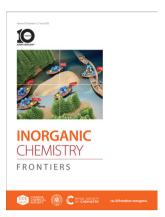
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# **FRONTIERS**

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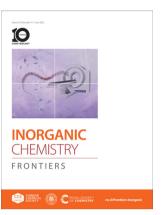
ISSN 2052-1553 CODEN ICFNAW 10(11) 3155-3416 (2023)



### Cover

See Ke Li, Guo-Ping Yang, Yong-Ge Wei *et al.*, pp. 3195–3201.

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See Manuel Ocaña *et al.*, pp. 3202–3212.

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# **CHEMISTRY FRONTIERS**

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# Nanoarchitectonics for inorganic chemistry frontiers

Katsuhiko Ariga

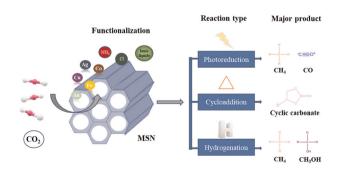


# **REVIEW**

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Emerging trends in mesoporous silica nanoparticle-based catalysts for CO<sub>2</sub> utilization reactions

Anandhu Mohan, Augustine Jaison and Young-Chul Lee\*



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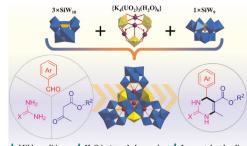
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### 3195

Uranyl-silicotungstate-containing hybrid building units  $\{\alpha\text{-SiW}_9\}$  and  $\{\gamma\text{-SiW}_{10}\}$  with excellent catalytic activities in the three-component synthesis of dihydropyrimidin-2(1H)-ones

Jian-Hua Ding, Yu-Feng Liu, Zhao-Teng Tian, Pei-Jie Lin, Feng Yang, Ke Li,\* Guo-Ping Yang\* and Yong-Ge Wei\*

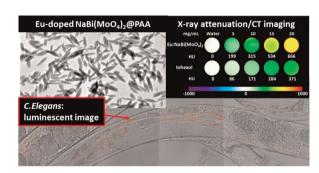


Mild conditions H.O is the only by-product Low catalyst loading

### 3202

Europium doped-double sodium bismuth molybdate nanoparticles as contrast agents for luminescence bioimaging and X-ray computed tomography

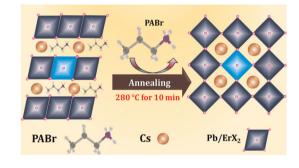
Roxana M. Calderón-Olvera, Nuria O. Núñez, Daniel González-Mancebo, Jose M. Monje-Moreno, Manuel J. Muñoz-Rui, Elisabet Gómez-González, Encarnación Arrovo. Beatriz Torres-Herrero. Jesús M. de la Fuente and Manuel Ocaña\*



### 3213

Understanding the synergistic influence of the propylammonium bromide additive and erbium-doped CsPbl<sub>2</sub>Br for highly stable inorganic perovskite solar cells

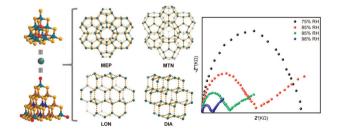
Jyoti V. Patil, Sawanta S. Mali, Shivaji B. Sadale and Chang Kook Hong\*



### 3224

Zeolite analogues based on oxysulfidometalate supertetrahedral clusters via coulombic interactions

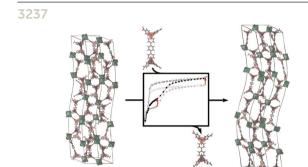
Ming-Bu Luo, Li-Jun Chen, Shan-Lin Huang, Xuechou Zhou, Er-Xia Chen\* and Qipu Lin\*



# 3230

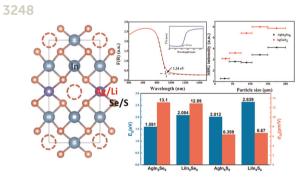
# An ultra-stable $Cu_{12}^I$ cluster built from a $Cu_6^I$ precursor sandwiched by two Cu<sub>3</sub>-thiacalixarene units for efficient photothermal conversion

Zuohu Zhou, Linmeng Xu, Guiyan Zhao,\* Kun Zhou, Baokuan Chen and Yanfeng Bi\*



# Isoreticular design of flexible Zn-based tetracarboxylate MOFs

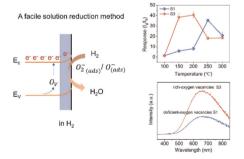
Bodo Felsner,\* Volodymyr Bon, Christopher Bachetzky, Eike Brunner and Stefan Kaskel



# AgIn<sub>5</sub>Se<sub>8</sub>: a defect diamond-like non-linear optical selenide

Linfeng Dong, Shengzi Zhang, Pifu Gong,\* Fei Liang and Zheshuai Lin\*





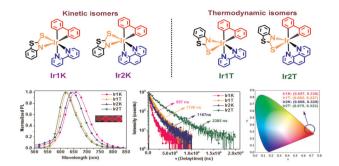
# High-response H<sub>2</sub> sensing performances of ZnO nanosheets modulated by oxygen vacancies

Shiyu Zhou, Wenjun Yan,\* Min Ling\* and Chengdu Liang\*

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Geometric isomers of asymmetric rigid fourmembered chelating ring based deep-red-emitting iridium complexes featuring three charged (0, -1, -2) ligands

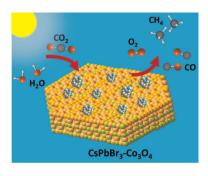
Ruoqi Zeng, Nengquan Li, Feiyang Li, Chao Shi,\* Zhen Jiang, Fuzheng Zhang, Qiuxia Li,\* Kaishun Ye, Aihua Yuan\* and Chuluo Yang\*



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A new 0D-2D CsPbBr<sub>3</sub>-Co<sub>3</sub>O<sub>4</sub> heterostructure photocatalyst with efficient charge separation for photocatalytic CO<sub>2</sub> reduction

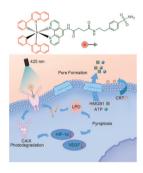
Xin Zhong, Xinmeng Liang, Xinyu Lin, Jin Wang,\* Malik Zeeshan Shahid\* and Zhengquan Li\*



### 3284

Photodegradation of carbonic anhydrase by iridium complexes for induction of immunogenic cell death under hypoxia

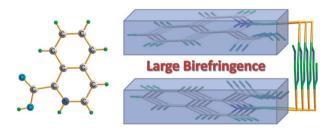
Yu-Yi Ling, Ya-Jie Kong, Liang Hao, Zheng-Yin Pan,\* Zong-Wan Mao\* and Cai-Ping Tan\*



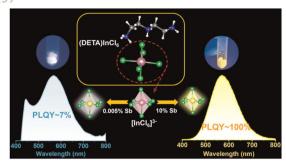
### 3293

C<sub>10</sub>H<sub>10</sub>ClNO<sub>3</sub>: exploration of birefringent crystals in an isoquinoline system

Hao Chen, Shaobin Zhang, Bo Chen, Yaoguo Shen\* and Junhua Luo



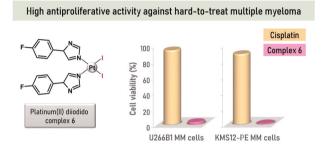
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Lead-free hybrid indium perovskites with near-unity PLQY and white light emission using an Sb<sup>3+</sup> doping strategy

Ling-Kun Wu, Ren-Fu Li,\* Wei-Yang Wen, Qing-Hua Zou, Heng-Yun Ye and Jian-Rong Li\*

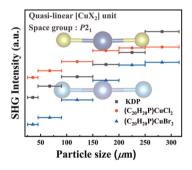
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# Anti-myeloma pro-apoptotic Pt(II) diiodido complexes

Lukáš Masaryk, Denisa Weiser Drozdková, Karolina Słoczyńska, Ján Moncol', David Milde, Radka Křikavová, Justyna Popiół, Elżbieta Pekala, Katarína Ondrušková, Ivan Nemec.\* Kateřina Smešný Trtková\* and Pavel Štarha\*

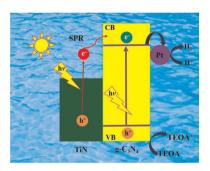
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# Quasi-linear $CuX_2$ (X = Cl, Br) motif-built hybrid copper halides realizing encouraging nonlinear optical activities

Jing-Li Qi, Jiajing Wu,\* Yue Guo, Zhong-Ping Xu, Wenlong Liu and Sheng-Ping Guo\*

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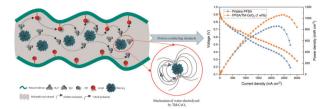
# Metallic TiN nanoparticles loaded on g-C<sub>3</sub>N<sub>4</sub> for plasmon enhanced visible and NIR photocatalytic H<sub>2</sub> evolution from water splitting

Ikram Ullah, Cong Ling, Jing-Han Li, Xiao-Jie Lu, Zhengkun Yang, Gang Wang\* and An-Wu Xu\*

### 3335

CeO<sub>2</sub> stabilized by tourmaline as a novel inorganic filler to simultaneously increase the conductivity and durability of proton exchange membranes

Supeng Pei,\* Kangwei Xu, Xiaoiun Xu, Guipeng Liu, Jialu Ma, Yingge Zhang, Yecheng Zou, Feng Liu, Yongming Zhang and Yongfeng Zhou



### 3345

Cobalt(III)-salen decorated stereoregular optically active helical polyisocyanides enable highly effective cooperative asymmetric catalysis toward the kinetic resolution of epoxides

Shu-Ming Kang, Xue Song, Ting-Ting Zhang, Lei Xu, Yuan-Yuan Zhu\* and Zong-Quan Wu\*

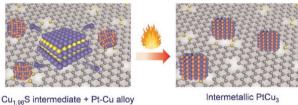


- ☑ Kinetic resolution
- ☑ Up to 99% ee
- ☑ Recover and recycle of polymer-supported catalysts

### 3359

Cuprous sulfide intermediate assisted synthesis of PtCu<sub>3</sub> intermetallic electrocatalysts in multigram scale for oxygen reduction

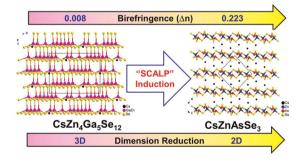
Shi-Long Xu, Peng Yin, Lu-Jie Zuo, Shi-Yi Yin, Ming Zuo, Wanqun Zhang, Xian-Zhu Fu\* and Hai-Wei Liang\*



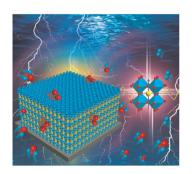
### 3367

Stereochemically active lone-pair-driven giant enhancement of birefringence from threedimensional CsZn<sub>4</sub>Ga<sub>5</sub>Se<sub>12</sub> to two-dimensional CsZnAsSe<sub>3</sub>

Chao Zhang, Mao-Yin Ran, Xin Chen, Sheng-Hua Zhou, Hua Lin\* and Yi Liu\*



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# Engineering a non-noble plasmonic center in MOF-derived Z-scheme heterojunctions for enhanced photoelectrochemical water splitting

Chuanping Li,\* Tianxiang Hang, Hui Zhou, Ping Ge, Shuoren Li and Xian-Dong Zhu\*

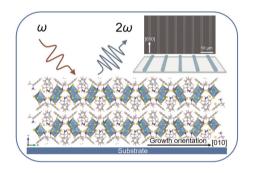
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Lanthanide-doped lead-free double perovskite La<sub>2</sub>MgTiO<sub>6</sub> as ultra-bright multicolour LEDs and novel self-calibrating partition optical thermometer

Keming Zhu, Hanyu Xu, Zhiying Wang and Zuoling Fu\*

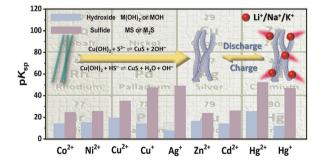
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Strong anisotropic second-order nonlinear optical responses in 0D lead-free chiral perovskite singlecrystalline microwire arrays

Meiqiu Dong, Binshuai Wang, Ziwei Yu, Jinjin Zhao, Xinyi Li, Yue Fu, Yangwu Guo,\* Yingjie Zhao,\* Hanfei Gao,\* Lei Jiang and Yuchen Wu

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# The $K_{sp}$ gap enabled precipitation transformation reactions from transition metal hydroxides to sulfides for alkali metal ion storage

Qianrui Zhao, Zhiwen Tang, Yuede Pan,\* Jingjing Han, Jinbiao Yang, Yongqiang Guo, Xiangqian Lai, Zhewei Yang and Gang Li\*