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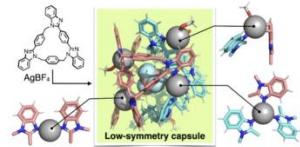
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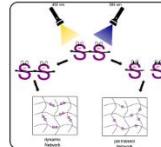
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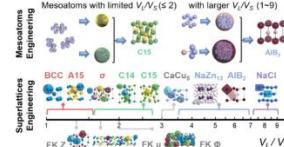
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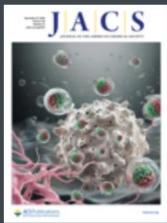


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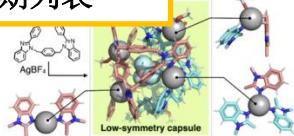
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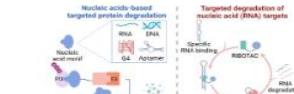
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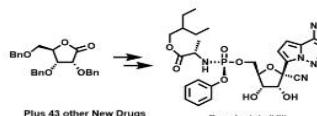
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### A Versatile One-Step Enzymatic Strategy for Efficient Imaging and Mapping of Tumor-Associated Tn Antigen

Zhonghua Li\*, Qi Du, Xiaoxiao Feng, Xuezheng Song, Zhenggang Ren, and Haojie Lu\*

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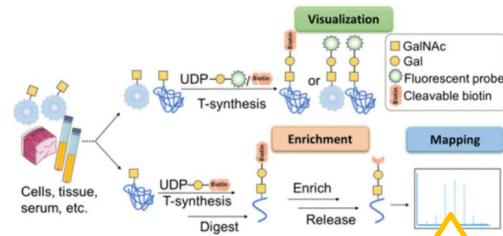
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摘要图

### A Sodium Germanosilicide with Unusual Network Topology

Julia-Maria Hübner\*, Thomas B. Shiell, Piotr A. Guńska, Shuo Tao, Li Zhu, Mads Fonager Hansen, Emma S. Bullock, Stella Chariton, Vitali B. Prakapenka, Yingwei Fei, Vladislav A. Blatov, Davide M. Proserpio, and Timothy A. Strobel\*

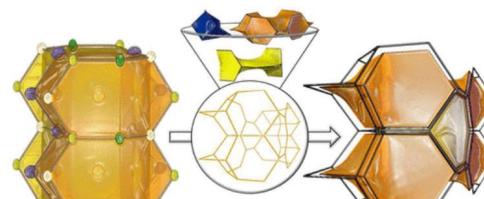
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Ayan Das, Benedict J. Elvers, Nicolas Chrysochos, Sk Imraj Uddin, Tejaswini Gangber, Ivo Krummenacher, Dipanti Borah, Anshika Mishra, Maheswaran Shanmugam\*, Cem B. Yıldız\*, Holger Braunschweig\*, Carola Schulzke\*, and Anukul Jana\*

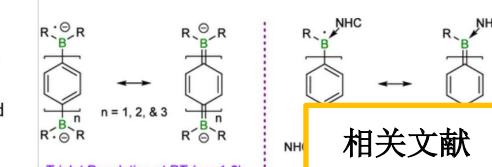
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### Abstract

Herein, we report the syntheses and electronic structures of crystalline dianionic as well as neutral diboron-centered classical diradicaloids as boron analogues of classical Thiele, Chichibabin, and Müller (this only for dianionic diradicaloids!) hydrocarbons. These are based on borane radical anion and NHC-stabilized boryl radical spin carriers, respectively. All these dianionic diboron-centered diradicaloids exhibit triplet population at room temperature regardless of the  $\pi$ -conjugated spacer: *p*-phenylene, *p,p'*-biphenylene, or *p,p''*-terphenylene. In the case of neutral diboron-centered diradicaloids, the

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### Introduction

Catalysts are essential to the efficient performance of technological systems and all living organisms. However, molecular scaling relationships (1–4) involving trade-offs between thermodynamic and kinetic performance metrics can limit their effectiveness. The Sabatier principle (5,6) indicates that optimal catalysis occurs when the binding between a catalyst and its substrate is “just right” and of intermediary strength. In other words, the interactions should be neither too strong nor too weak; otherwise, the binding of the reactants or desorption of the products will limit the reaction rate. Such trade-offs between thermodynamic and kinetic performance metrics also apply to electrocatalytic reactions, as exemplified in the benchmarking of homogeneous molecular electrocatalysts via comparisons of catalytic Tafel plots (7,8) relating the turnover frequency (TOF) of a molecular catalyst to the overpotential ( $\eta$ ) (Figure 1a). In this analysis, TOF is the ratio of moles of product ( $N_{\text{product}}$ ) produced over a set unit of time, in which the catalyst is stable, versus the moles of total catalysts contained within the *reaction-diffusion layer* ( $N_{\text{cat}}$ ), a region near the electrode surface, where the concentration profiles of electro-activated versus nonactivated catalysts differ from their bulk values (eq 1). (8) Correspondingly,  $\eta$  is defined as the difference in absolute value between the applied electrode potential ( $E_{\text{app}}$ ) and the equilibrium potential of the reaction being catalyzed ( $E_{\text{eq}}$ ; eq 2). (9–11)

$$\text{TOF} = \frac{N_{\text{product}}}{N_{\text{cat}}} = \frac{\text{TOF}_{\text{max}}}{1 + \exp \left[ \frac{F}{RT} (E_{\text{app}} - E_{\text{cat}/2}) \right]} \quad (1)$$

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1. Pérez-Ramírez, J.; Scaling Relationships DOI: 10.1038/s41929-022-01230-2

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2. Masa, J.; Schuhmacher, J. Electrocatalysis. *J. S* 2181– 2182, DOI: 10.1002/elect.202200012

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3. Nie, W.; McCrory, C. C. L. Strategies for Breaking Molecular Scaling Relationships for the Electrochemical CO<sub>2</sub> Reduction Reaction. *Dalton Trans.* 2022, 51, 6993–7010, DOI: 10.1039/D2DT00333C

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4. Kulkarni, A.; Siahrostami, S.; Patel, A.; Nørskov, J. K. Understanding Catalytic Activity Trends in the Oxygen

# Supporting Information 支持信息

## Reversible Spatiotemporal Control of Induced Protein Degradation by Bistable PhotoPROTACs

Patrick Pfaff<sup>1,\*</sup>, Kusal T. G. Samarasinghe<sup>2,\*</sup>, Craig M. Crews<sup>2,3,4</sup> and Erick M. Carreira<sup>1</sup>

<sup>1</sup>, Department of Chemistry and Applied Biosciences, Laboratory of Organic Chemistry, ETH Zürich, Vladimir-Prelog-Weg 3, 8093 Zürich, Switzerland

<sup>2</sup>, Department of Molecular, Cell, and Developmental Biology, Yale University, 260 Whitney Avenue, New Haven, CT 06511, United States

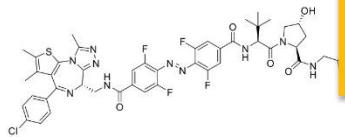
<sup>3</sup>, Dept of Chemistry, Yale University, New Haven, CT 06511, United States

<sup>4</sup>, Dept of Pharmacology, Yale University, New Haven, CT 06511, United States

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(2S,4R)-1-((S)-2-((E)-4-((4-(4-chlorophenyl)-2,3,9-trimethyl-6H-thieno[3,2,1-ij] [1,2,4]triazolo[4,3-a][1,4]diazepin-6-yl)methyl)carbamoyl)-2,6-difluorophenyl) difluorobenzamido)-3,3-dimethylbutanoyl)-4-hydroxy-N-(4-(4-methylthiazol-5-yl)benzyl)pyrrolidine-2-carboxamide (photoPROTAC-1)



JQ-1 amine **18** (10.5 mg, 28.0  $\mu$ mol, 1.00 equiv) and acid **54** (21.4 mg, 28.0  $\mu$ mol, 1.00 equiv) were dissolved in anhydrous DMF (0.28 ml, 0.1 M). DIPEA (12  $\mu$ l, 85  $\mu$ mol, 3.00 equiv) and HATU (11.3 mg, 30.0  $\mu$ mol, 1.05 equiv) were added to the reaction mixture at room temperature. After 2 hours, the reaction mixture was quenched by addition of sat. aq.  $\text{NaHCO}_3$  and the aq. phase was extracted three times with  $\text{EtOAc}$ . The combined org. layers were washed with brine and dried over sodium sulfate. Residual DMF and tetramethylurea were removed by lyophilization after freezing in a water/dioxane mixture. The crude product was further purified by flash column chromatography (94%  $\text{EtOAc}/4\%$   $\text{iPrOH}/2\% \text{H}_2\text{O}$ ) to afford photoPROTAC-1 as an orange oil (16.0 mg, 14.0  $\mu$ mol, 51%).

RF = 0.36 (85%  $\text{EtOAc}/10\% \text{iPrOH}/5\% \text{H}_2\text{O}$ ).

<sup>1</sup>H NMR (500 MHz,  $\text{CD}_3\text{OD}$ )  $\delta$  = 8.87 (s, 1H), 7.70 (dd,  $J$  = 5.1, 1.6 Hz, 2H), 7.67 (dd,  $J$  = 5.1, 1.6 Hz, 2H), 7.52 (d,  $J$  = 8.5 Hz, 2H), 7.48 (d,  $J$  = 8.5 Hz, 2H), 7.44 – 7.40 (m, 4H), 4.91 (s, 1H), 4.65 – 4.50 (m, 4H), 4.43 (dd,  $J$  = 13.6, 7.0 Hz, 2H), 4.35 (d,  $J$  = 15.4 Hz, 1H), 3.98 (d,  $J$  = 11.0 Hz, 1H), 3.87 (dd,  $J$  = 11.0, 3.8 Hz, 1H), 2.71 (s, 3H), 2.47 (s, 3H), 2.43 (s, 3H), 2.29 – 2.22 (m, 1H), 2.15 – 2.09 (m, 1H), 1.69 (s, 3H), 1.13 (s, 9H).

<sup>13</sup>C NMR (126 MHz,  $\text{CD}_3\text{OD}$ )  $\delta$  = 174.4, 172.0, 166.8, 166.7, 166.5, 157.4, 156.1, 155.3, 153.0, 152.2, 149.0, 140.3, 139.2, 138.1, 138.1, 134.3, 133.5, 133.4, 133.3, 132.0, 131.5, 131.4, 131.3, 130.4, 129.8, 129.0, 113.4, 113.1, 71.1, 60.9, 59.9, 58.2, 56.8, 43.7, 42.9, 39.0, 37.2, 27.1, 15.8, 14.4, 12.9, 11.6.

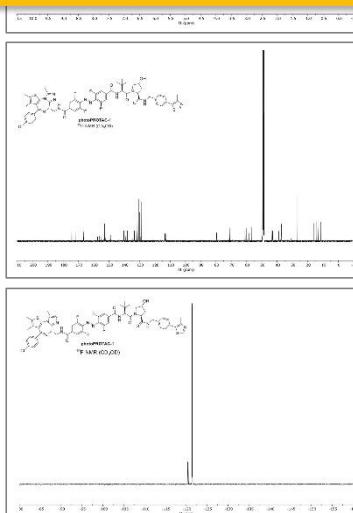
<sup>19</sup>F NMR (471 MHz,  $\text{CD}_3\text{OD}$ )  $\delta$  = -121.4, -121.5.

IR: 3322, 2925, 2885, 1665, 1533, 1427, 1343, 1243, 1090, 1047, 967, 843.

ESI-HRMS: calcd. for  $\text{C}_{50}\text{H}_{51}\text{ClF}_5\text{N}_2\text{O}_5\text{S}_2^+ [\text{M}+\text{H}]^+$  1108.3135, found 1108.3144.

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## Three-Component Cross-Electrophile Coupling: Regioselective Electrochemical Dalkylation of Alkenes

Lingqiang Lu, Yi Wang, Wendy Zhang, Wen Zhang, Kimberly A. See, and Song Lin\*

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### Abstract

The cross-electrophilic dalkylation of alkenes enables the formation of two C(sp<sup>2</sup>)–C(sp<sup>3</sup>) bonds from readily available starting materials in a single transformation, thereby providing a modular and expedient approach to building structural complexity in organic synthesis. Herein, we exploit the disparate electronic and steric properties of alkyl halides with varying degrees of substitution to accomplish their selective activation and addition to alkenes under electrochemical conditions. This method enables regioselective dalkylation of alkenes without the use of a transition-metal catalyst and provides access to a diverse range of synthetically useful compounds.

Representative products:

Abstract

Financial support was provided by NIGMS (R01GM130928; to S.L.) and NSF Center for Synthetic Organic Electrochemistry (CHE-2002150; to K.A.S.). S.L. is grateful to FMC Corporation for a New Investigator Award and the Camille and Henry Dreyfus Foundation for a Camille Dreyfus Teacher-Scholar Award. K.A.S. acknowledges support from the David and Lucile Packard Foundation for Science. We thank K. R. Meilhaus, L. F. T. Novaez, J. I. Martinez Alvarado, and J. Rein for manuscript editing, I. Keresztes and D. Wood for assistance in mass spectrometry data collection and analysis, A. J. Ressler, S. J. Lee, and Z. Lu for assistance in substrate synthesis, and J. Liu for reproducing experiments.

References

This article references 31 other publications.

1. (a) Corey, E. J.; Cheng, X.-M. *The Logic of Chemical Synthesis*; Wiley: New York, 1995.  
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(b) Choi, J.; Fu, G. C. Transition Metal-Catalyzed Alkyl–Alkyl Bond Formation: Another Dimension in Cross-Coupling Chemistry. *Science* 2017, 356, eaaf7230, DOI: 10.1126/science.aaf7230  
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Representative products:

Abstract

Financial support was provided by NIGMS (R01GM130928; to S.L.) and NSF Center for Synthetic Organic Electrochemistry (CHE-2002150; to K.A.S.). S.L. is grateful to FMC Corporation for a New Investigator Award and the Camille and Henry Dreyfus Foundation for a Camille Dreyfus Teacher-Scholar Award. K.A.S. acknowledges support from the David and Lucile Packard Foundation for Science. We thank K. R. Meilhaus, L. F. T. Novaez, J. I. Martinez Alvarado, and J. Rein for manuscript editing, I. Keresztes and D. Wood for assistance in mass spectrometry data collection and analysis, A. J. Ressler, S. J. Lee, and Z. Lu for assistance in substrate synthesis, and J. Liu for reproducing experiments.

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(b) Choi, J.; Fu, G. C. Transition Metal-Catalyzed Alkyl–Alkyl Bond Formation: Another Dimension in Cross-Coupling Chemistry. *Science* 2017, 356, eaaf7230, DOI: 10.1126/science.aaf7230  
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Scheme 1

(A) Redox-neutral alkene dalkylation (refs 3–6)

(B) Ni-catalyzed directed reductive dalkylation (ref 8)

(C) Ni-catalyzed nondirected reductive dalkylation (ref 10)

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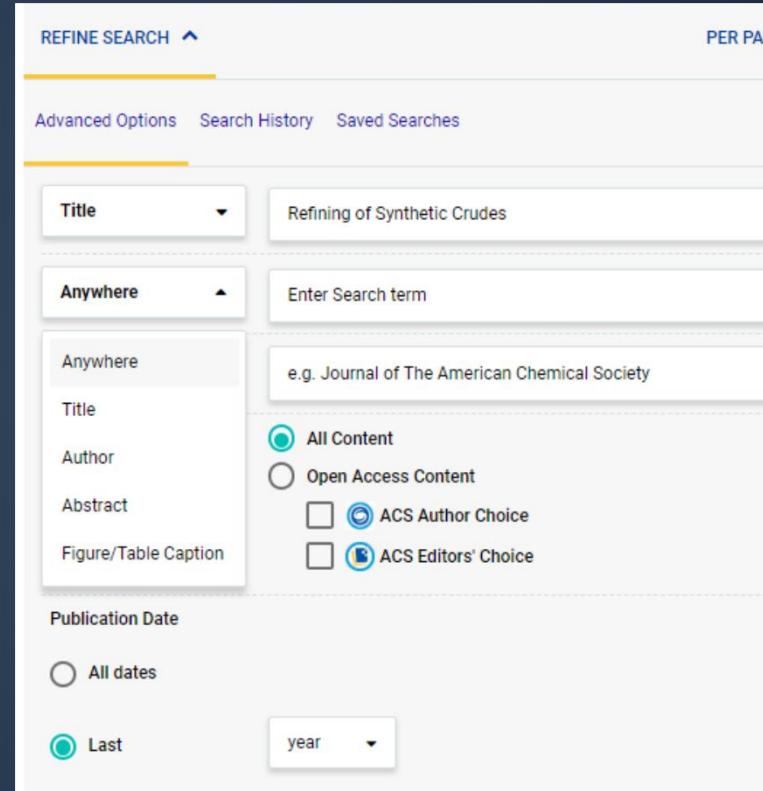
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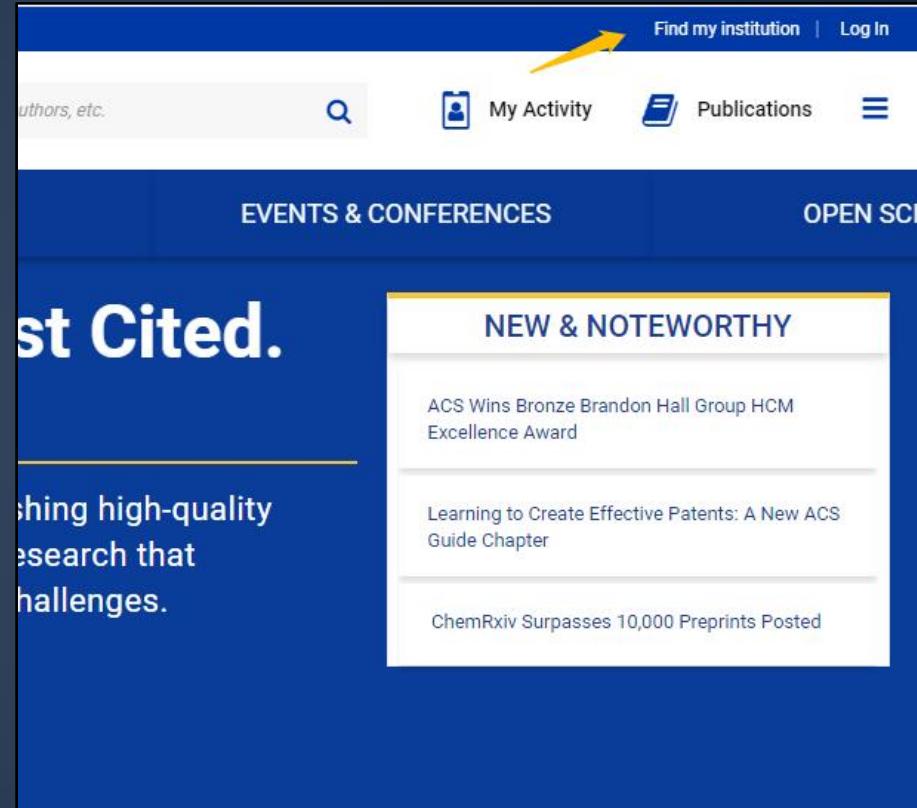
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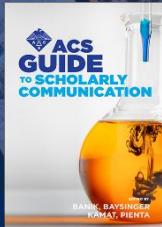


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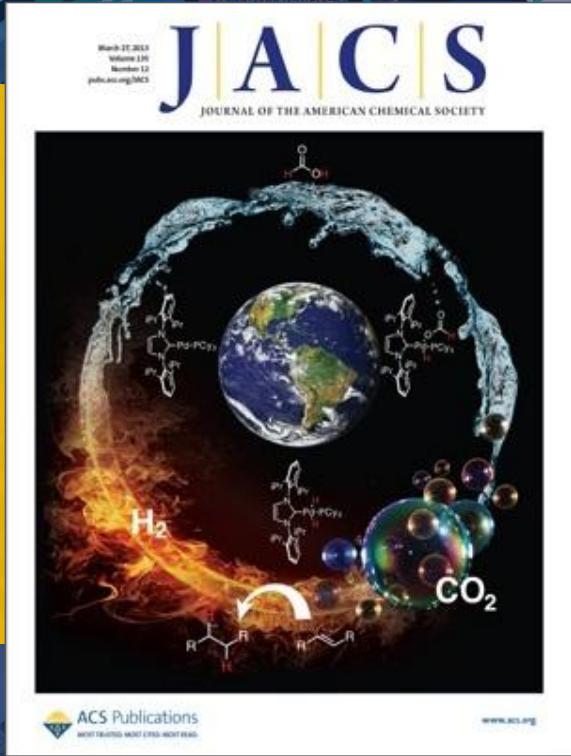
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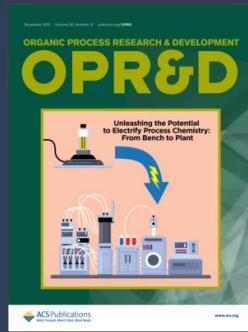
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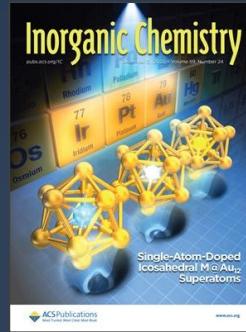
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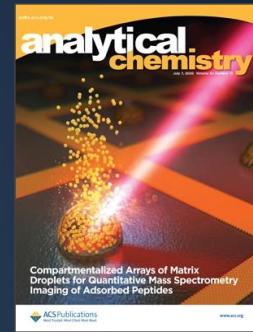
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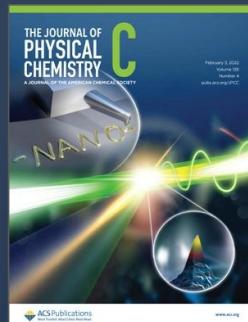
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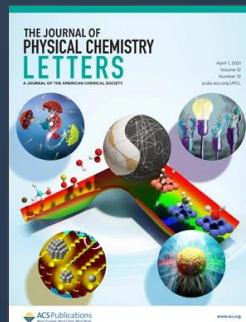
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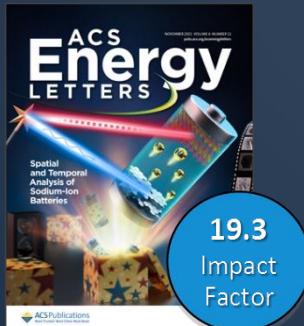
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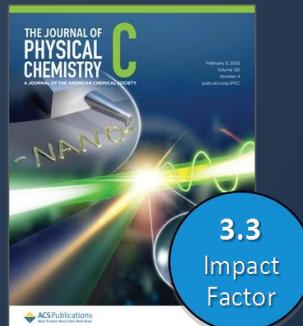
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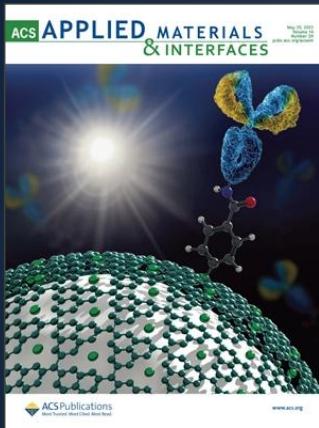


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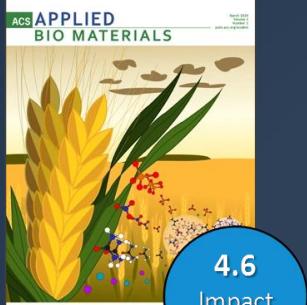
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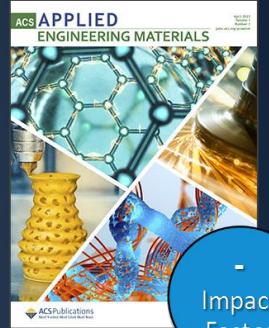
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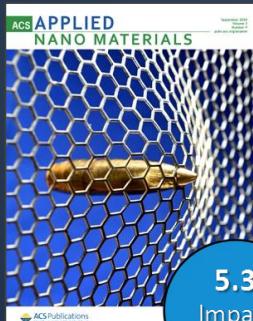
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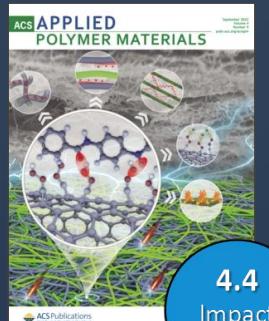
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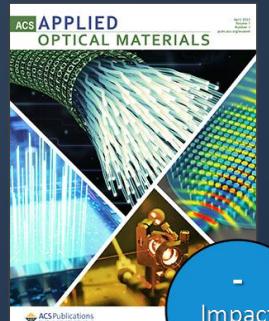
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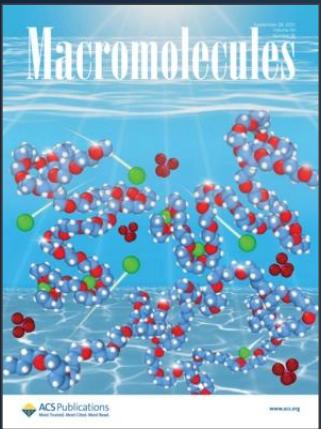
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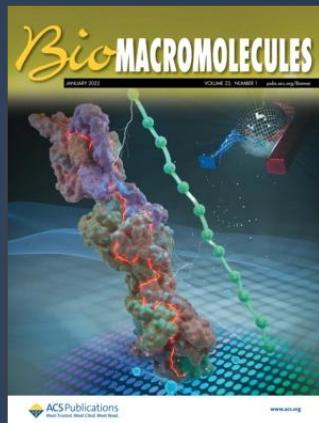
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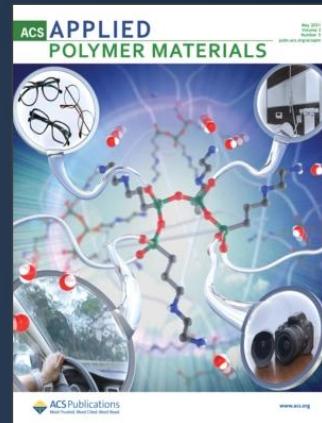
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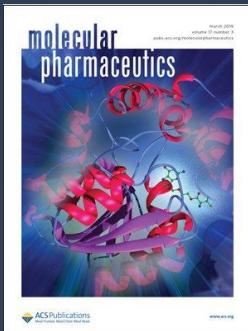
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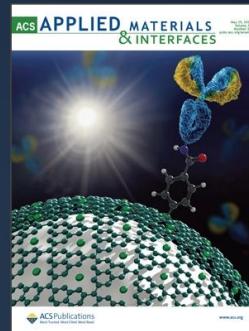
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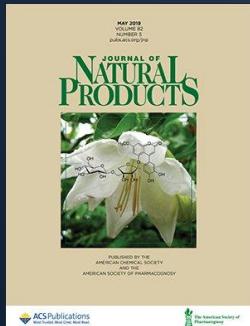
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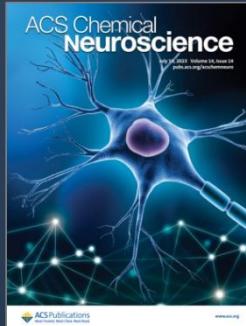
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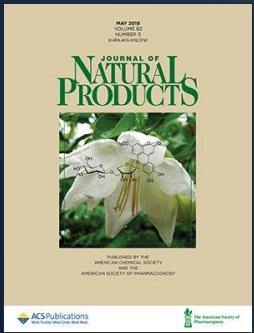
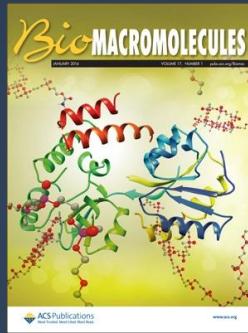
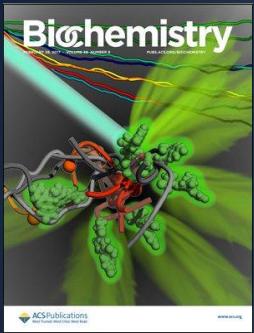


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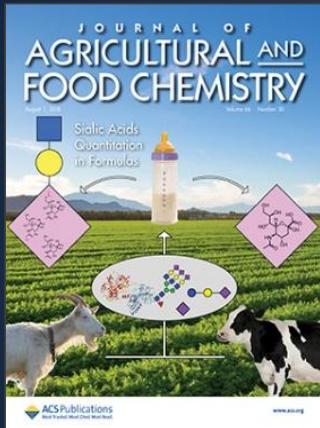
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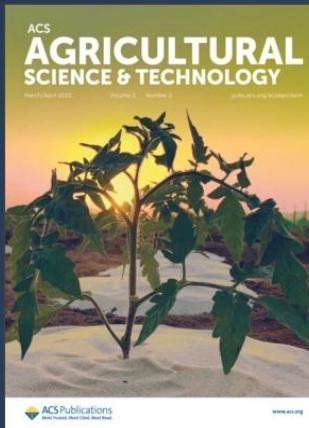
# Agriculture and Food Science 农业与食品科学



*Journal of  
Agricultural and  
Food Chemistry*

IMPACT FACTOR

**5.7**



*ACS Agricultural  
Science &  
Technology*

IMPACT FACTOR

**2.4**



*ACS Food  
Science &  
Technology*

IMPACT FACTOR

**2.6**



*Journal of Natural  
Products*

IMPACT FACTOR

**3.4**

# Environmental Science 环境科学与技术



*Environmental  
Science &  
Technology*

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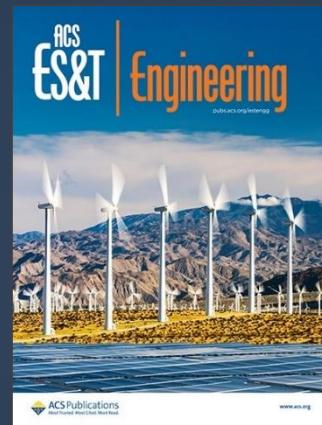
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*Environmental  
Science &  
Technology Letters*

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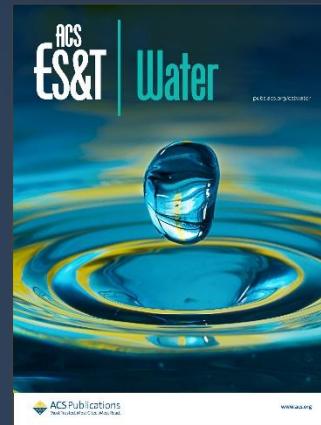
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*ACS ES&T  
Engineering*

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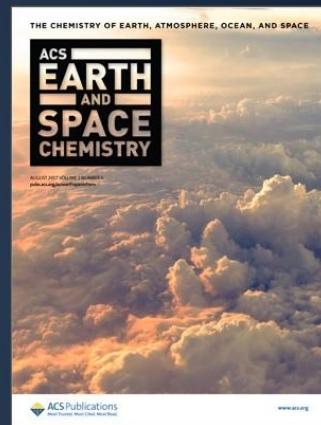
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*ACS ES&T  
Water*

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**4.9**



*ACS Earth and  
Space Chemistry*

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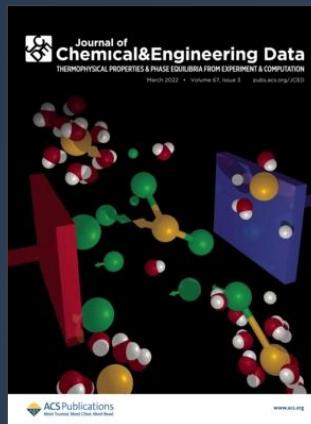
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# Energy and Transportation 化工与能源



*Industrial &  
Engineering  
Chemistry Research*

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**3.8**



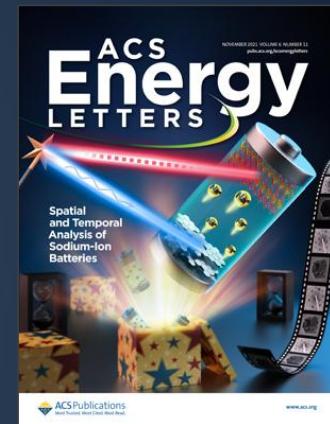
*Journal of Chemical  
& Engineering Data*

IMPACT FACTOR  
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*Energy & Fuels*

IMPACT FACTOR  
**5.2**



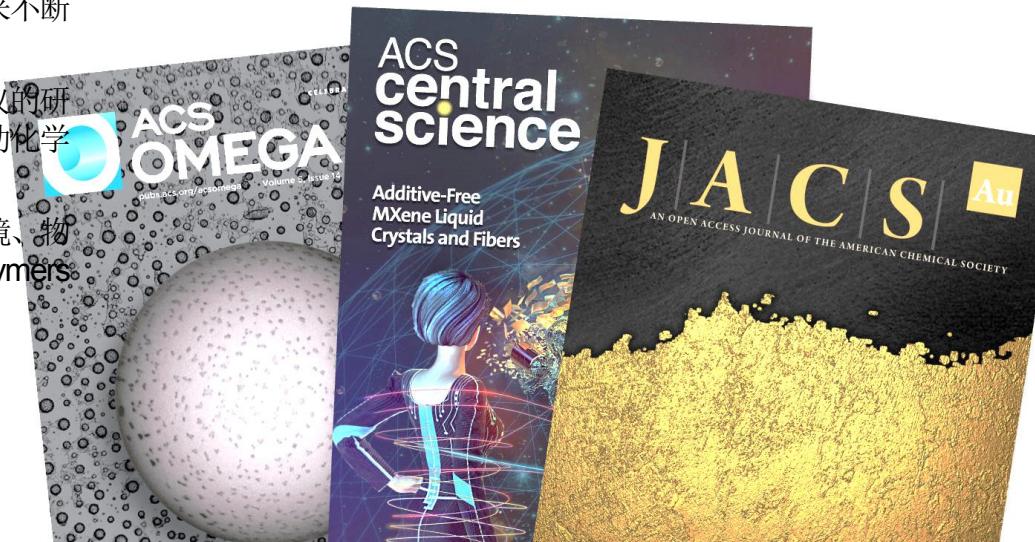
*ACS Energy Letters*

IMPACT FACTOR  
**19.5**

# Open Access Journals

## ACS 对全球开放科学呼声的回应

- 学术出版多年来一直在向开放获取迈进，ACS积极应对全球开放获取以及开放科学的呼声，2020年之前，ACS旗下有两本全OA的期刊。
- 2015年上线的ACS Central Science（不收取发表费用），目标是提升化学作为“核心科学”的关注度，自创刊以来不断发表与其他学科交叉领域杰出的研究成果。
- 2016年上线的ACS Omega，旨在快速发表经过同行评议的研究成果，加快新理念和有潜力的研究的传播，从而推动化学科学的前沿。
- 2021年起上线Au（金）系列期刊，提供覆盖有机、环境、物理等各个领域的全OA期刊。目前JACS Au和ACS Polymers Au已获得首个影响因子。



# Open Access Journals

美国化学会旗下的开放获取期刊总共有 18 种，分别具有不同的内容和定位。

ACS Central Science, ACS Omega, JACS Au : 跨学科化学期刊

ACS Au Journals 期刊：

- ACS Bio & Med Chem Au
- ACS Engineering Au
- ACS Environmental Au
- ACS Materials Au
- ACS Measurement Science Au
- ACS Nanoscience Au
- ACS Organic & Inorganic Au
- ACS Physical Chemistry Au
- ACS Polymers Au



ACS 与中国的高校/科研机构的合作期刊：

Precision Chemistry

2023 University of Science and Technology of China

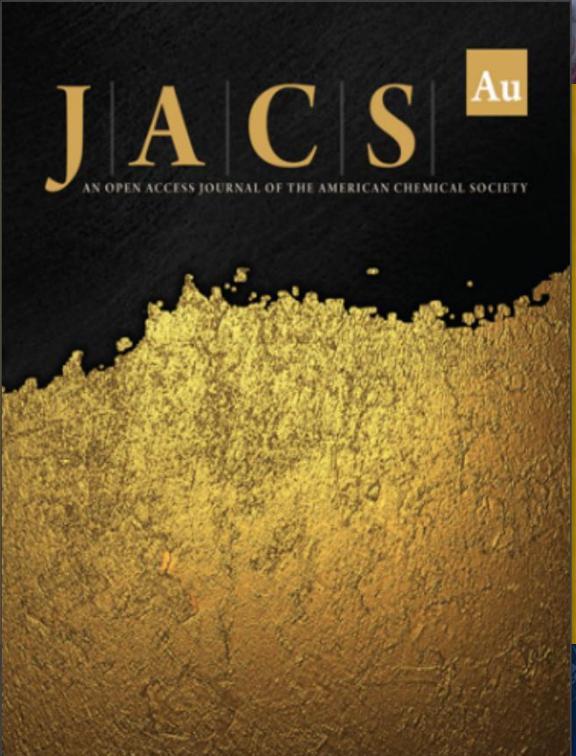
Chemical & Biomedical Imaging 2023 Nanjing University

Environment & Health

2023 the Research Center for Eco-Environmental Sciences, CAS

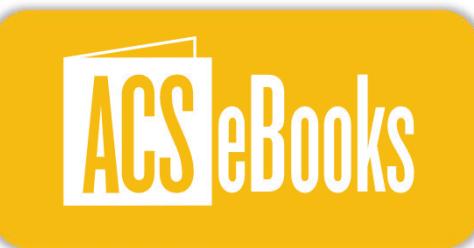
# JACS Au——为各个学科推出Au系列OA期刊

- 2021年1月正式出版首期，每期收录10~20篇文章。
- 在涉及化学领域各分支学科的同时，更看重研究的即时影响力。
- 遵循JACS的传统，发表对全球化学群体都具有广泛影响和相关性的研究。
- JACS Au拥有一支独立于其他期刊的编辑团队。
- 遵循ACS AuthorChoice政策。





ACS Publications除了拥有丰富的期刊资源外，还有其它类型的学术资源，例如电子图书、科研写作指南、C&EN新闻杂志等



ACS eBooks



ACS In Focus



ACS Guide



C&EN Global Enterprise



<https://pubs.acs.org/series/symposium>

- ACS eBooks 拥有超过 1,600 本专著, 37,000个章节, 正文章节都经过同行评审, 每年大约新增 30 本新书。
- 由化学领域顶尖学者编写的专著, 包括 40 多名诺贝尔奖获得者。
- ACS Symposium Series (1974 - 至今)
- Advances in Chemistry (1949 - 1998)
- Medicinal Chemical Reviews 系列 (2022 - 至今)

ACS药化部门出品的制药行业年鉴

37,000

CHAPTERS

1,600

BOOKS

41

NOBEL LAUREATES

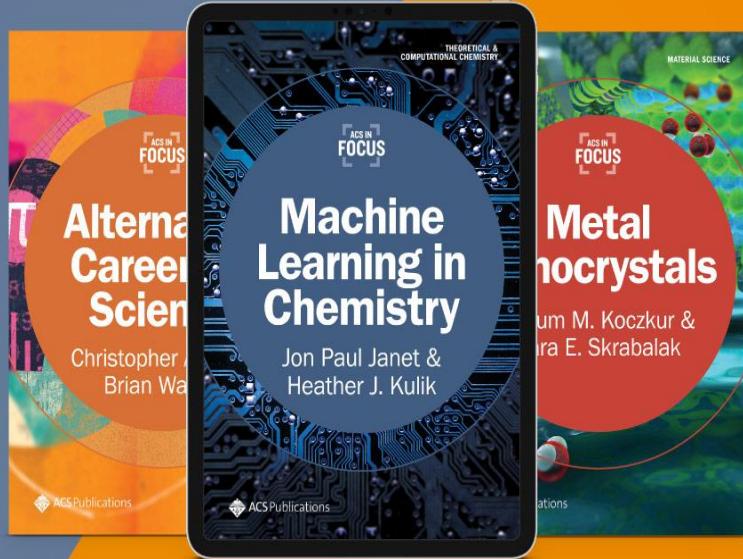


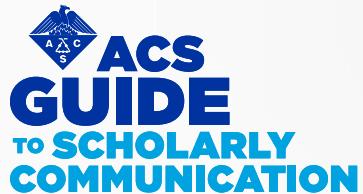
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<https://pubs.acs.org/series/infocus>

- **ACS In Focus** 系列电子书是快速掌握最新课题的首选读物，目前已上线70多本。
- 采用浅显易懂的语言，介绍最前沿的新兴科学话题，篇幅精炼，可在 4 - 6 小时内读完。
- 填补学生从课堂到期刊文献之间的学习资料空缺。
- 丰富的在线阅读功能：弹出式术语表、视频采访、动画等。



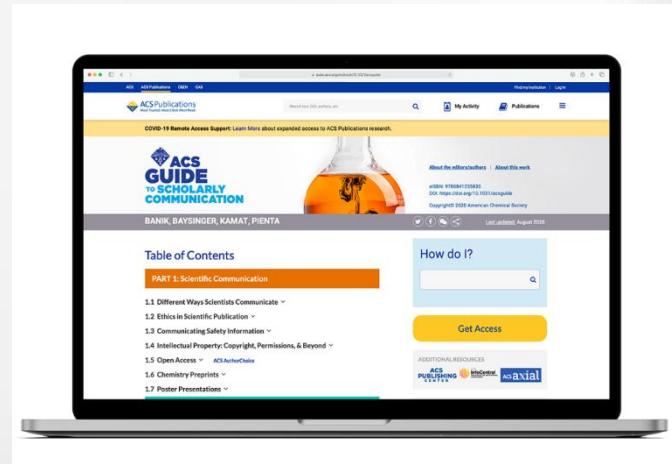


<https://doi.org/10.1021/acsguide>

## ■ ACS Guide to Scholarly Communication

学术交流指南是一本在线参考工具书，旨在为学生、研究人员、教育工作者和图书馆员提供掌握学术交流所需的指导与建议。

- 适用于广泛的学科领域，蕴含生动的多媒体资源和科技论文写作的指导。
- 适用人群：本科生，研究生，教师。





<https://pubs.acs.org/doi/book/10.1021/acsreagents>

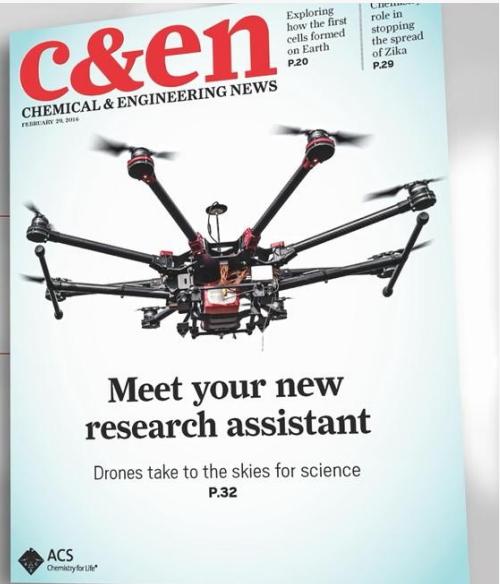
- **ACS Reagent Chemicals** 是一份权威的化学品试剂标准手册。
- 已为500多种常用的化学品提供最高级别的纯度标准。
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- C&EN Global Enterprise 是美国化学会旗下的知名杂志。
- 回溯年份自 2016 年起，每周出版一期。
- 关注化学所有领域的科技前沿动态，工业和商业信息以及政府和企业的新闻和政策等。
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