

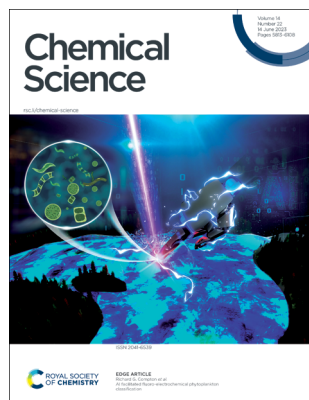
# Chemical Science

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## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 14(22) 5813–6108 (2023)



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### Inside cover

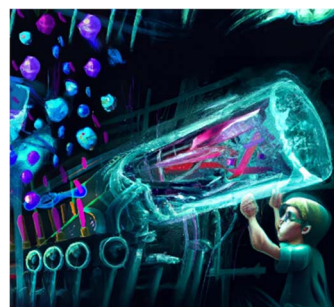
See Manickam Bakthadoss and Tadiparthi Thirupathi Reddy, pp. 5880–5886.  
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## COMMENTARY

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### A focus on how latent “codons” are unravelled in synthetic copolymers

Christopher Barner-Kowollik\* and Bryan T. Tuten\*

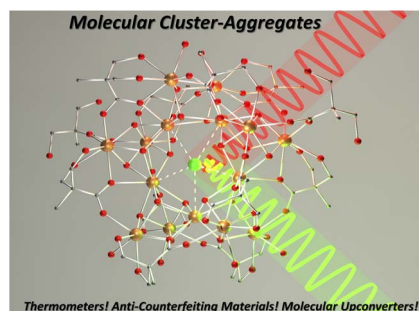


## PERSPECTIVE

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### Lanthanide molecular cluster-aggregates as the next generation of optical materials

Diogo Alves Gálico, Claudia Manuela Santos Calado and Muralee Murugesu\*



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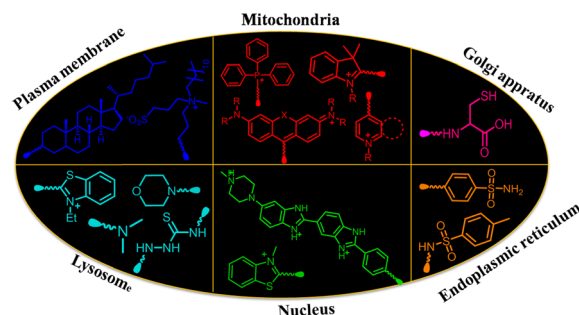


## REVIEW

5842

## Organelle-targeting ratiometric fluorescent probes: design principles, detection mechanisms, bio-applications, and challenges

Manoj Kumar Goshisht, Neetu Tripathi,\*  
Goutam Kumar Patra and Manohar Chaskar



## EDGE ARTICLES

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## AI facilitated fluoro-electrochemical phytoplankton classification

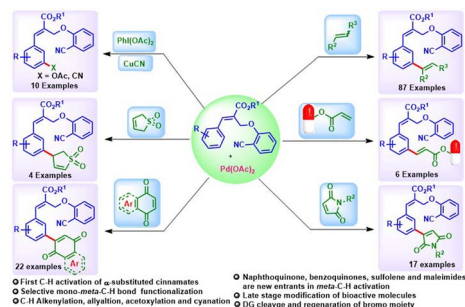
Haotian Chen, Samuel Barton, Minjun Yang,  
Rosalind E. M. Rickaby, Heather A. Bouman and  
Richard G. Compton\*



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## Distal *meta*-C–H functionalization of $\alpha$ -substituted cinnamates

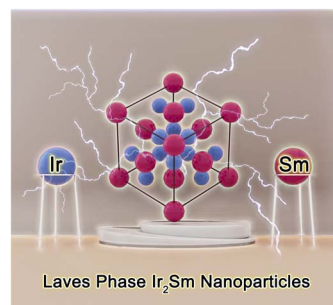
Manickam Bakthadoss\* and Tadiparthi Thirupathi Reddy



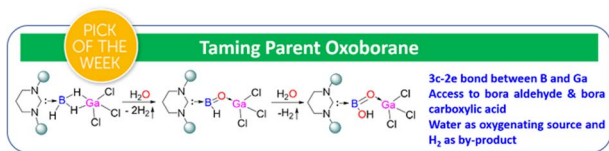
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## Laves phase $\text{Ir}_2\text{Sm}$ intermetallic nanoparticles as a highly active electrocatalyst for acidic oxygen evolution reaction

Shuai Zhang, Leilei Yin, Qingqing Li, Siyuan Wang,  
Weihua Wang and Yaping Du\*



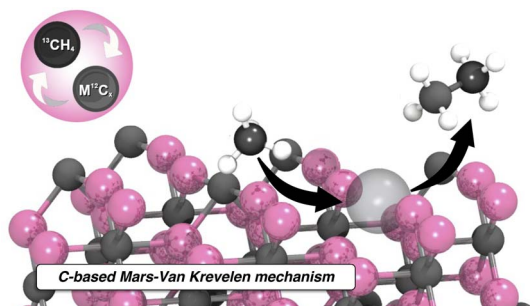
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### Taming the parent oxoborane

Gargi Kundu, P. R. Amrutha, K. Vipin Raj, Srinu Tothadi, Kumar Vanka and Sakya S. Sen\*

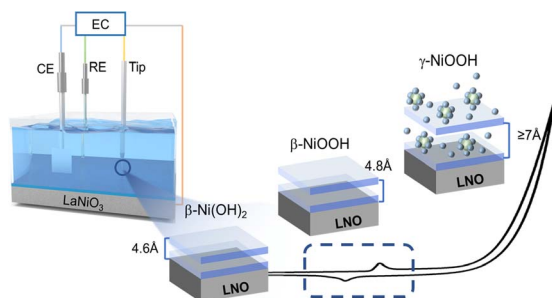
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### Role and dynamics of transition metal carbides in methane coupling

Seraphine B. X. Y. Zhang, Quentin Pessemesse, Lukas Lätsch, Konstantin M. Engel, Wendelin J. Stark, Alexander P. van Bavel, Andrew D. Horton, Pierre-Adrien Payard\* and Christophe Copéret\*

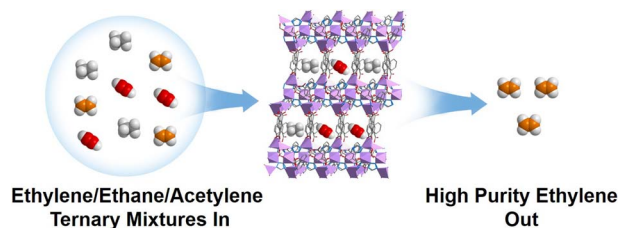
5906



### Direct observation of the dynamic reconstructed active phase of perovskite $LaNiO_3$ for the oxygen-evolution reaction

Yan Sun, Cheng-Rong Wu, Tian-Yi Ding, Jian Gu, Jia-Wei Yan,\* Jun Cheng\* and Kelvin H. L. Zhang\*

5912



### Pillar-layer Zn–triazolate–dicarboxylate frameworks with a customized pore structure for efficient ethylene purification from ethylene/ethane/acetylene ternary mixtures

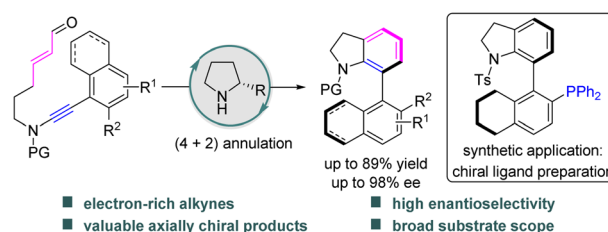
Jiaqi Liu, Hao Wang\* and Jing Li\*



5918

### Organocatalytic intramolecular (4 + 2) annulation of enals with ynamides: atroposelective synthesis of axially chiral 7-aryl indolines

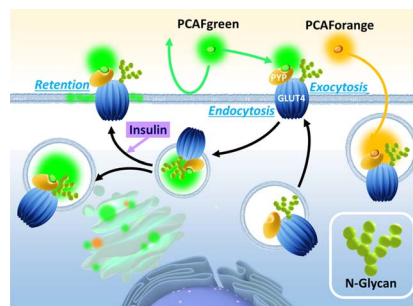
Zhi-Xin Zhang, Li-Gao Liu, Yi-Xi Liu, Jian Lin, Xin Lu,\*  
Long-Wu Ye and Bo Zhou\*



5925

### Visualization of multiple localizations of GLUT4 by fluorescent probes of PYP-tag with designed unnatural warhead

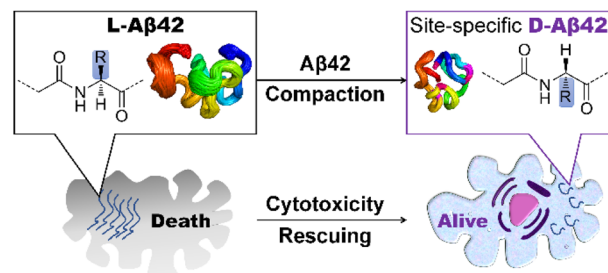
Miyako Nishiura, Yuichiro Hori,\* Maho Umeno  
and Kazuya Kikuchi\*



5936

### Site-specific chirality-conferred structural compaction differentially mediates the cytotoxicity of A $\beta$ 42

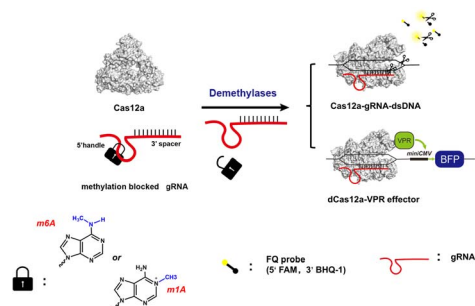
Gongyu Li,\* Chae Kyung Jeon, Min Ma, Yifei Jia,  
Zhen Zheng, Daniel G. Delafield, Gaoyuan Lu,  
Elena V. Romanova, Jonathan V. Sweedler,  
Brandon T. Ruotolo\* and Lingjun Li\*



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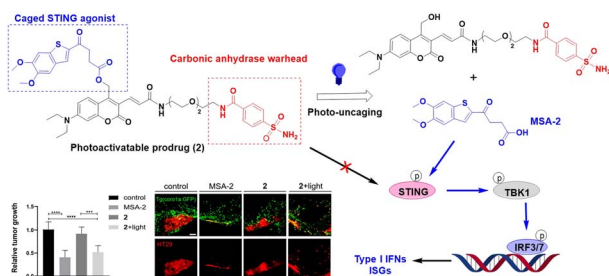
### Regulation of the CRISPR-Cas12a system by methylation and demethylation of guide RNA

Zhian Hu, Ao Sun, Jinlei Yang, Gul Naz, Gongwei Sun,  
Zhengping Li, Jun-Jie Gogo Liu,\* Sichun Zhang\*  
and Xinrong Zhang\*





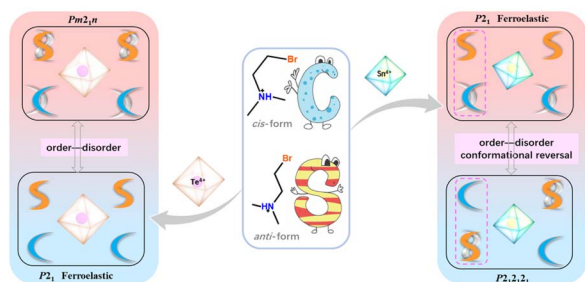
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### Photochemically controlled activation of STING by CAIX-targeting photocaged agonists to suppress tumor cell growth

Chunyang Ding,\* Mengyan Du, Zhi Xiong, Xue Wang, Hongji Li, Ende He, Han Li, Yijing Dang, Qing Lu, Shicong Li, Ruoxuan Xiao, Zhiai Xu, Lili Jing,\* Liufu Deng, Xiyuan Wang, Meiyu Geng, Zuoquan Xie\* and Ao Zhang\*

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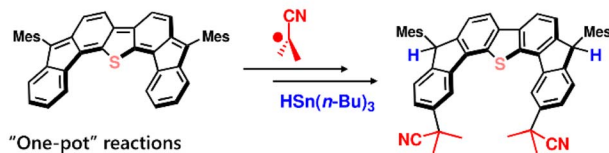
### An anomalous ferroelastic phase transition arising from an unusual *cis-/anti-*conformational reversal of polar organic cations

Bing-Qing Zhao, Xiao-Xian Chen, Hui Ye, Ya-Ping Gong, Jun Wang, Le Ye and Wei-Xiong Zhang\*

5974

### Site-selective radical reactions of open-shell singlet diradicaloids

Difluoreno[4,3-*b*:3',4'-*d*]thiophene  
 $\Delta E_{S-T} = -4.3$  kcal/mol

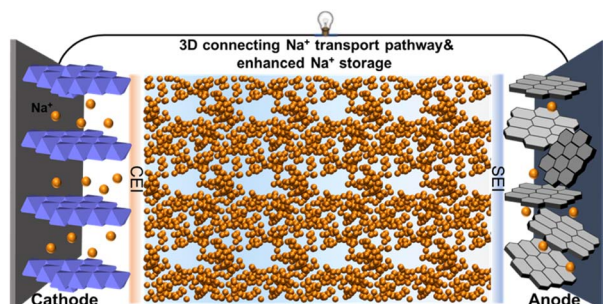


"One-pot" reactions  
 (substitution & hydrogenation)

### Site-selective radical reactions of kinetically stable open-shell singlet diradicaloid difluorenoheteroles with tributyltin hydride and azo-based radical initiators

Naoki Tabata, Takumi Uchino, Chitoshi Kitamura, Kazunari Yoshizawa, Yoshihito Shiota\* and Shin-ichiro Kato\*

5983



### Three-dimensional heterogeneity in liquid electrolyte structures promotes Na ion transport and storage performance in Na-ion batteries

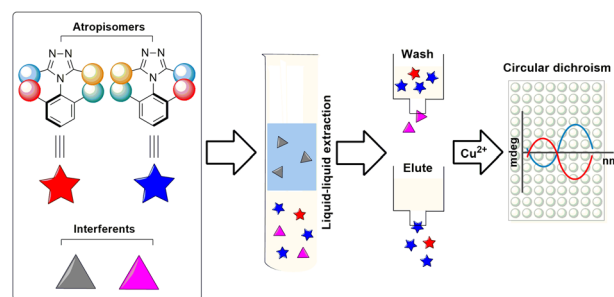
Mengying Ma, Binbin Chen and Huilin Pan\*



5992

## High-throughput determination of enantiopurity in atroposelective synthesis of aryl triazoles

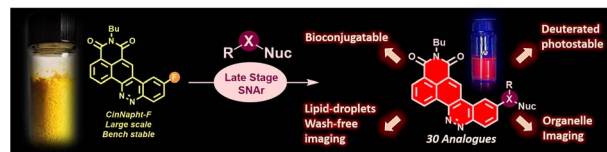
Jongdoo Lim, Melody Guo, Sooyun Choi, Scott J. Miller\* and Eric V. Anslyn\*



6000

## Unprecedented perspectives on the application of CinNaph fluorophores provided by a "late-stage" functionalization strategy

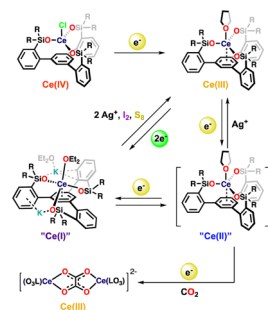
Eléonore Tacke, Minh-Duc Hoang, Kevin Tatoueix, Benoît Keromnes, Elsa Van Eslande, Philippe Durand, Gregory Pieters and Arnaud Chevalier\*



6011

## Isolation and redox reactivity of cerium complexes in four redox states

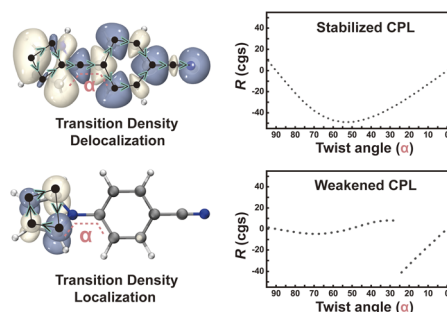
Fang-Che Hsueh, Thayalan Rajeshkumar, Laurent Maron\*, Rosario Scopelliti, Andrzej Sienkiewicz and Marinella Mazzanti\*



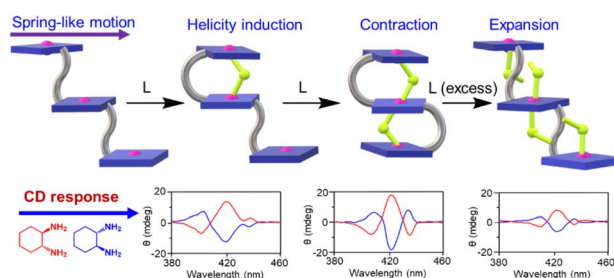
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## Pivotal role of transition density in circularly polarized luminescence

Zhanxiang Chen, Manli Huang, Cheng Zhong\*, Shaolong Gong, Veaceslav Coropceanu\*, Jean-Luc Brédas\* and Chuluo Yang\*



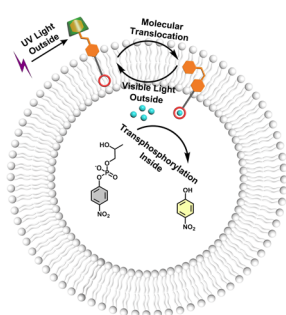
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### Modulation of supramolecular chirality by stepwise axial coordination in a nano-size trizinc(II)porphyrin trimer

Avinash Dhamija, Dolly Chandel and Sankar Prasad Rath\*

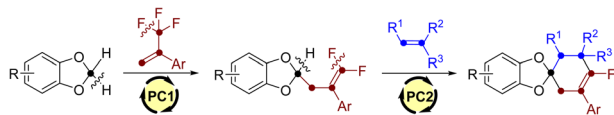
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### Light-controlled artificial transmembrane signal transduction for 'ON/OFF'-switchable transphosphorylation of an RNA model substrate

Jinxing Hou, Jiale Guo, Tengfei Yan, Shengda Liu, Mingsong Zang, Liang Wang, Jiayun Xu, Quan Luo, Tingting Wang\* and Junqiu Liu\*

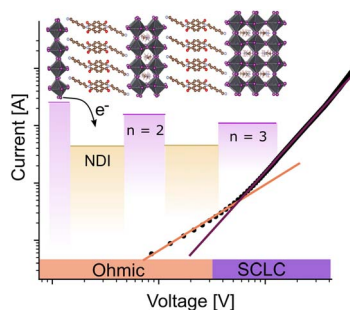
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### Photoredox radical/polar crossover enables C–H *gem*-difunctionalization of 1,3-benzodioxoles for the synthesis of monofluorocyclohexenes

Jiabao Tian and Lei Zhou\*

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### Photogenerated charge transfer in Dion–Jacobson type layered perovskite based on naphthalene diimide

Simon Nussbaum, Etienne Socie, George C. Fish, Nicolas J. Diercks, Hannes Hempel, Dennis Friedrich, Jacques-E. Moser, Jun-Ho Yum\* and Kevin Sivula\*

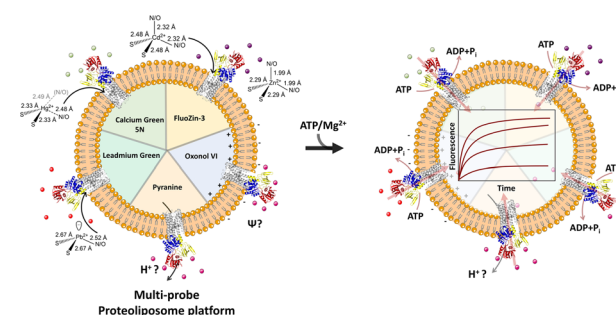




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## Plastic recognition and electrogenic uniport translocation of 1<sup>st</sup>-, 2<sup>nd</sup>-, and 3<sup>rd</sup>-row transition and post-transition metals by primary-active transmembrane P<sub>1B-2</sub>-type ATPase pumps

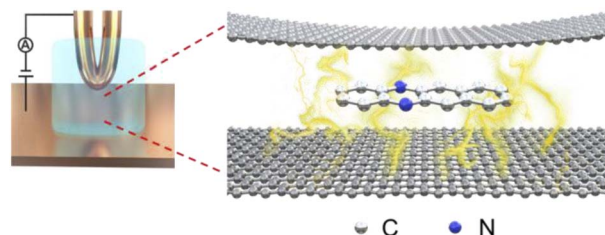
Sameera S. Abeyrathna, Nisansala S. Abeyrathna, Priyanka Basak, Gordon W. Irvine, Limei Zhang and Gabriele Meloni\*



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## Atomically well-defined nitrogen doping for cross-plane transport through graphene heterojunctions

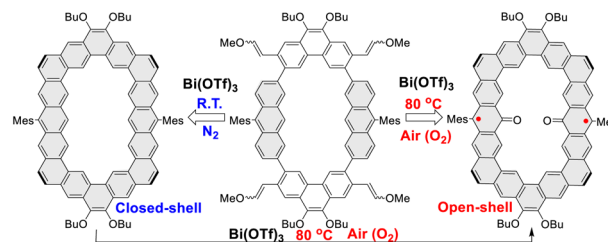
Hewei Zhang, Ping Zhou, Abdalghani Daaoub, Sara Sangtarash, Shiqiang Zhao, Zixian Yang, Yu Zhou, Yu-Ling Zou, Silvio Decurtins, Robert Häner, Yang Yang,\* Hatef Sadeghi,\* Shi-Xia Liu\* and Wenjing Hong\*



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## From closed-shell edge-extended kekulenes to open-shell carbonylated cycloarene diradicaloid

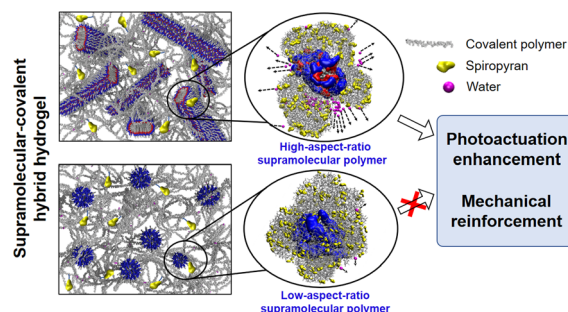
Dongdong Chang, Jiangyu Zhu, Yutao Sun, Kai Chi, Yanjun Qiao, Teng Wang, Yan Zhao, Yunqi Liu and Xuefeng Lu\*



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## Role of supramolecular polymers in photo-actuation of spiropyran hydrogels

Chuang Li, Qinsi Xiong, Tristan D. Clemons, Hiroaki Sai, Yang Yang, M. Hussain Sangji, Aysenur Iscen, Liam C. Palmer, George C. Schatz\* and Samuel I. Stupp\*



## CORRECTION

6105

**Correction: Molybdenum chloride double perovskites: dimensionality control of optical and magnetic properties**

Devesh Chandra Binwal, Prashurya Pritam Mudoi, Debendra Prasad Panda and Pratap Vishnoi\*

