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Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

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IN THIS ISSUE

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Cover
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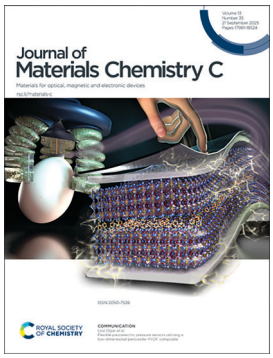

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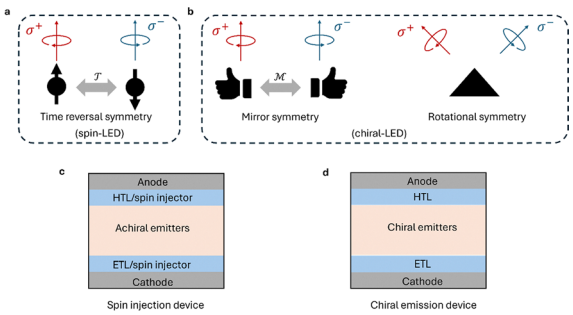
REVIEWS

17996

Circularly polarized electroluminescence from light-emitting diodes: mechanisms, materials, and applications

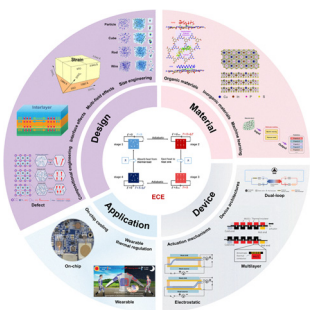
Tianjun Liu and Yuqing Huang*



18009

Strategic optimization of electrocaloric cooling: from material design to device innovation

Ziman Wang, Huancheng Hou, Haowen Xue, Ziqing Ji, Hang Zhang* and Xinyu Wang*



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Fundamental questions
Elemental answers

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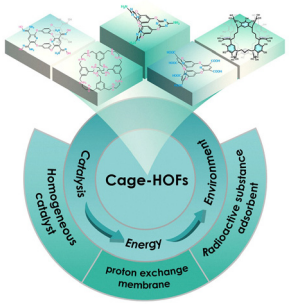
REVIEWS

18031

Cage-based hydrogen-bonded organic frameworks: a systematic review

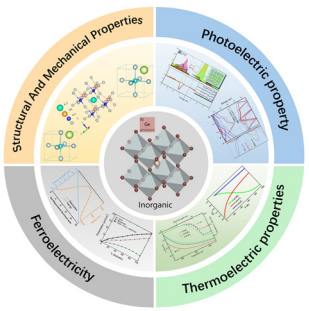
Jingyan Tang, Xingzhe Hu, Xuewu Zhu, Bingyu Xu and Ming Li*



18043

Theoretical advances and future perspectives of all-inorganic germanium-based perovskites

Ziming Kuang, Baoyun Liang, Tengcheng Huang, Tingting Shi* and Weiguang Xie*

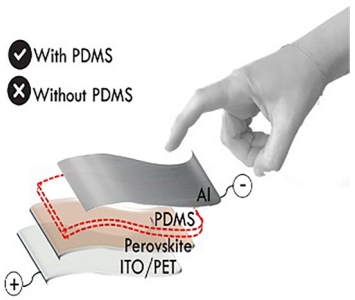


COMMUNICATIONS

18060

Flexible piezoelectric pressure sensors utilizing a low-dimensional perovskite–PVDF composite

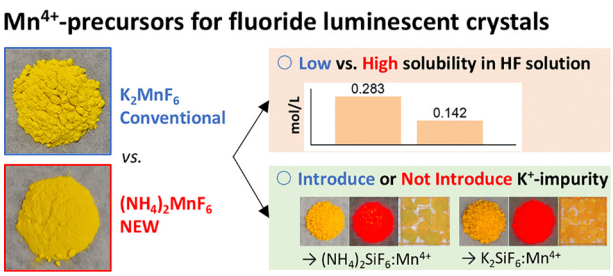
Moria Lighthouse, Tehila Wallach, Eliyahu Goldstein, Tal Medichi, Doron Azulay, Ouriel Bliah, Shlomo Magdassi, Oded Millo and Lioz Etgar*



18071

$(NH_4)_2MnF_6$: a highly soluble, K^+-free Mn^{4+} precursor for red fluoride phosphors

Mengyao Wang, Wenrui Zhang, Liying Zhang* and Haipeng Ji*



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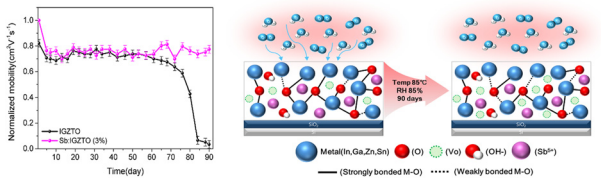
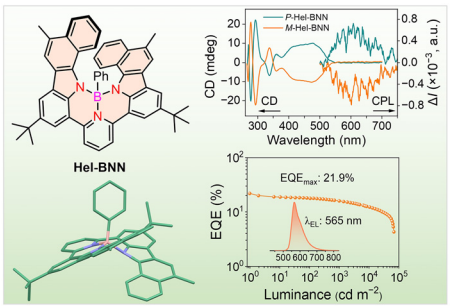
18079



Solution-processed antimony-doped IGZTO thin-film transistors exhibiting superior operational stability under extreme environmental conditions

Eun Jin Park, Bu Kyeong Hwang, Bo Ram Lee, In Pyo Park, Hyun Sung Jung, Min-Kyu Son, Hyeon Jin Jung,* Pung Keun Song* and Soo Won Heo*

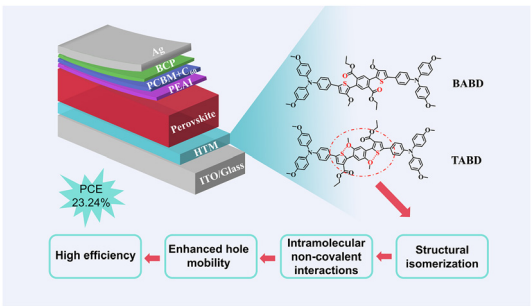
18092



Benzo-extended N^N^N-chelated tetracoordinate boron hetero[8]helicene featuring an inner N–B–N helical rim for circularly polarized TADF

Yili He, Haoting Yang, Yuanchun Yue, Xiangqing Gan, Shuai Xiao, Xian Chen, Shaobiao Zhu, Danrui Wan, Renze He, Han Si,* Guoyun Meng,* Pangkuan Chen and Junqiao Ding*

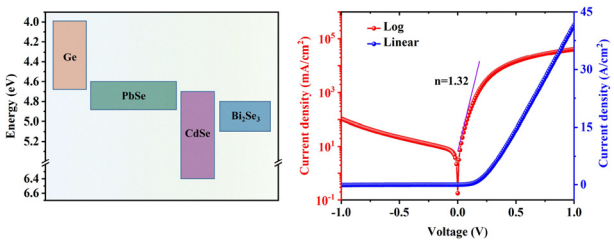
18101



Structural isomerization engineering of hole transport materials for efficient perovskite solar cells

Mingxin Wang, Hao Sun, Junhong Tan, Cheng Zhong,* Fei Wu* and Linna Zhu*

18108



A high-sensitivity epitaxial Ge/PbSe/CdSe/Bi_2Se_3 p^+pBn^+ barrier heterojunction for uncooled middle infrared detection

Leisheng Su, Yun Liu, Weili Liu, Dong Yang, Kerun Chen, Yiming Yang, Haofei Shi, Chang Yang,* Deping Huang* and Jijun Qiu*

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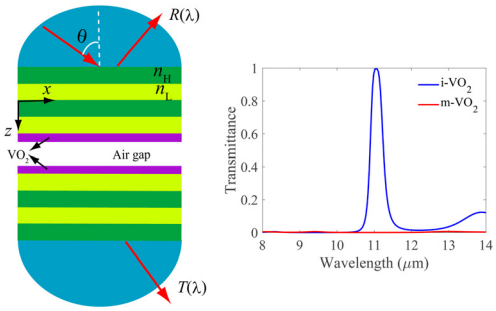
Highly directional and tunable mid-infrared transmission induced by resonant optical tunneling with VO_2

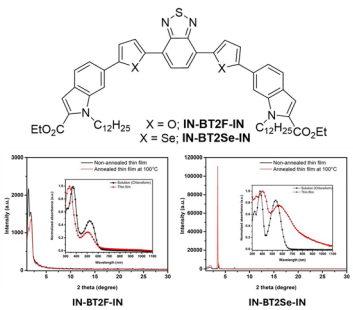
Gang Lu, Qi Fang, Xin Cui, Yunyun Chen and Gaige Zheng*



18126

Effects of varying chalcogenophene spacer units between indole and benzothiadiazole based D–A–D type semiconducting small molecules on the characteristics of organic field effect transistors (OFETs)

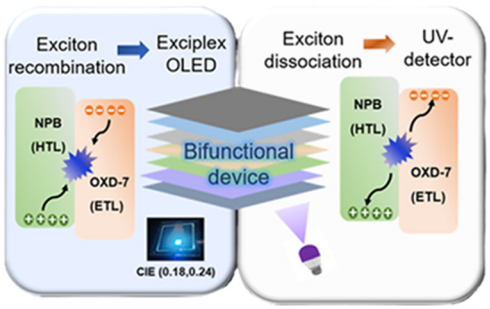
Chinthaka M. Udamulle Gedara, Ashutosh Shrivastava, Ziyuan Ma, Abhi Bhadran, Md Muktadir Talukder, Mihaela C. Stefan* and Michael C. Biewer*



18136

Unlocking the bifunctional potential of the NPB:OXD-7 exciplex in organic light-emitting diodes and UV-photodetectors

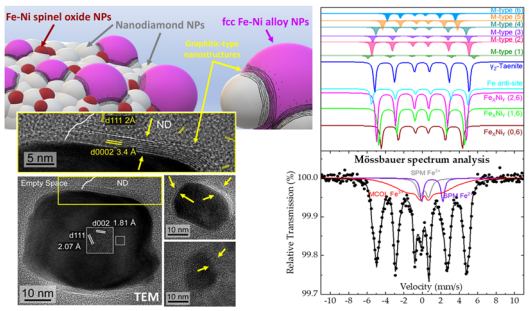
Kavya Rajeev, Albin Cakaj, Vibhu Darshan, Anjali K. Sajeev, Ishita Neogi,* Wolfgang Brütting* and K. N. Narayanan Unni*



18145

Growing ferromagnetic Fe–Ni alloy nanoparticles on nanodiamond nanotemplates: the role of sp^2-type carbon in their development and in the appearance of a martensitic-type phase

Panagiotis G. Ziogas, Athanasios B. Bourlinos, Polyxeni Chatzopoulou, George P. Dimitrakopulos, Anastasios Markou and Alexios P. Douvalis*



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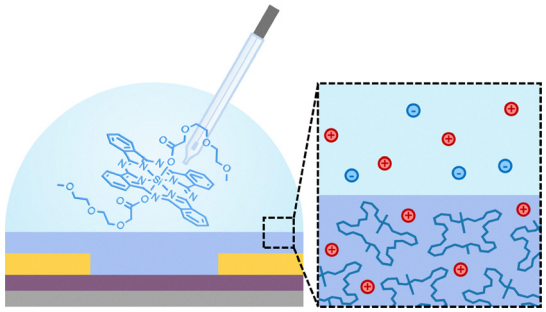
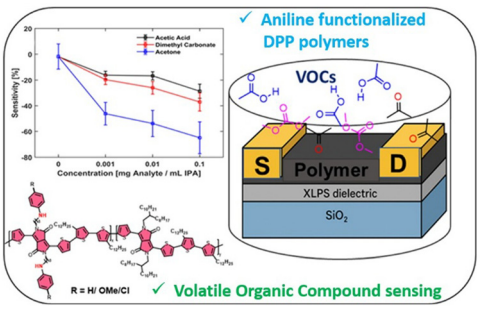


Silicon phthalocyanine-based n-type organic mixed ionic-electronic conductor in organic electrochemical transistors

May Ourabi, Mario C. Vebber, Mélanie Cyr, Forest St-Denis Weintrager, Nicolas Ledos, Halynne R. Lamontagne, Audithya Nyayachavadi, Jaclyn L. Brusso and Benoît H. Lessard*

18176



Incorporation and electronic sensing device effects of aniline functionality in diketopyrrolopyrrole–thiophene semiconducting polymers

Sasikumar Mayarambakam, Christopher Riley Bond, Howard E. Katz,* Jimetochukwu Solomon and Hany F. Sobhi

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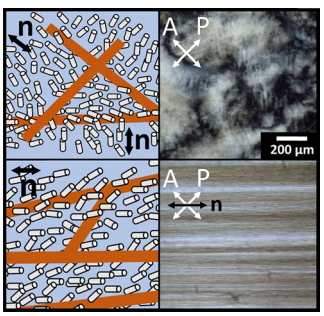

Magnetic-field alignment of micellar lyotropic nematic gels and their memory-effect

Michael Herbst, Max Oliver Dombrowski, Cosima Stubenrauch and Frank Giesselmann*

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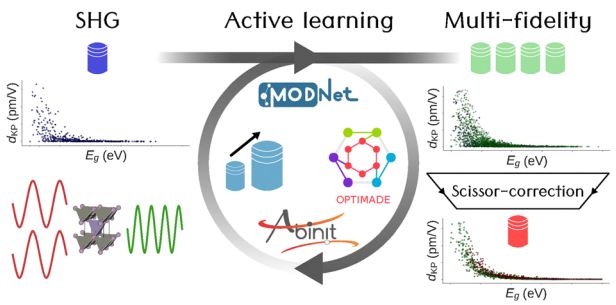

Accelerating the discovery of high-performance nonlinear optical materials using active learning and high-throughput screening

Victor Trinquet,* Matthew L. Evans and Gian-Marco Rignanese*

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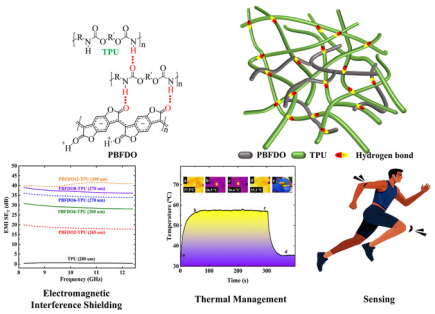
Highly conductive PBFDO-based multifunctional composite for electromagnetic interference shielding, thermal management, and sensing

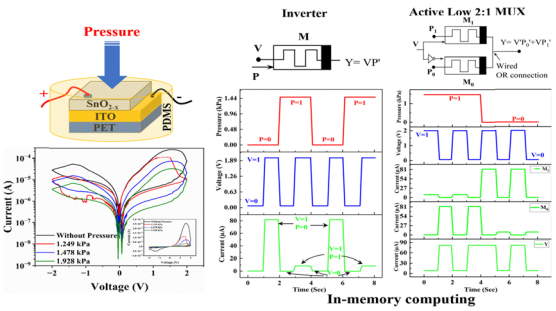
Ting Lin, Feng Zeng, Zhiming Zhong, Xiaoling He,* Zhenzhong Sun and Jin Xu*



18225

Experimental demonstration of in-memory computing using pressure stimulated SnO_{2-x}-based memristive device as inverter and active-low 2 : 1 multiplexer

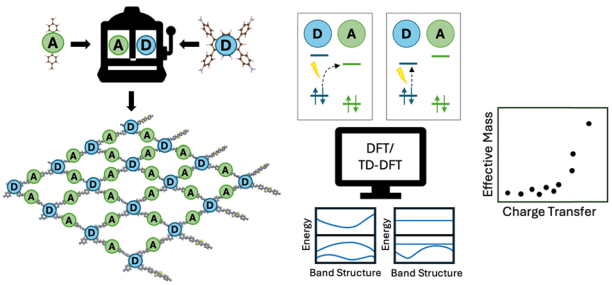
Bishal Kumar Keshari, Soumi Saha, Sanghamitra DebRoy, Akshay Salimath, Venkat Mattela, Subhradeep Pal, Surya Shankar Dan and Parikshit Sahatiya*



18239

Tuning the charge transfer and band shape of donor–acceptor covalent organic frameworks for optoelectronics

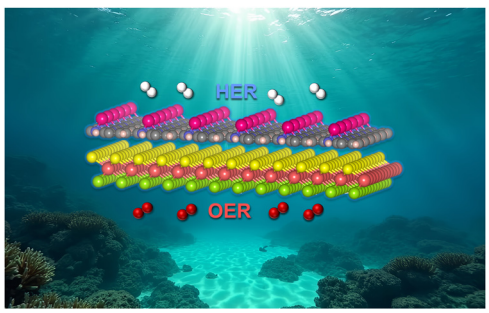
Arnau Garcia-Duran and Maria Fumanal*



18250

Enhanced water splitting for hydrogen production *via* Z-scheme heterostructures of Mo@CTF-0, HfS_2, and HfSSe monolayers

Qing-Guo Sun, Chuan-Lu Yang,* Xiaohu Li, Yuliang Liu, Wenkai Zhao and Feng Gao



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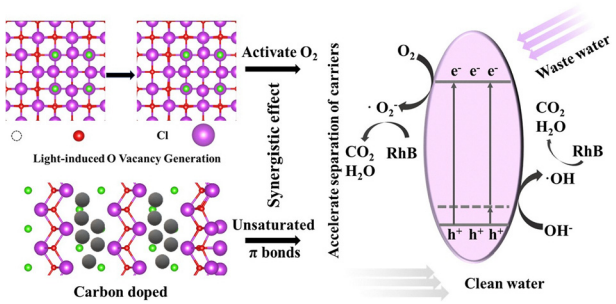
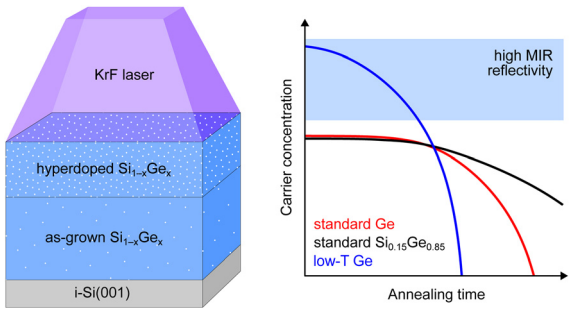


Synergy of sp^2-hybridized carbon doping and photogenerated surface oxygen vacancies for the enhanced photocatalytic performance of BiOCl and solvent effects

Jingyao Li, Libo Wang, Yiqian Li, Miaomiao Tian, Ya Wang, Gang Liu,* Tao Wang, Qingxin Wang, Zhixin Zhang and Wenhong Su

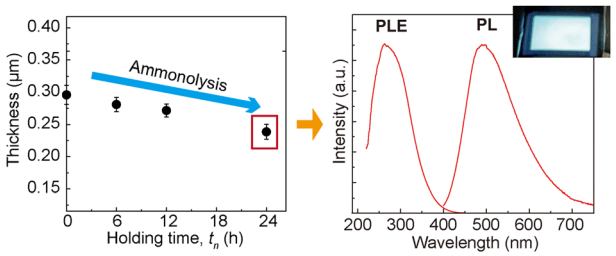
18276



Thermal stability of hyper-doped n-type Ge and $Si_{0.15}Ge_{0.85}$ epilayers obtained by *in situ* doping and pulsed laser melting

Marco Faverzani,* Giulia Maria Spataro, Davide Impelluso, Stefano Calcaterra, Enrico Di Russo, Michele Magnozzi, Francesco Bisio, Maurizio Canepa, Paolo Biagioni, Giovanni Isella, Enrico Napolitani and Jacopo Frigerio

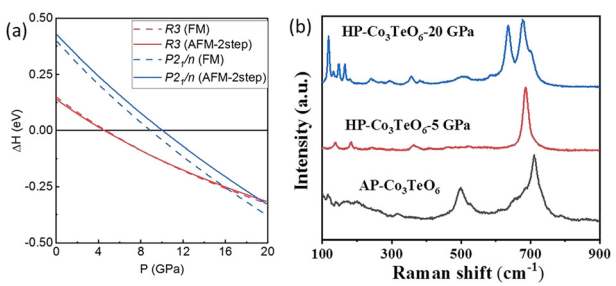
18286



Synthesis and characterization of oxynitride glass films to develop a host for divalent-europium-centres

Xun Liu, Takeo Ohsawa, Jian Xu, Masatoshi Yanagida, Kohsei Takahashi, Takashi Takeda, Tetsuo Kishi, Tetsuji Yano, Hiroyo Segawa* and Naoki Ohashi

18298



A computational and Raman spectroscopic study of successive phase transitions in Co_3TeO_6 under high pressure and high temperature

Yijie Zeng, Pengfei Tan, Tao Han, Ke Liu, Peiyang Mu, Binbin Yue, Huiyang Gou, Yonggang Wang, Dao-Xin Yao,* Weidong Sang, Na Wang and Man-Rong Li*

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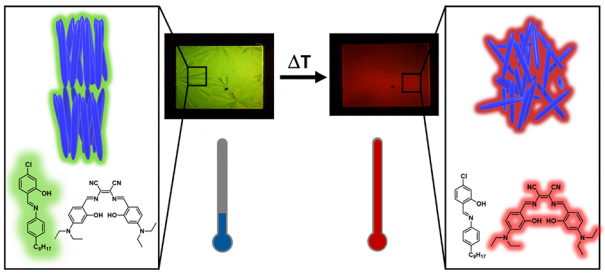
Aggregation induced emission *versus* aggregation caused quenching: tuning the emission behaviour of liquid crystalline materials

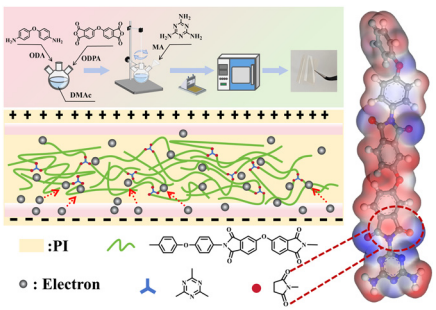
Thorben Neumann, Sidharth Thulaseedharen Nair Sailaja, Jens Voskuhl and Michael Giese*



18312

Excellent energy storage performance in cross-linked polyimide dielectrics with positively charged cross-linking points

Yu Feng, Tianlong Liu, Jun Sun, Dongyu Hou, Yanqing Wang and Dong Yue*



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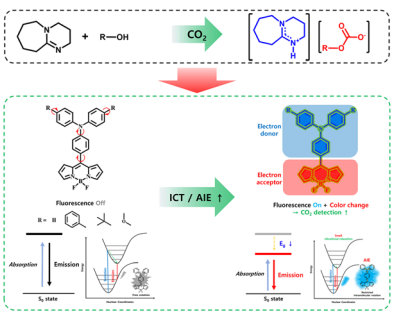
Development of BODIPY-based dyes with ICT and AIE characteristics for dual-channel CO_2 detection in ionic liquid optical sensors

Woo Jin Choi, Jun Ho Yoon, Tae Gyu Hwang, Suhyeon Kim, Hyun Kyu Lee, Wan Soo Kim, Seong Hyun Jang, Yoo Sang Kim, Dong Jun Lee, Sang Goo Lee, Byeongjun Park and Jae Pil Kim*



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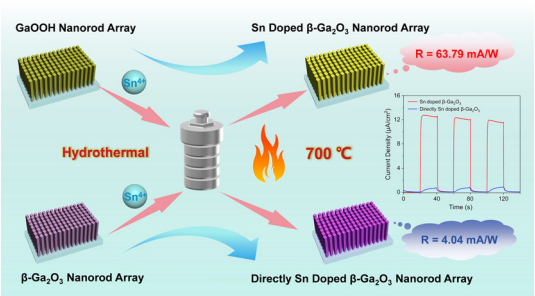
Highly responsive and stable self-powered solar-blind photodetectors based on Sn doped β-Ga_2O_3 nanorod arrays

Jiu Tang, Zhihai Yang, Xianyin Song,* Xuefeng Sha, Zhidan Shi, Xingang Zhang, Ang Xiong and Changzhong Jiang*



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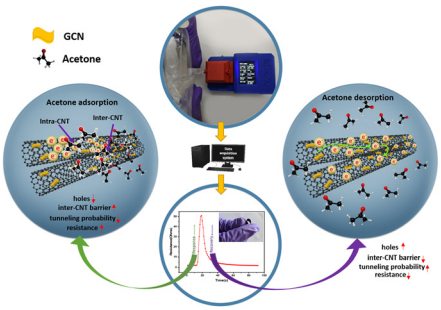
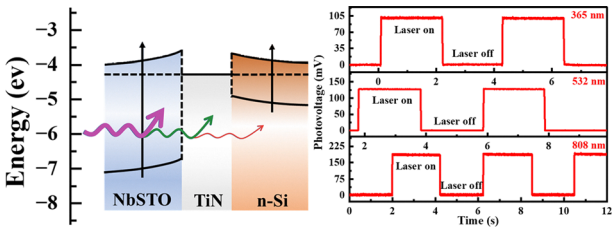


Synergistic sensing properties of a standalone portable prototype using an integrated graphitic carbon nitride–carbon nanotube film for ultra-sensitive and selective acetone detection

Rohan Rohilla, Jyoti Prakash,* P. T. Rao, Ankita Pathak and Kinshuk Dasgupta

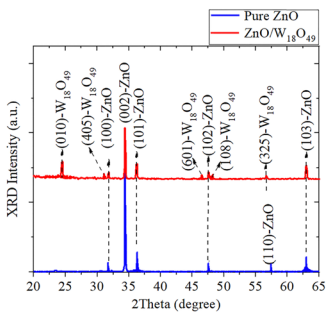
18365



Dual-Schottky heteroepitaxial Nb:$SrTiO_3$/TiN/Si for high-performance broadband photodetection across the UV–IR spectrum

Minghao Hu, Tianyu Cai, Weiqiang Yang, Bin Yue, Anran Niu, Bingbing Li and Wenfeng Xiang*

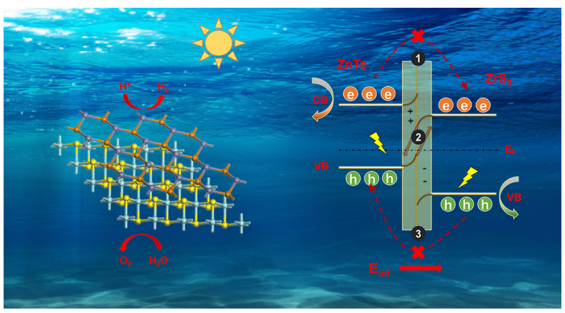
18371



Enhancing NO_2 gas sensing with ZnO/$W_{18}O_{49}$ heterostructures: experimental insights and DFT analysis

Jinjin Pei, Vahid Khorramshahi, Fatemeh Safari, Mehran Sookhakian, M. R. Mahmoudian, Morteza Nouri and Ramin Yousefi*

18381



Theoretical design of a Z-scheme photocatalyst for water splitting with excellent catalytic performance: ZnTe/ZrS_2 heterojunction

Peijie Cheng, Xing Wei, Zhuangzhuang Dai, Yan Zhang, Jian Liu, Ye Tian and Li Duan*

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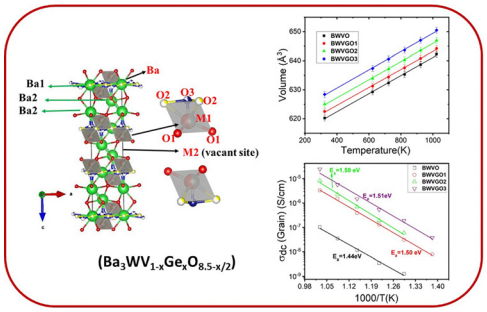
Effect of germanium substitution on the structure and ionic conductivity of the hexagonal perovskite derivative compound $Ba_3WVO_{8.5}$

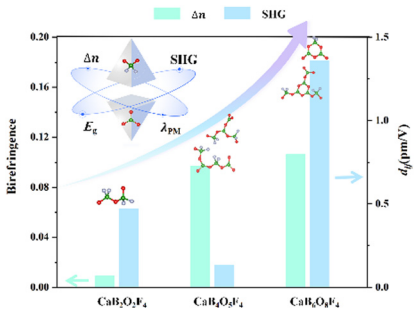
Nitin Kumar, K. Sandeep Rao, Anu, A. K. Sahu, S. N. Achary* and S. K. Deshpande



18410

Anion ratio-directed design of $CaB_4O_5F_4$ and $CaB_6O_8F_4$: $[BO_3]/[BO_2F_2]$ hybridization tailoring deep-ultraviolet nonlinear optical performance

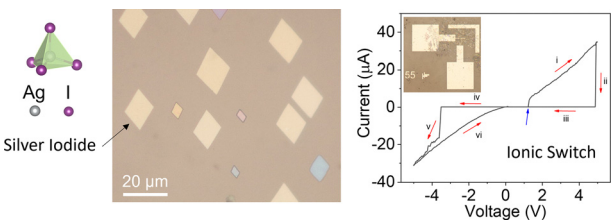
Ke Li, Abudukadi Tudi, Congwei Xie,* Wenqi Jin, Linlin Liu, Miriding Mutailipu, Kenneth R. Poeppelmeier, Fangfang Zhang,* Zhihua Yang* and Shilie Pan



18420

***In situ* growth and ionic switching behavior of single-crystalline silver iodide nanoflakes**

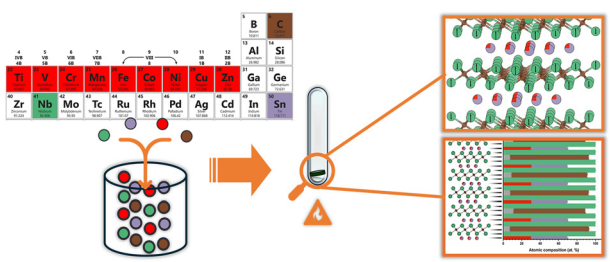
Amir Parsi, Abdulsalam Aji Suleiman, Doruk Pehlivanoğlu, Hafiz Muhammad Shakir, Emine Yegin and T. Serkan Kasırga*



18428

Screening of 3d metals as *A*-elements in MAX phase Nb_2SnC and their effects on the magnetic properties of the solid solutions of $Nb_2(Sn_{1-x}A_x)C$

Suneet Kale, Ivan Tarasov, Lauren Driggers, Lin-Lin Elliott, Prajna Bhatt, Christoph Schlueter, Paweł P. Michałowski, Johanna Rosen, Martin Dahlqvist, Anna Regoutz, Ulf Wiedwald and Christina S. Birkel*



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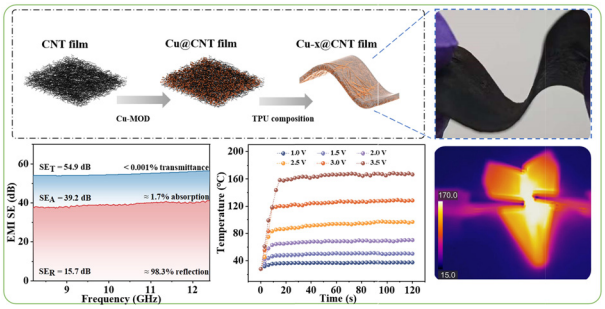
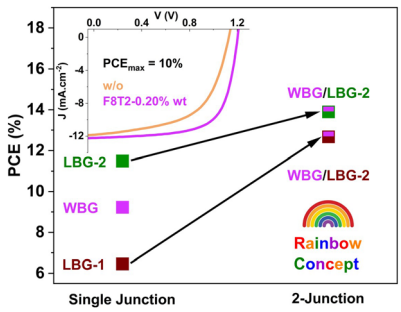
18440



Flexible, conductive Cu-*x*@CNT films for ultra-broadband electromagnetic interference shielding and low-voltage electrothermal heating

Yunfan Wang, Xuebin Liu, Junhua Huang, Shaodian Yang, Baohua Li, Weiqiang Huang, Zhiping Zeng, Yougen Hu and Xuchun Gui*

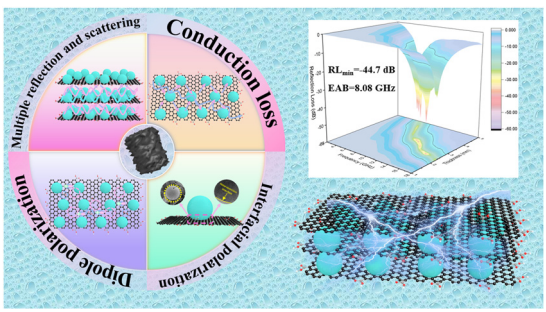
18450



Wide bandgap organic solar cells with improved photovoltaic performance *via* solid additive integration

Joan Capdevila, Saran Waiprasoet, Francesc Xavier Capella Guardià, Carmen Ruiz Herrero, Lionel Hirsch, Mariano Campoy-Quiles, Guillaume Wantz, Pichaya Pattanasattayavong, Sylvain Chambon and Marie-Estelle Gueunier-Farret*

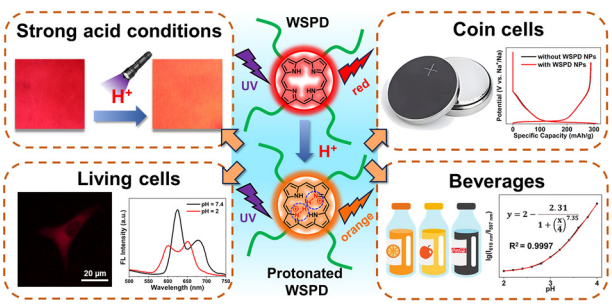
18463



Fabrication of single-crystal porous hedgehog-sphere structured TiO_2–rGO aerogel as a strong broadband electromagnetic wave absorber

Kunyao Cao, Weidong Xue* and Rui Zhao*

18475



An adaptable porphyrin-based pH-responsive ratiometric fluorescent nanoprobe for rapid and visual acidity detection

Jiajun Chen, Chenyang Zhang, Jun Wang, Hongchao Li, Xiaohua Jian, Qi Zhou* and Wenwu Cao*

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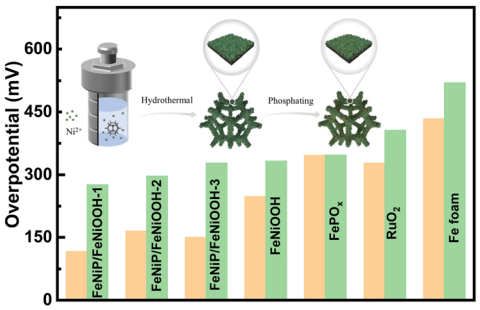
18486

Nickel-regulated hierarchical bimetallic phosphides on an iron foam to promote ampere-level current density in the oxygen evolution reaction

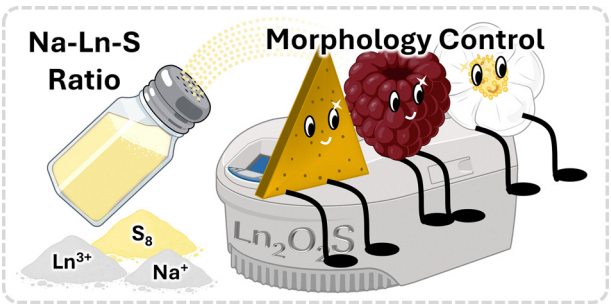
Yuan Liu, Xinyi Song, Ping Nie, Hairui Wang, Juan Jian, Fen Yao, Limin Chang* and Shuang Gao*



18492

Rapid microwave-assisted synthesis of morphology-controlled luminescent lanthanide-doped Gd_2O_2S nanostructures

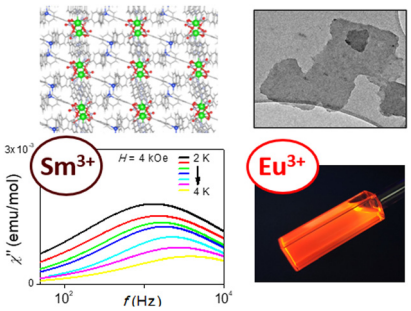
Christian Homann, Régis Peeters, Hana Mirmajidi, Jessica Berg, Michael Fay, Lucas Carvalho Veloso Rodrigues, Eros Radicchi, Akhil Jain, Adolfo Speghini and Eva Hemmer*



18508

Multifunctional Eu(III) and Sm(III) coordination polymers built with silane-bridged dicarboxylate ligand: structure, luminescence and magnetism

Ana Arauzo,* Mirela-Fernanda Zaltariov, Elena Bartolomé, Sara Fuertes, Ionut-Radu Tigoianu, Sergiu Shova and Maria Cazacu



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