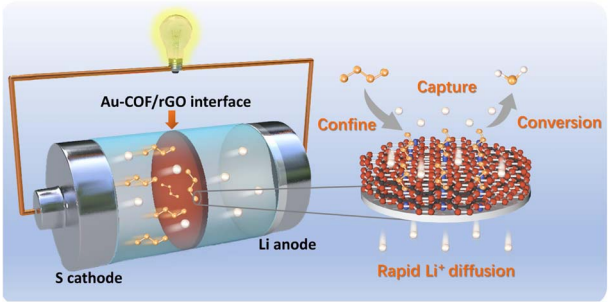
Regulating the kinetic behaviours of polysulfides by designing an Au–COF interface in lithium–sulfur batteries

Chan Li, Ke Yang, Zelin Ma, Fei Zhao, Juan Li, Xinwu Xu, Xiaoyu Hao, Haoyuan Qi and Yibo He*



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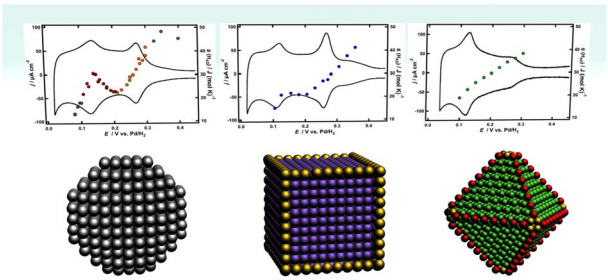
Direct measurement of the hydrogen adsorption entropy on shape-controlled Pt nanoparticles using electrochemical microcalorimetry

Luis E. Botello, Marco Schönig,* José Solla-Gullón, Víctor Climent, Juan M. Feliu and Rolf Schuster



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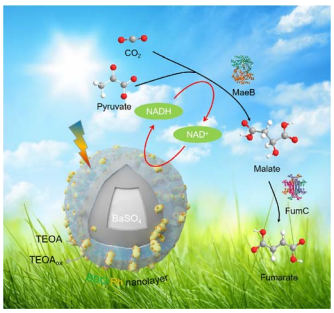
Core–shell BaPP@BDO-Rh benzimidazole oligomer photocatalyst can effectively promote NADH regeneration and CO_2 conversion to fumarate

Guohua Li, Zhiwen Lin, Xiaodi Li, Yahui Zhang, Wenlong Zhu, Yusheng Shao, Qiang Xue, Qunfeng Fan, Tianwei Tan* and Hui Cao*



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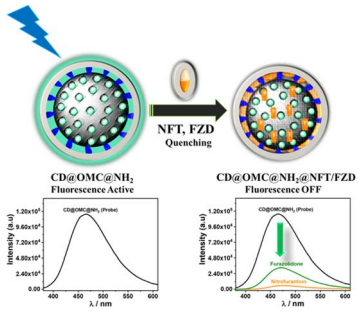

Carbon within carbon: growth of excitation-independent CDs within functional mesoporous carbon towards detection and adsorption of a specific nitrofuran class of antibiotics

Sanjay Yadav,* Nishu Choudhary and Alok Ranjan Paital*

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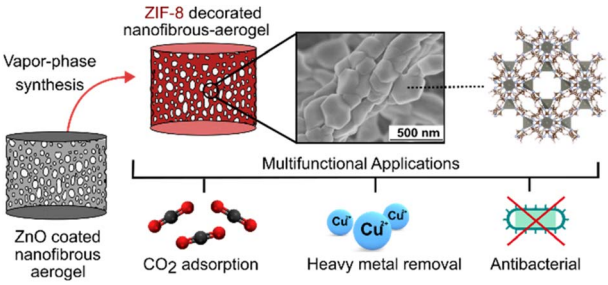

Vapor phase synthesis of metal–organic frameworks on a nanofibrous aerogel creates enhanced functionality

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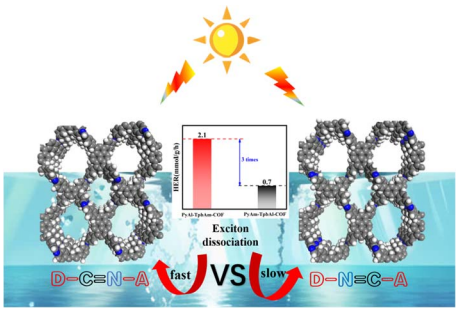

Inducing local charge polarization by constructing isomeric covalent organic frameworks with different orientations of imine bonds for enhancing photocatalytic hydrogen evolution

Huan He, Rongchen Shen, Peng Zhang, Guijie Liang* and Xin Li*

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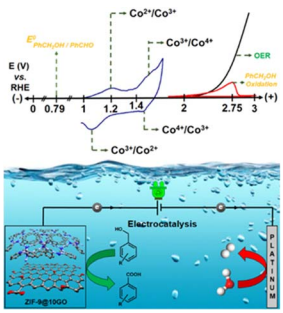

Microwave-assisted synthesis of ZIF-9@*x*GO composites as cooperative electrocatalysts for electro-oxidation of benzyl alcohols coupled with H_2 production

Sayantan Chongdar, Anirban Ghosh, Rajaram Bal and Asim Bhaumik*

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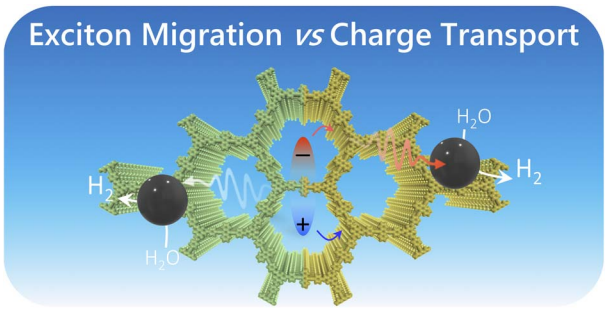
Low band gap semiconducting covalent organic framework films with enhanced photocatalytic hydrogen evolution

Samrat Ghosh,* Hüseyin Küçükkeçeci, Rajendra Prasad Paitandi, Vincent Weigelt, Veit Dippold, Shu Seki* and Arne Thomas*



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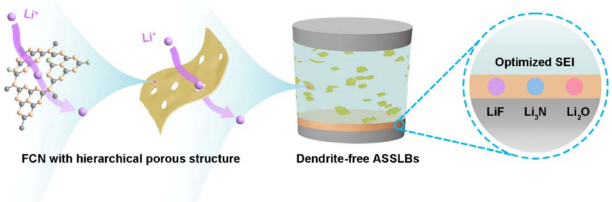
Fluorinated carbon nitride with a hierarchical porous structure ameliorating PEO for high-voltage, high-rate solid lithium metal batteries

Shuohan Liu, Jieqing Shen, Zhikai Wang, Wensheng Tian, Xiujun Han, Zhixin Chen, Hui Pan,* Lei Wang, Dongyu Bian, Cheng Yang* and Shenmin Zhu*



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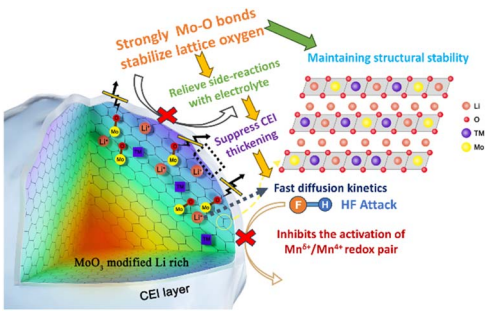
Huinan Yu, Zhichen Xue, Zhiyuan Xue, Zhongyuan Luo, Chenxi Ding, Guorong Hu, Zhongdong Peng, Yanbing Cao and Ke Du*



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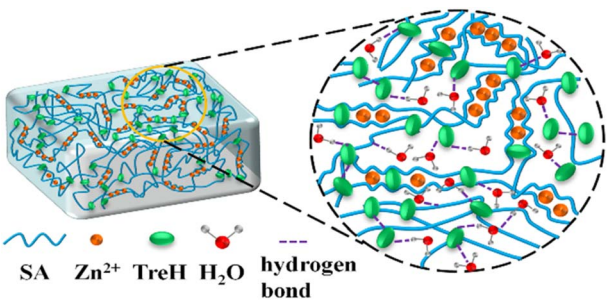
Advanced electrolyte with high stability and low-temperature resistance for zinc-ion batteries

Qixian Bai, Qi Meng, Weiping Liu, Wenjun Lin, Pengfei Yi, Jingjing Tang, Guilin Zhang, Penghui Cao* and Juan Yang*



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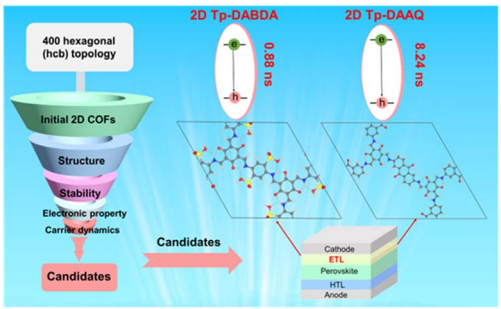

Hexagonal 2D covalent organic frameworks from nonpolar and symmetric electron-accepting substituents for electron transport layers in near-infrared PeLEDs

Lili Xu, Lei Zheng, Yu Jing, Xiangyu Guo, Xuemin Hu,* Bo Xu and Shengli Zhang*

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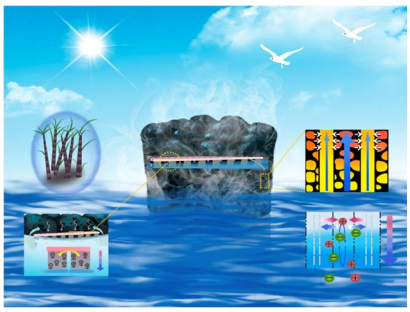

A porous dome array evaporator for high-performance photothermal water evaporation and thermoelectric power generation

Boli Nie, Weiwei Zhang,* Xiangyu Dou, Yanming Meng, Xi Zhao, Yan-Chao Wu and Hui-Jing Li*

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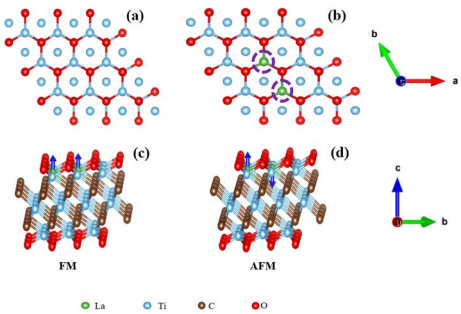

Unveiling the magnetic ordering effect in La-doped $Ti_3C_2O_2$ MXenes on electrocatalytic CO_2 reduction

Koua Alain Jesus Koua, Jiahe Peng, Peng Zhang and Neng Li*

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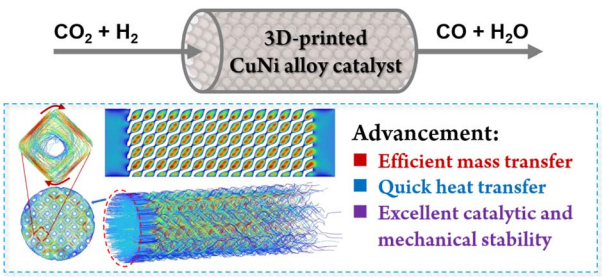

A 3D-printed CuNi alloy catalyst with a triply periodic minimal surface for the reverse water-gas shift reaction

Wenbin Li, Junhao Ding, Xiao Chen, You Wang, Xu Song* and Sai Zhang*

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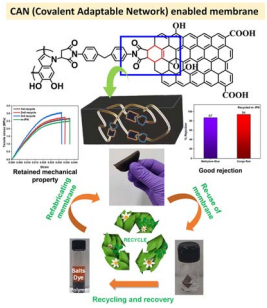
Graphene oxide offers precise molecular sieving, structural integrity, microplastic removal, and closed-loop circularity in water-remediating membranes through a covalent adaptable network

Ria Sen Gupta, Samir Mandal, Amit Malakar, Siddhesh Rege, Sk. Safikul Islam, Ketaki Samanta, Ashok Misra and Suryasarathi Bose*



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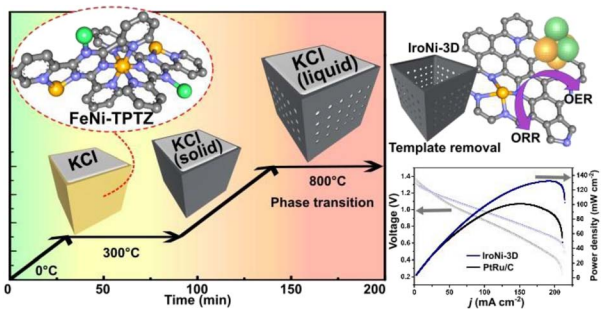
Mechanosynthesis of a bifunctional FeNi–N–C oxygen electrocatalyst *via* facile mixed-phase templating and preheating-pyrolysis

Akmal Kosimov, Gulnara Yusibova, Ivan Tito Wojsiat, Jaan Aruväli, Maike Käärik, Jaan Leis, Peeter Paaver, Sergei Vlassov, Arvo Kikas, Vambola Kisand, Helle-Mai Piirsoo, Kaupo Kukli, Ivo Heinmaa, Tiit Kaljuvee and Nadezda Kongi*



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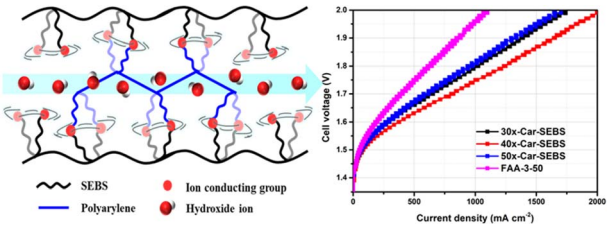
Polycarbazole-SEBS-crosslinked AEMs based on two spacer polymers for high-performance AEMWE

Kyungwhan Min, Insu Jeong, Hayoung Kim and Tae-Hyun Kim*



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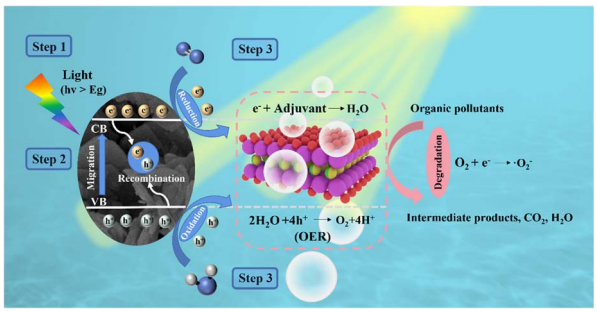
New insights into the synthesis of Sillén–Aurivillius oxyhalides: molten salts induce interlayer halogen competing reaction

Yunxiang Zhang, Chenliang Zhou, Shishi Xu, Hazem Abdelsalam, Zhichao Mu, Wei Chen, Zhili Chen, Xiangyu Cheng, Diab Khalafallah and Qinfang Zhang*



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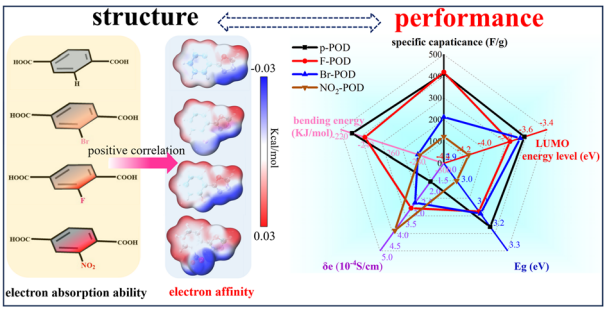

Aromatic polyaroxydiazole pseudocapacitive anode materials with tunable electrochemical performance through side group engineering

Yan Jiang, Chen Yang, Yuanyuan Yu, Yulin Zhou, Zhoutai Shang, Shengchang Zhang, Pengqing Liu, Jiadeng Zhu and Mengjin Jiang*

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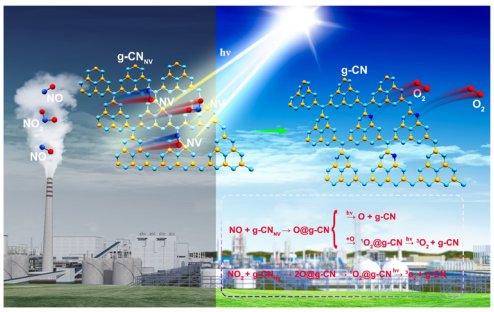

Computational insight into effective decomposition of NO_X gas pollutants using N-vacancies in graphitic carbon nitride

Yuewen Yang, Yanling Zhao* and Ruiqin Zhang*

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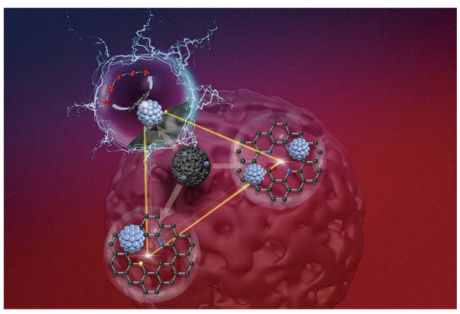

Mechanism and preparation research of binary heteroatom co-doped (X = N, S, P) platinum/carbon black electrocatalysts for an enhanced oxygen reduction reaction *via* a one-pot pyrolysis method

Fengning Bai, Yantong Zhang, Dongyu Hou, Jian Chen, Fanming Meng, Michael K. H. Leung, Ling Zhou, Yingjie Zhang, Chengxu Zhang,* Wutao Wang* and Jue Hu*

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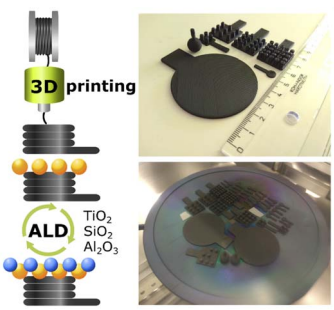

Engineering 3D-printed carbon structures with atomic layer deposition coatings as photoelectrocatalysts for water splitting

Siowwoon Ng, Michela Sanna, Edurne Redondo and Martin Pumera*

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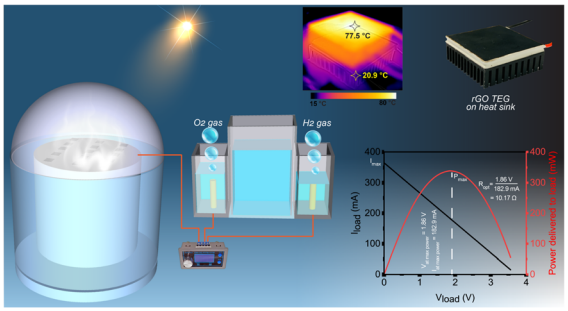
rGO coated cotton fabric and thermoelectric module arrays for efficient solar desalination and electricity generation

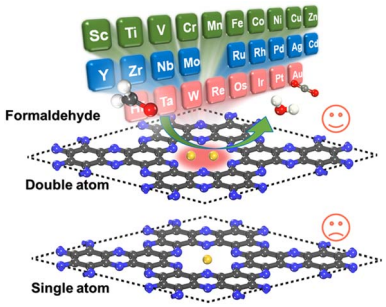
Ahmed Mortuza Saleque, Amrit Kumar Thakur, R. Saidur, Mohammad Ismail Hossain, Wayesh Qarony, Md Shamim Ahamed, Iseult Lynch, Y. Ma and Yuen Hong Tsang*



419

Synergistic effect of diatomic materials on efficient formaldehyde sensing and degradation

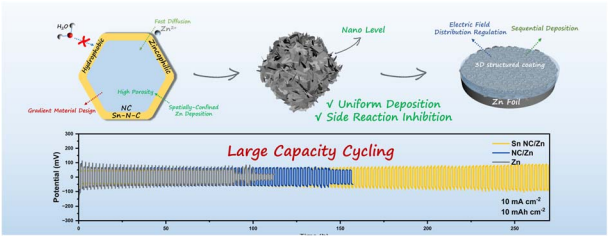
Zhouhao Zhu, Hengcong Tao, Renkun Zhang,* Liyong Gan* and Yingtang Zhou*



428

Atomic Sn sites on nitrogen-doped carbon as a zincophilic and hydrophobic protection layer for stable Zn anodes

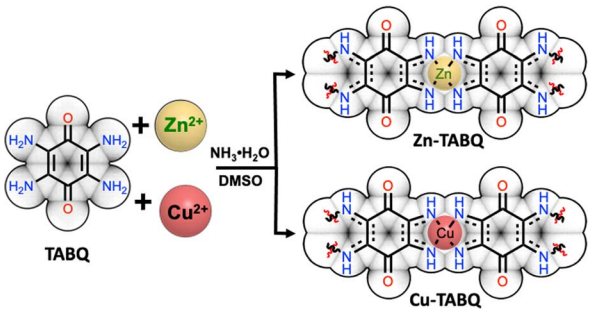
Yijie Wang, Yan Tan and Chuanwei Cheng*



440

Two-dimensional metal–organic polymers as cathode hybrid materials for high-performance Al-batteries

Dawid Pakulski,* Verónica Montes-García, Adam Gorczyński, Włodzimierz Czepa, Tomasz Chudziak, Michał Bielejewski, Andrzej Musiał, Ignacio Pérez-Juste, Paolo Samorì* and Artur Ciesielski*



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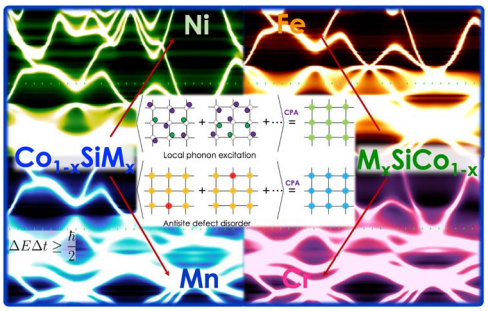

Exploring finite-temperature electronic transport in CoSi alloys with transition metals (Cr, Mn, Fe, and Ni) using the KKR-CPA method

Ho Ngoc Nam,* Quan Manh Phung, Katsuhiro Suzuki, Hikari Shinya, Akira Masago, Tetsuya Fukushima and Kazunori Sato*

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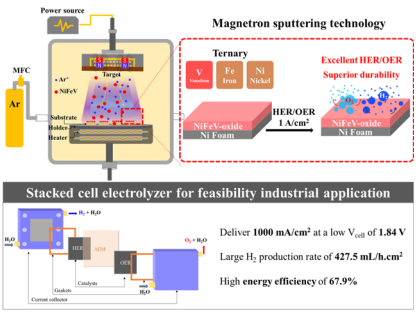

Industrial-scale efficient alkaline water electrolysis achieved with sputtered NiFeV-oxide thin film electrodes for green hydrogen production

Quoc-Nam Ha, Chen-Hao Yeh, Noto Susanto Gultom and Dong-Hau Kuo*

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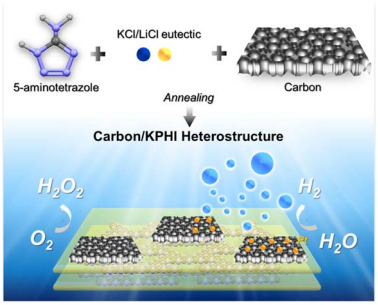

Rational design of a carbon/potassium poly(heptazine imide) heterojunction for enhanced photocatalytic H_2 and H_2O_2 evolution

Christian Mark Pelicano,* Jiaxin Li, María Cabrero-Antonino, Ingrid F. Silva, Lu Peng, Nadezda V. Tarakina, Sergio Navalón, Hermenegildo García and Markus Antonietti*

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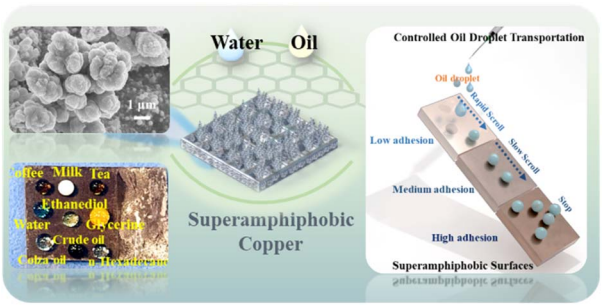

Adjustable oil adhesion on superamphiphobic copper surfaces for controlled oil droplet transport

Wen Si, Xin Dai, Shiping He and Zhiguang Guo*

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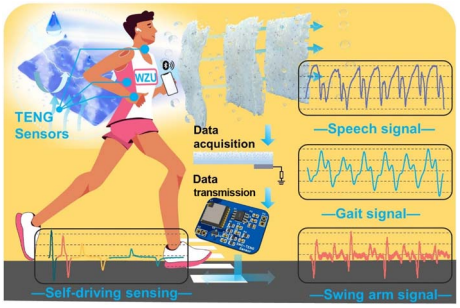
Breathable, transparent, waterproof, flexible and high-output triboelectric nanogenerators for sport monitoring and speech recognition

Tong Zheng, Guizhong Li,* Linnan Zhang and Yong Lei



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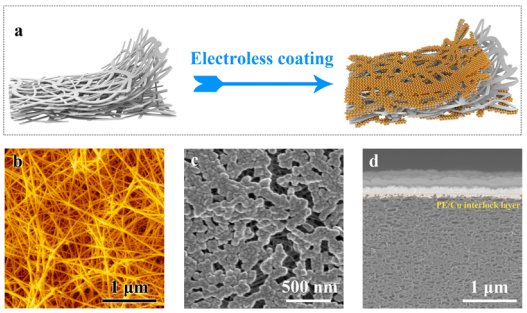
Synthesis of stretchable hybrid copper films *via* nanoconfinement

Xin Ma, Donghao Xie, Jiayi Wang, Zekun Wang, Qiao Gu, Yonghong Deng* and Ping Gao*



CORRECTIONS

520

Correction: Achieving highly efficient CO_2 to CO electroreduction exceeding 300 mA cm^{-2} with single-atom nickel electrocatalysts

Hui-Yun Jeong, Mani Balamurugan, Venkata Surya Kumar Choutipalli, Eun-suk Jeong, Venkatesan Subramanian, Uk Sim* and Ki Tae Nam*

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Correction: Accelerating materials discovery using integrated deep machine learning approaches

Weiyi Xia, Ling Tang, Huaijun Sun, Chao Zhang, Kai-Ming Ho, Gayatri Viswanathan, Kirill Kovnir and Cai-Zhuang Wang*