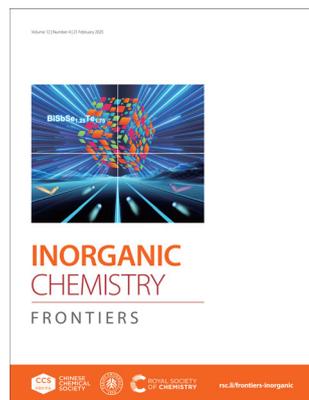


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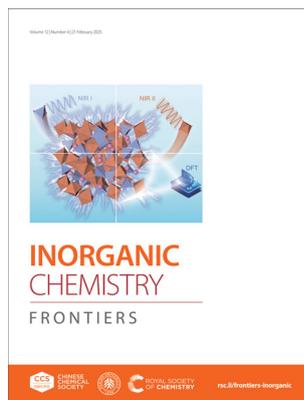
ISSN 2052-1553 CODEN ICFNAW 12(4) 1317–1730 (2025)



Cover

See Huijun Kang, Tongmin Wang *et al.*, pp. 1371–1382.

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Inside cover

See Sha Jiang, Qiaoling Chen *et al.*, pp. 1383–1392.

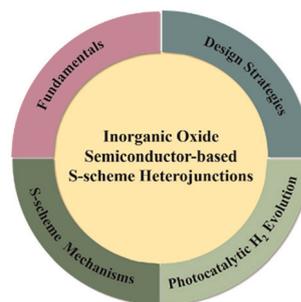
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REVIEWS

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Recent advances in inorganic oxide semiconductor-based S-scheme heterojunctions for photocatalytic hydrogen evolution

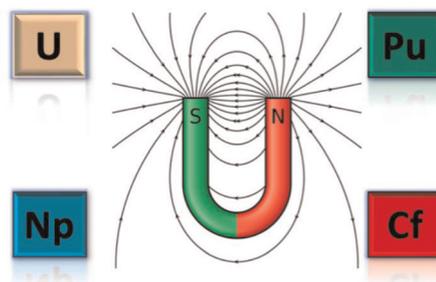
Ikram Ullah, Muhammad Amin, Pei Zhao,* Ning Qin* and An-Wu Xu*



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Recent advances in computational modelling of mononuclear actinide single molecule magnets

Sourav Dey and José J. Baldoví*



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RESEARCH ARTICLES

1371

Construction of nano-lamellar expressways and multidimensional defects to realize the decoupling of carrier–phonon transport in BiSbSe_{1.25}Te_{1.75}

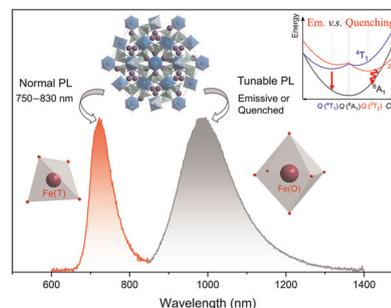
Zhen Tian, Quanwei Jiang, Keqiang Su, Xiaowei Shi, Jianbo Li, Huijun Kang,* Zongning Chen, Enyu Guo and Tongmin Wang*



1383

Theoretical design and experimental realization of Fe³⁺-doped dual-band near-infrared garnet phosphors

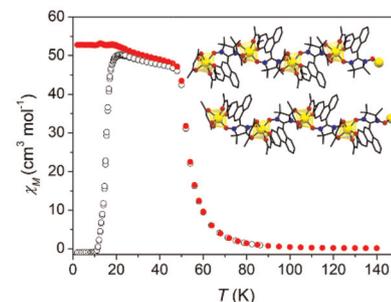
Yutong Wang, Anfei Chen, Sha Jiang,* Lei Zhong, Li Li, Xianju Zhou, Chang-Kui Duan and Qiaoling Chen*



1393

A cobalt(II)-nitronyl nitroxide single chain magnet with a record high blocking temperature and low coercivity

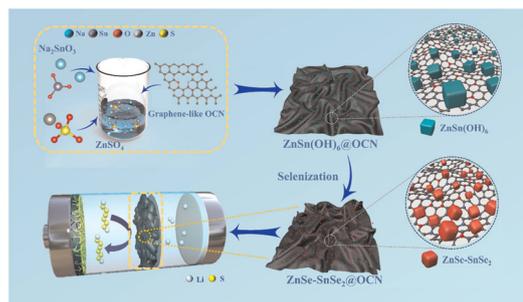
Thomaz de A. Costa, Mihai Răducă, Julio C. Rocha, Miguel A. Novak, Rafael A. A. Cassaro,* Marius Andruh* and Maria G. F. Vaz*



1403

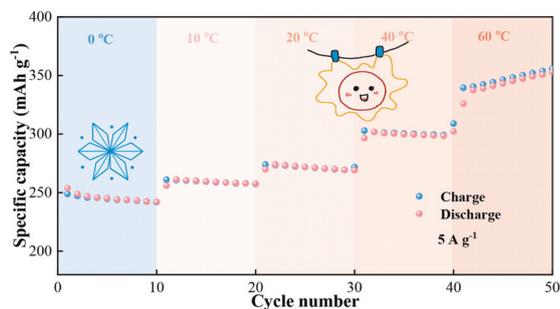
Bimetallic ZnSe–SnSe₂ heterostructure functionalized separator for high-rate Li–S batteries

Jiayi Xue, Daotong Yang, Jianhua Lin, Quan Zhuang,* Mingxun Jia, Tong Wu, Lei Ji, Yingying Zhang,* Zhiqing Niu and Jinghai Liu*



RESEARCH ARTICLES

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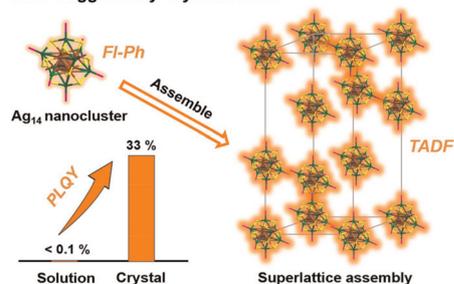


An *in situ* polymerization trial to prepare PEDOT decorated VO₂ hollow nanospheres for stable zinc ion storage at 0 °C

Chunru Zhao, Yi Liu, Yefei Xu, Zhanyi Liu, Mian Li,*
Qing Huang and Xiang Wu*

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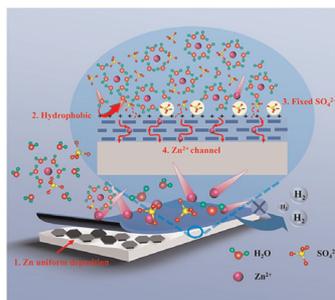
TADF Triggered by Crystallization



Crystallization induces thermally activated delayed fluorescence of Ag₁₄ nanoclusters

Jin-Sen Yang, Lu-Yao Xiao, Fan Liu, Jun Xu,
Xi-Yan Dong,* Jia-Hua Hu,* Jing Li* and
Shuang-Quan Zang

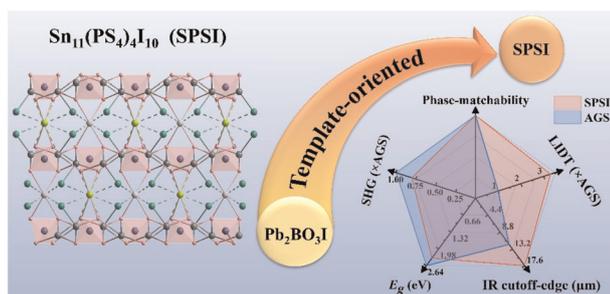
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A layered basic zinc acetate coating for dendrite-free Zn anodes by interface environment regulation in aqueous zinc-ion batteries

Qingsong Cai, Zhenyu Guan, Yue Hu, Jianmin Zhang,*
Kai Zhang* and Zongmin Zheng*

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Tin chalcogenide Sn₁₁(PS₄)₄I₁₀ obtained from structural-template-oriented synthesis: exhibiting balanced infrared nonlinear optical performance

Cuier Deng, Xi Xu, Yuhan Hu, Jingyu Guo,*
Li-Ming Wu* and Ling Chen*

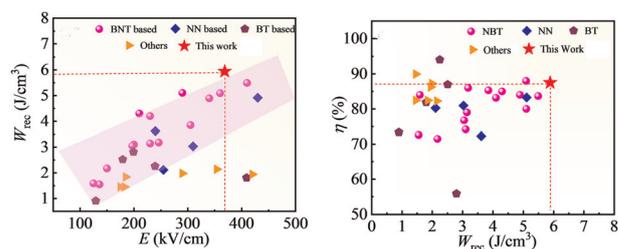


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Ultrahigh energy storage density in lead-free $\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$ -based relaxor ferroelectric ceramics under moderate electric fields via phase fraction manipulation

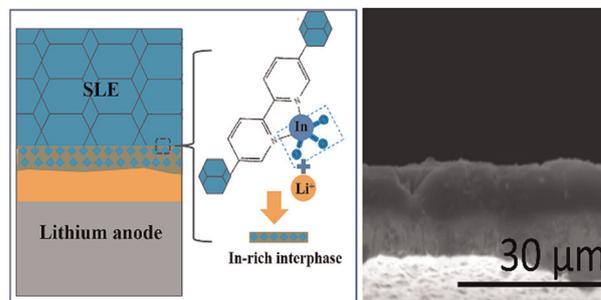
Jiangtao Fan, Linxiang Wang, Jiaying Wang, Zheng Cheng, Langxiang Zhong,* Tiantian Yang* and Zhanggui Hu*



1455

Building an In-rich interphase to stabilize lithium metal anodes with a solid-like electrolyte

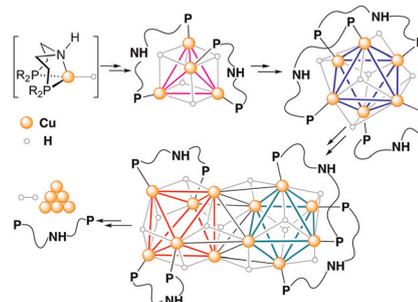
Jiashuai Li, Dongze Li, Qiufen Li, Mengxi Bai, Xiang Wang, Xiaoyan Lin, Siyuan Shao and Ziqi Wang*



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The rise and fall of copper hydride clusters: a snapshot of hexanuclear-to-dodecanuclear expansion

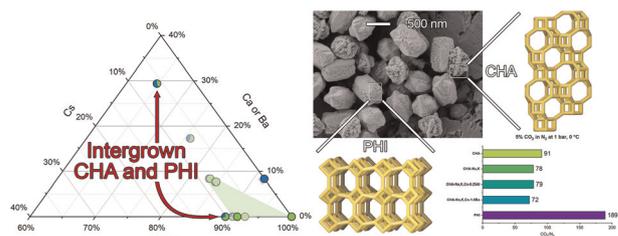
Dewmi A. Ekanayake, Jeanette A. Krause and Hairong Guan*



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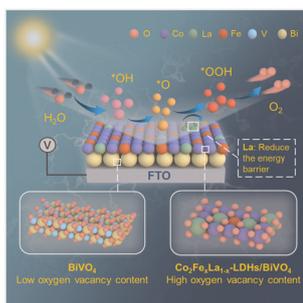
Synthesis and properties of pure and intergrown CHA/PHI zeolites from inorganic multi-cation colloidal suspensions

Aymeric Magisson, Edwin B. Clatworthy,* Diógenes Honorato Piva, Sajjad Ghojavand, Oleg I. Lebedev and Svetlana Mintova*



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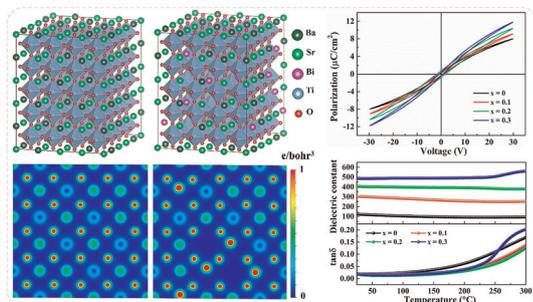
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Decreased energy barrier and improved interfacial kinetics for efficient photoelectrochemical water splitting using La-engineered LDHs coupled with BiVO₄

Kejun Zheng, Tao Wang,* Xingyu Yu, Yujiao Xia, Jing Niu, Yinglei Tao, Jiaxin Pan, Kun Chang, Jianping He* and Yanyu Liang*

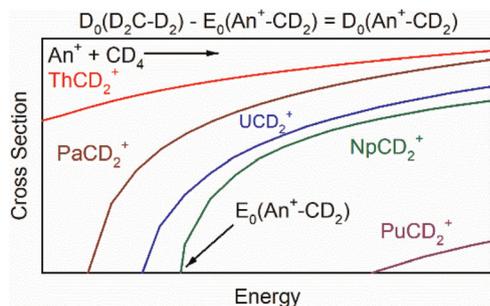
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Improving the ferroelectric and dielectric properties of barium strontium titanate thin films *via* local chemical design

Fei Yan, Ziting Tu, Weiwei Wang, Zhiwei Zhu, Yang Chen, Jiajia Liao, Sirui Zhang,* Min Liao* and Yichun Zhou*

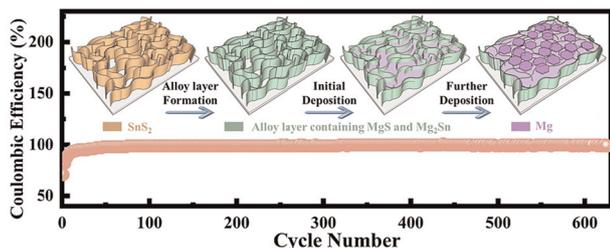
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The balance of orbital overlap and orbital energy in the activation of methane by actinide cations: insights from inductively coupled plasma tandem mass spectrometry

Amanda R. Bubas, Amanda D. French, Kali M. Melby, Michael J. Rodriguez and Richard M Cox*

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Enabling preferential Mg (0002) orientation electrodeposition *via* constructing a SnS₂-engineering host for dendrite-free magnesium metal batteries

Feng Li, Huanglin Dou, Zhenxin Zhao, Wenyi Li, Qiang Bai, Sunbin Yang and Xiaomin Wang*

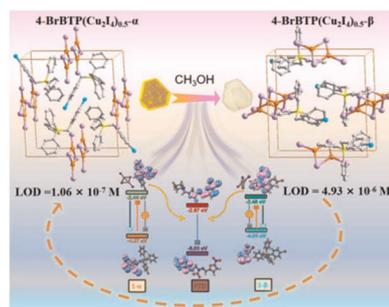


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Structural transformation in isomeric 0D copper(I) iodide hybrids and their utilization as water-stable luminophores for furaltadone detection

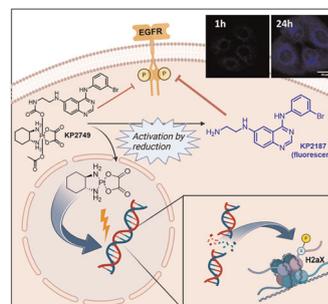
Lin Yang, Canzhi Shi, Bohan Li, Xia Liu, Xinxiang Gao, Yani Li and Yan Xu*



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A new fluorescent oxaliplatin(IV) complex with EGFR-inhibiting properties for the treatment of drug-resistant cancer cells

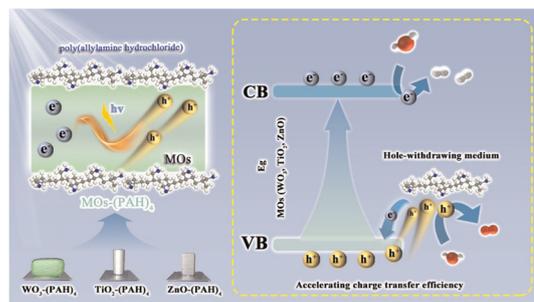
Monika Caban, Philipp Fronik, Alessio Terenzi, Anja Federa, Julia H. Bormio Nunes, Rastislav Pitek, Dominik Kirchhofer, Hemma H. Schueffl, Walter Berger, Bernhard K. Keppler, Christian R. Kowol* and Petra Heffeter*



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Non-conjugated polymer regulated photoelectrochemical water oxidation

Jiao-Nan Yuan, Xian Yan, Bing-Xiong Zheng, Jia-Qi Chen and Fang-Xing Xiao*



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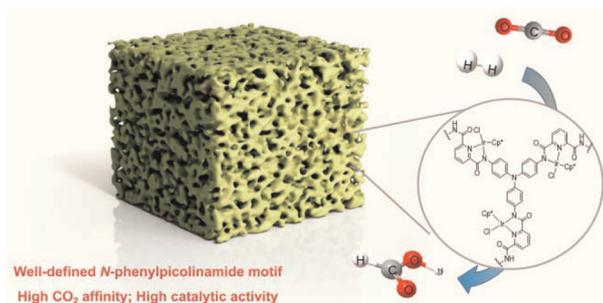
Remarkably short intermolecular Se...Se contacts in Ni(II) diselenophosphinates: interplay of electrostatic and dispersion forces

Elena Yu. Tupikina,* Maria P. Davydova, Valeriya V. Mulloyarova, Taisiya S. Sukhikh, Denis G. Samsonenko, Peter M. Tolstoy and Alexander V. Artem'ev*



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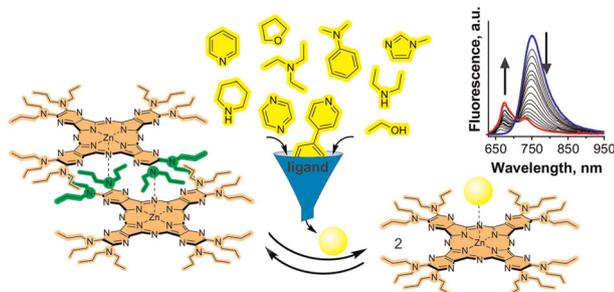
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Efficient CO₂ hydrogenation to formate with an iridium catalyst supported by a porous organic polymer containing an *N*-phenylpicolinamide motif

Yang Ding, Yikang Duan, Yang Li, Jiasheng Wang, Ming Bao, Yuichiro Himeda and Wan-Hui Wang*

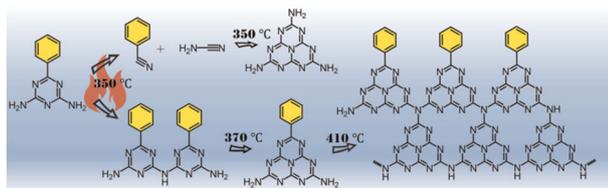
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J-dimers of phthalocyanine analogues: structural characterization and their use for determination of association constants between ligands and the central cation

Jiri Demuth, Stefan Bednarik, Radek Machan, Ivan Mocak, Tibor Malinsky, Mona Abo El Dahabova, Jakub Holcak, Miroslav Miletin, Jan Labuta, Veronika Novakova and Petr Zimcik*

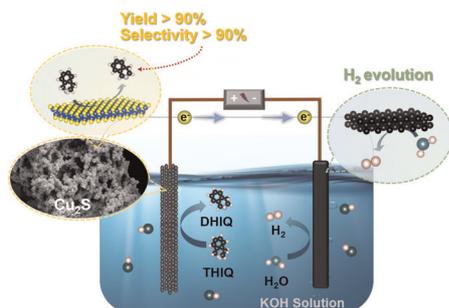
1609



Discovering the polymerization mechanism of aromatic carbon nitride

Shubing Tian, Kai Zhang, Zhiyu Song, Ning Wu, Mingze Sun, Xilei Chen, Xuelu Wang, JiXiang Xu, Mingming Zhang, Fangxu Dai, Lei Wang and Jun Xing*

1618



Cu-based electrode material for controlled selective electrooxidation of tetrahydroisoquinolines

Yizhou Zhang, Rongxian Zhang,* Qi Zhang, Yilin Deng, Jiexin Guan, Yizhou Ling and Guoxing Zhu*

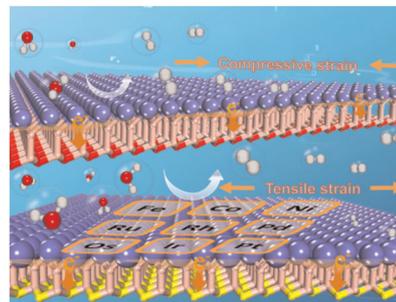


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Realizing stable transition metal(111) metallene by introducing a non-metallic framework to construct 2D Janus TMB_2X ($X = O$ and S) nanostructures and investigating their hydrogen evolution catalytic performance

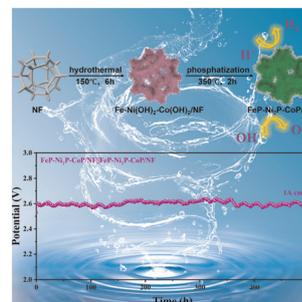
Wenqiong Gou, Mingyue Lv, Guangtao Yu* and Wei Chen*



1644

Construction of superhydrophilic FeP–Ni₂P–CoP/NF enriched interfacial heterostructures for promoting efficient and stable overall water splitting under large currents

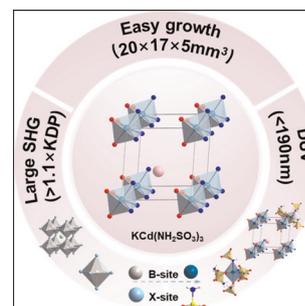
Yaxuan Jin, Weiyan Ma, Dong Sun, Wan Wan, Lirong Jia, Yuling Tu, Dejun Gong, Wanyong Zhou and Hui Chai*



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Designing a novel perovskite-type $KCd(NH_2SO_3)_3$ with deep-ultraviolet transparency and strong second-harmonic generation response

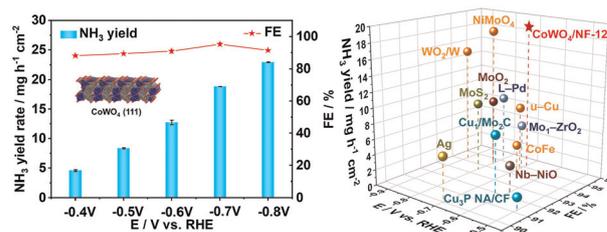
Yujie Fan, Li Zhong, Haotian Tian, Chensheng Lin, Lingli Wu, Tao Yan* and Min Luo*



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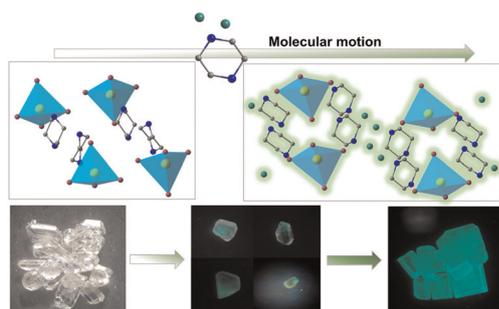
Self-supported $CoWO_4$ nanoarrays enhance the electrochemical reduction of nitrite to ammonia

Baofang Zhao, Qiuyue Chen, Jing Zhang,* Xuguang An, Qian Liu, Lisi Xie, Xiaolei Li, Weitang Yao and Qingquan Kong*



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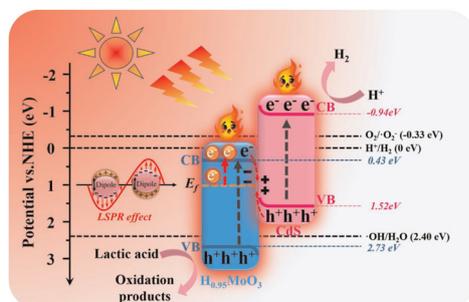
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Solid state molecular motion in Cd-based halides monitored by photoluminescence switching

Jie-Ru Yang, Yingchen Peng, Huai-Yu Wu, Si-Yu Xu, Jiawei Lin, Xuexia Lu, Chuanhua Wu, Miao-Bin Xu, Xinghui Qi,* Ye Yang,* Jin Chen,* Xiao-Ying Huang and Ke-Zhao Du*

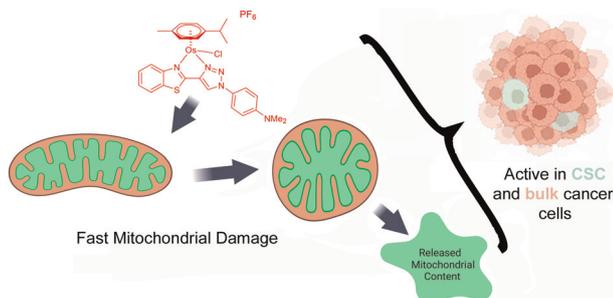
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Synergistic photothermal effects for enhanced hydrogen evolution of an S-scheme CdS@H_{0.95}MoO₃ photocatalyst: mechanistic insights and theoretical calculations

Qiankun Zhang, Haiou Liang,* Guanqiong Li, Xiaoye Fan, Chunping Li and Jie Bai*

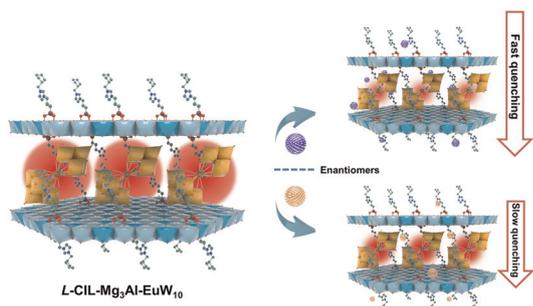
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A novel benzothiazole-1,2,3-triazole-based arene osmium(II) complex as an effective rhabdomyosarcoma cancer stem cell agent

Sofia Sharkawy, Alba Hernández-García, Hana Kosthunova, Delia Bautista, Lenka Markova, María Dolores Santana, Jana Kasparkova, Viktor Brabec* and José Ruiz*

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A two-dimensional confined polyoxometalate-based chiral luminescence sensor for highly enantioselective sensing

Guicong Hu, Zhaohui Wu, Ailin Cai, Xinzhu Xing, Wen Chang, Qinglong Qiao,* Bo Qi* and Yu-Fei Song*

