

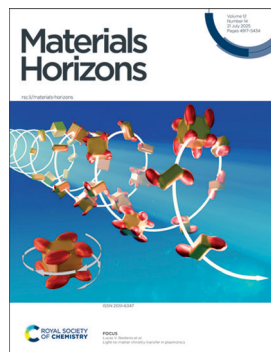
Materials Horizons

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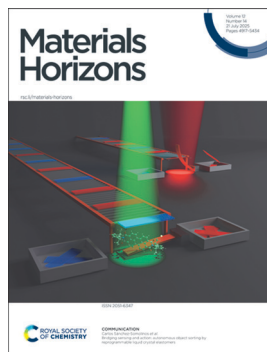
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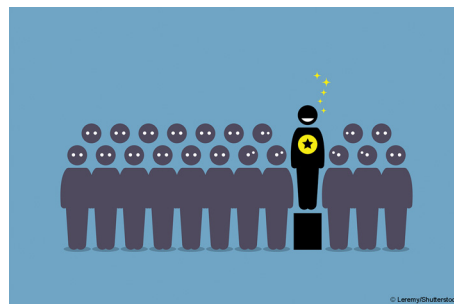
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EDITORIALS

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Outstanding Reviewers for *Materials Horizons* in 2024



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Materials Horizons Emerging Investigator Series: Dr Eunho Lee, Seoul National University of Science and Technology, Korea (the Republic of)



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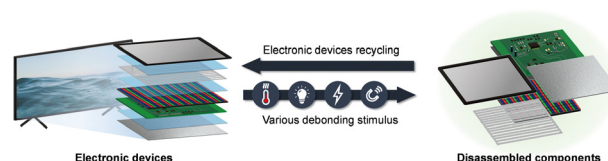


OPINION

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Debonding-on-demand adhesives for recycling and reusing of electronic devices

Daewhan Kim, Youngjoo Park and Min Sang Kwon*

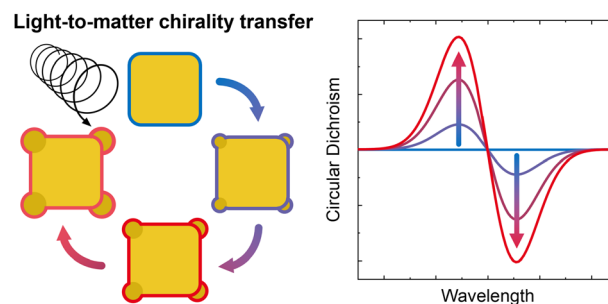


FOCUS

4940

Light-to-matter chirality transfer in plasmonics

Eva Yazmin Santiago, Muhammad Irfan, Oscar Ávalos-Ovando, Alexander O. Govorov, Miguel A. Correa-Duarte and Lucas V. Besteiro*

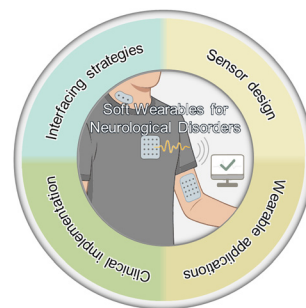


REVIEWS

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Intelligent soft wearable bioelectronics for neurological disorders

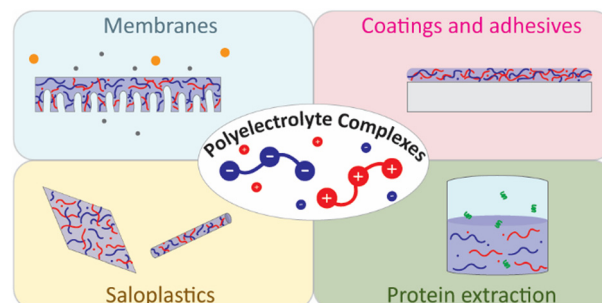
Dohyung Kim, Junhyuk Bang, Juho Jeong, Dae Lim Koo* and Seung Hwan Ko*



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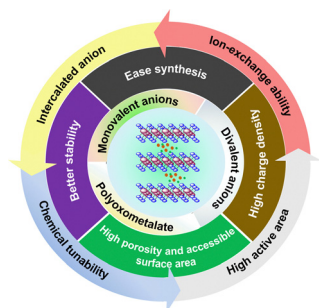
Polyelectrolyte complex-based materials for separations: progress, challenges and opportunities

Jiaying Li, Lijie Li, Hestie A. Brink, Giulia Allegri and Saskia Lindhoud*



REVIEWS

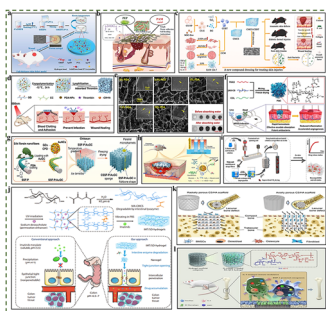
5031



Advances in anion-intercalated layered double hydroxides for supercapacitors: study of chemical modifications and classifications

Sonali P. Sadavar, Swapnajit V. Mulik, Pramod A. Koyale, Shrikant V. Sadavar and Sagar D. Delekar*

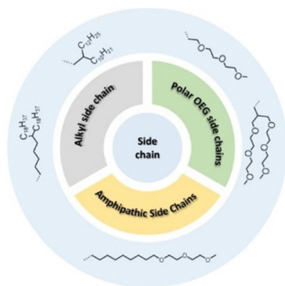
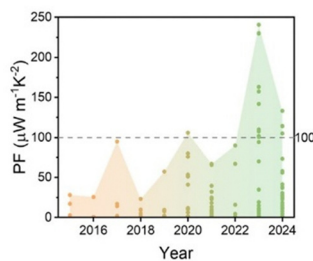
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Exploring the wonders of polysaccharides in porous materials

Qiping Zhan, Simin Xuan, Linying Su, Yujie Hou, Peng Jin,* Yonghua Zheng and Zhengguo Wu*

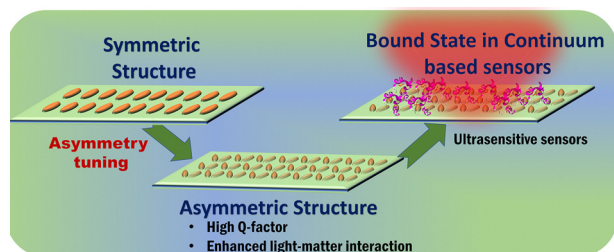
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Side-chain engineering of conjugated molecules for n-type organic thermoelectrics

Hangyang Li, Gang Ye,* Yazhuo Kuang, Mingyu Ma, Shuyang Shao* and Jian Liu*

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Leveraging bound states in the continuum for advanced ultra-sensitive sensing technologies

Dev Kumar Thapa* and Soumava Biswas

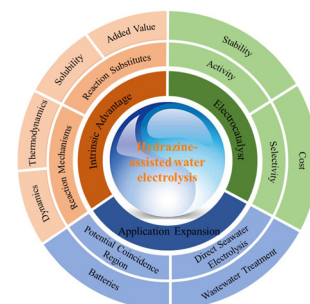


REVIEWS

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Hydrazine-assisted water electrolysis system: performance enhancement and application expansion

Hao-Yu Wang and Zhong-Yong Yuan*

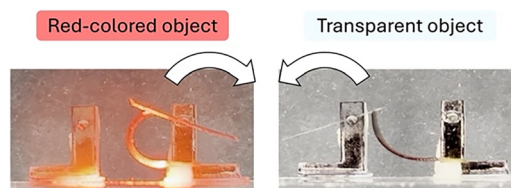


COMMUNICATIONS

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Bridging sensing and action: autonomous object sorting by reprogrammable liquid crystal elastomers

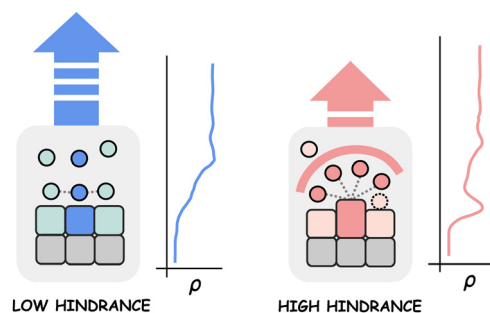
Lorena Montesino, Maria López-Valdeolivas, Jesús I. Martínez and Carlos Sánchez-Somolinos*

Autonomous liquid crystal elastomer soft robots

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***Ab initio* simulation of molecular crystal regrowth of paracetamol from solution**

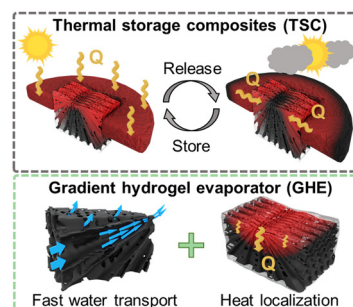
Huanyu Zhou,* Giuseppe Mallia and Nicholas M. Harrison



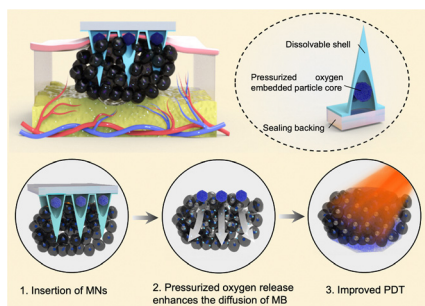
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A heterogeneous nanocomposite architecture with contrasting thermal conductivity and hydrophilicity for synergistic solar-thermal storage and evaporation

Kit-Ying Chan, Xiuli Dong, Yunfei Yang, Xiaomeng Zhao, Duo Li, Mengyang Xu, Xuemin Yin, Zhenyu Wang and Xi Shen*



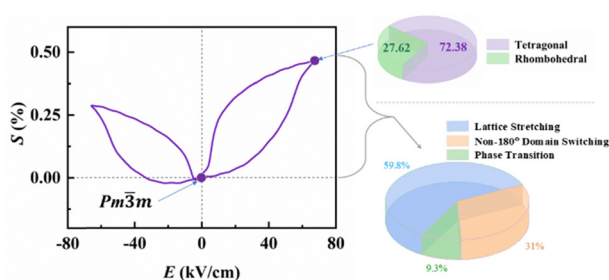
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Filling core-shell microneedles with pressurized oxygen-embedded particles (POPs) to improve photodynamic therapy

Weijiang Yu, Junzhe Fu, Yonghang Chen, Yixian Mu, Qiao Jin, Youxiang Wang* and Jian Ji*

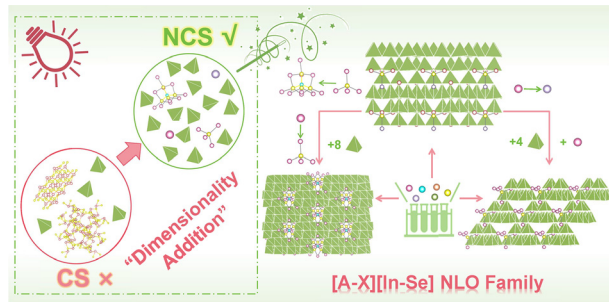
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In situ synchrotron X-ray diffraction for actuation in sodium bismuth titanate relaxor ferroelectrics

Yuxin Jia, Yongbo Fan, Lin Lei, Yao Su, Shuwen Zhu, Guangzhi Dong, Manuel Hinterstein,* Qiang Li, Weijia Wang* and Huiqing Fan*

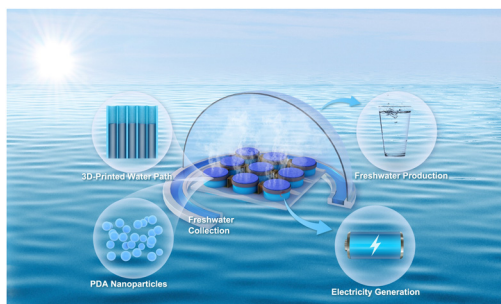
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Non-centrosymmetric structures designed rationally via a "dimensionality addition" strategy toward the promising nonlinear optical family [A-X][In-Se] (A = K/Ba and Rb/Ba; X = Cl and Br)

Shao-Min Pei, Fan Wu, Ming-Shu Zhang, Wen-Fa Chen, Xiao-Ming Jiang, Bin-Wen Liu* and Guo-Cong Guo*

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Bioinspired and 3D-printed solar evaporators for highly efficient freshwater-electricity co-generation

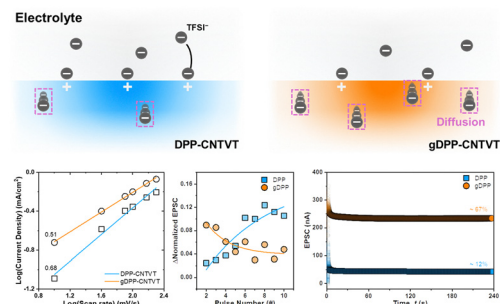
Xueqian Zhang, Jingjing Guo, Zikun Zou, Banggan Luo, Ning Li, Zhen Yang, Shaohui Xiong, Xu Wang, Yuanting Xu* and Yiwen Li*



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Improving ion uptake in artificial synapses through facilitated diffusion mechanisms

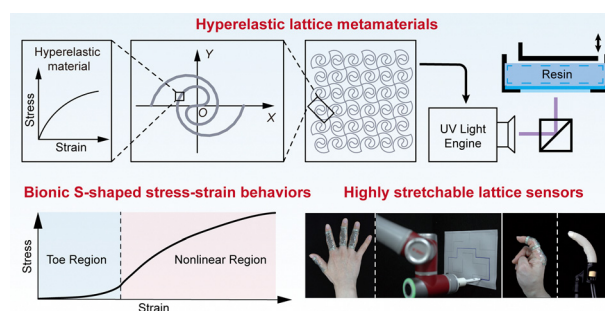
Junho Sung, Hyung Jin Cheon, Donghwa Lee, Sein Chung, Landep Ayuningtias, Hoichang Yang, Byeongjun Jeon, Bumjoon Seo, Yun-Hi Kim* and Eunho Lee*



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Modeling and design of 3D printed hyperelastic lattice metamaterials with bionic S-shaped stress–strain behaviors

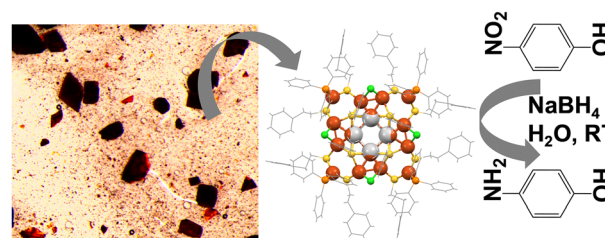
Le Dong, Mengjie Zhang and Dong Wang*



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An atomically precise alloy AgCu cuboid nanocluster with a cubic core: gram scale synthesis, total structure, electronic structure, and catalytic performance

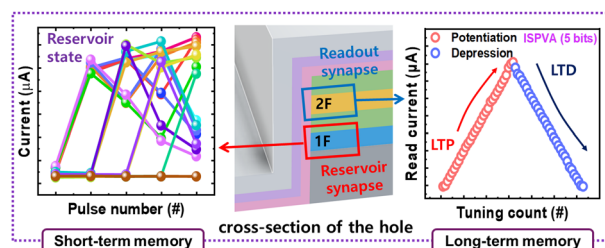
Abhijit Nag, Abdul Mannan Butt, Moon Young Yang, Praveen B. Managutti, Bilal Masood Pirzada, M. Infas H. Mohideen, Ahmed L. Abdelhady, Mohamed Abu Haija, Sharmarke Mohamed, Boris V. Merinov, William A. GoddardIII* and Ahsanulhaq Qurashi*



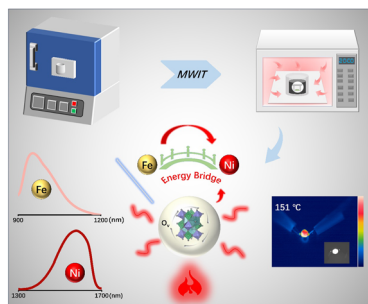
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Fully hardware-oriented physical reservoir computing using 3D vertical resistive switching memory with different bottom electrodes

Jihee Park, Gimun Kim and Sungjun Kim*



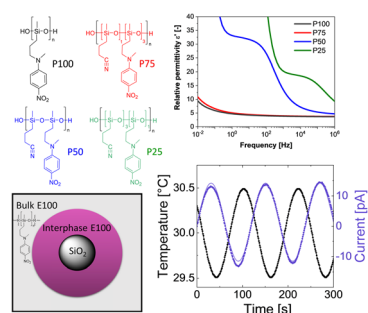
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Construction of an Fe–Ni energy bridge for NIR-II luminescence enhancement and anti-thermal quenching via microwave-induced defect engineering

Xiaomeng Wang, Jiaren Du,* Dariusz Hreniak, Wiestaw Stręk, Kai Jiang and Hengwei Lin*

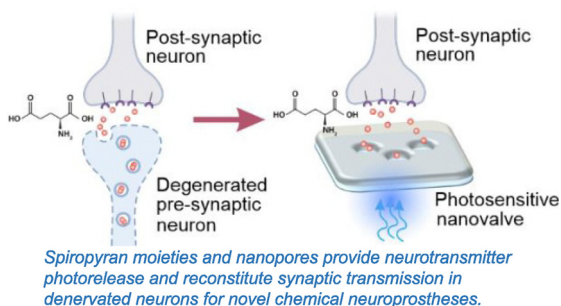
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Pushing the boundaries of dielectric permittivity in polysiloxanes: polar dipole modifications enable amorphous pyroelectric polymers

Patrick M. Danner, Thulasinath Raman Venkatesan, Johannes von Szczepanski, Francis Owusu and Dorina M. Opris*

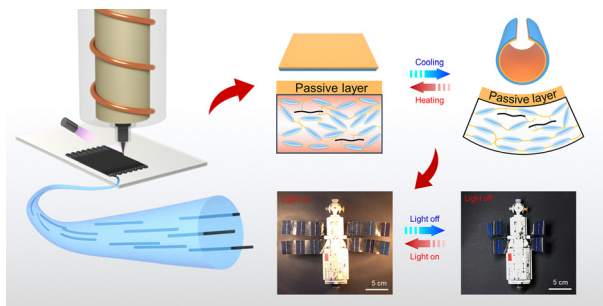
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Spiropyran-based glutamate nanovalve for neuronal stimulation

M. Blanco-Formoso, F. Galluzzi, F. Vacca, T. Gianiorio, I. Piergentili, A. B. Cook, P. L. W. Welzen, J. C. M. van Hest, S. Di Marco, F. Tantussi, F. Benfenati, E. Colombo* and F. De Angelis*

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4D printing of carbon-fiber-reinforced liquid crystal elastomers for self-deployable solar panels

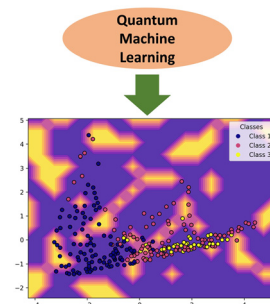
Faxin Wang, Ran Bi, Yuanhao Chen, Yanzhao Yang,* Yuan Liu, Le Yang, Yongtao Shen, Ling Wang* and Wei Feng*



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Quantum support vector classifier for phase diagram prediction in quinary systems

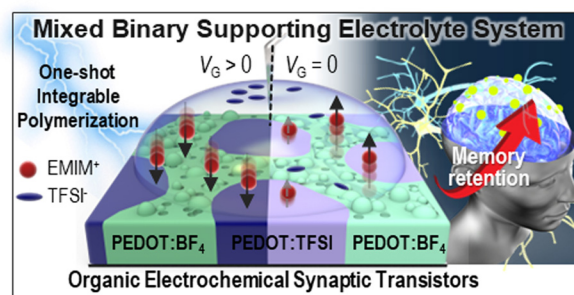
Chandra Chowdhury



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Mixed binary supporting electrolyte approach for enhanced synaptic functionality in one-shot integrable electropolymerized synaptic transistors

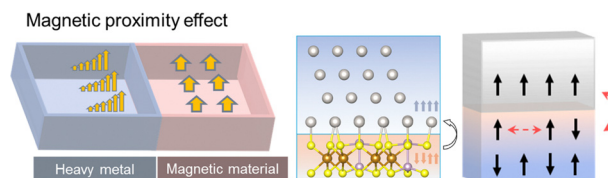
Jiyun Lee, Jaehoon Lee, Hyeonsu Bang, Tae Woong Yoon, Jong Hwan Ko and Boseok Kang*



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The van der Waals antiferromagnetic proximity effect at the FePS₃/Pt uncompensated interface

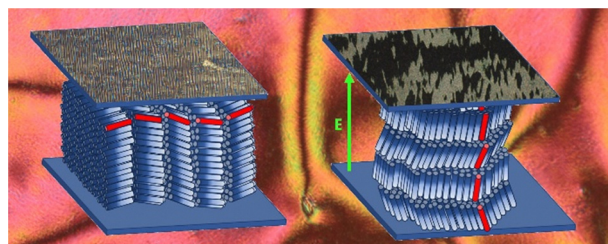
Yinchang Ma, Shijie Xu, Zhuo Chen, Chen Liu, Tao Yang, Yuan Yan, Jefferson Zhe Liu, Fei Xue and Xixiang Zhang*



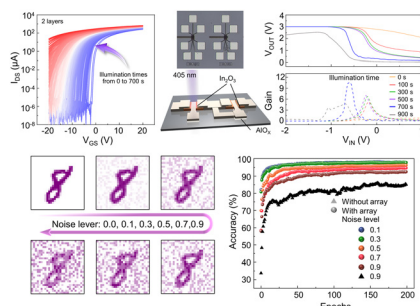
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Spontaneous helix formation in a polar smectic phase

Ewa Gorecka, Magdalena Majewska, Ladislav Fekete, Jakub Karcz, Julia Żukowska, Jakub Herman, Przemysław Kula and Damian Pocięcha*



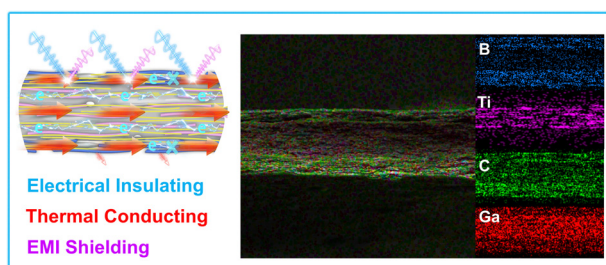
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Light-induced tunable threshold voltage and synaptic behavior of a solution-processed indium oxide thin film transistor for logic computing and image denoising

Pengsheng Li, Zixu Sa, Zeqi Zang, Guangcan Wang, Mingxu Wang, Lei Liao,* Feng Chen* and Zai-xing Yang*

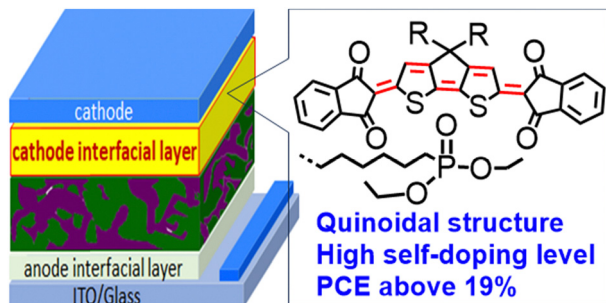
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Flexible solid-liquid nanocomposite with high surface resistivity for effective electromagnetic interference shielding and heat dissipation

Yue Sun, Tinglei Dong, Ziyuan Chai, Mingxue Li, Lei Jiang and Liping Heng*

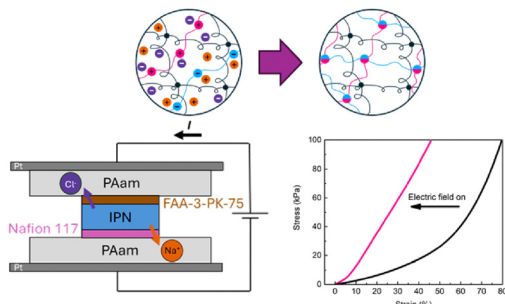
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A cathode interlayer based on an indandione-terminated quinoidal compound enables 19% efficiency in binary organic solar cells

Haoran Gu, Yao Tong, Hongli Xu, Cheng Wang, Bowei Xu,* Dongling Geng,* Laju Bu, Long Ye, Yunfeng Deng* and Yanhou Geng

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Regulating hydrogel mechanical properties with an electric field

Hongyi Cai, Max Tepermeister, Chenyun Yuan and Meredith N. Silberstein*

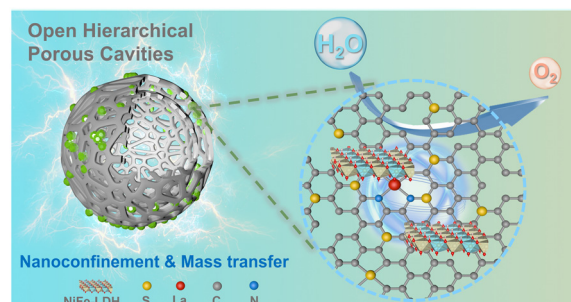


COMMUNICATIONS

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Hollow carbon nanoreactors integrating NiFe-LDH nanodots with adjacent La single atoms for efficient oxygen electrocatalytic reactions

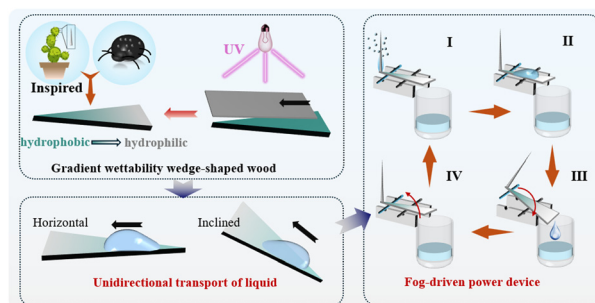
Leilei Yin, Yuyan Liu, Shuai Zhang, Yongkang Huang, Qiang Wang,* Jin-Cheng Liu,* Chao Gu and Yaping Du*



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Bioinspired wood-based wedge-shaped surface with gradient wettability for enhanced directional liquid transport and fog harvesting

Kaiwen Chen, Luyao Chen, Xianfu Xiao, Cheng Hao, Haonan Zhang, Tongtong Fu, Wei Shang, Hui Peng, Tianyi Zhan,* Jianxiong Lyu* and Ning Yan*



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A novel design strategy for tetradentate Pt(II) complexes using conformation managers to achieve high-efficiency, narrow-emission blue organic light-emitting diodes

Kiun Cheong, Seungwon Han and Jun Yeob Lee*

