

# 美国化学会期刊投稿与写作

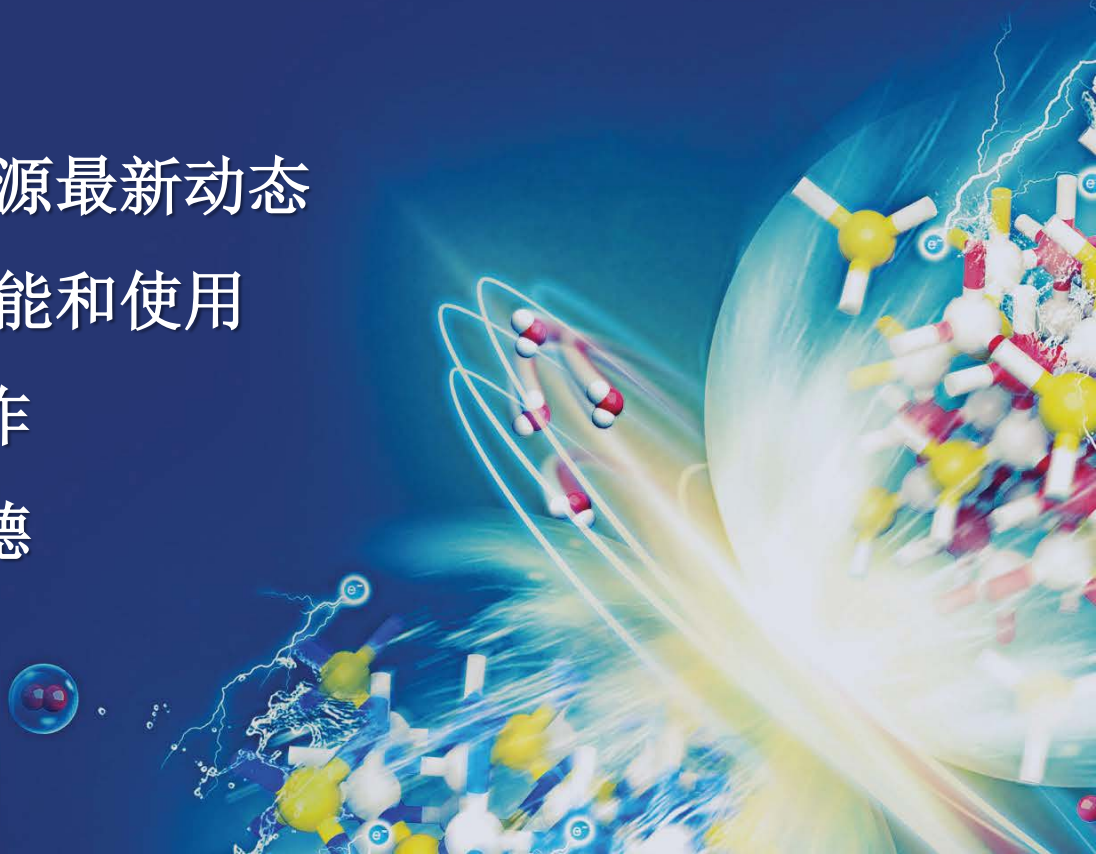
## ACS 助力科研发表

主讲人：赵璟 ACS数据库培训师

2023年11月10日 江南大学



1. ACS 数据库学术资源最新动态
2. ACS 数据库平台功能和使用
3. 期刊投稿与论文写作
4. 同行评审与学术道德



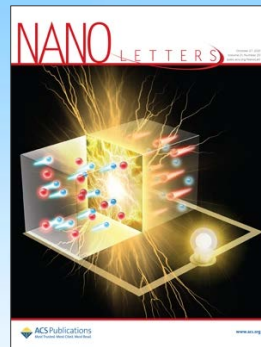
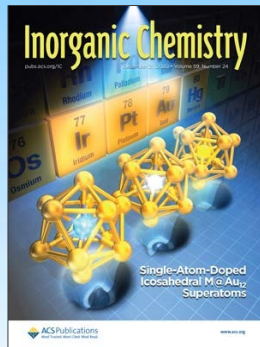
# ACS Is the World's Largest Scientific Society

- **ACS**美国化学会，成立于**1876**年
- **140**多个国家，超过**15**万名会员
- 出版高品质的专业科学期刊
- 促进化学及相关学科的交流与发展



# ACS Publications

## Most Trusted, Most Cited, Most Read



ACS 美国化学学会出版超过 75 种高品质的科学期刊，共 130 多万篇期刊文章，总被引次数超过 440 万，是化学领域里被引用次数最多的期刊。

---- JCR 期刊引证报告

# WE COVER EVERY ASPECT OF CHEMISTRY

普通化学

晶体学

无机化学

有机化学

物理化学

分析化学

高分子科学

材料科学

纳米科学

化学工程

能源与燃料

环境科学

食品科学与技术

农学与林学

理论化学

计算化学

化学信息学

分子生物学

生物化学

生物技术

临床化学

药物化学

药理学和药剂学

毒理学

1870

1875

1879

1880

1885



15.0  
Impact  
Factor

1905

JOURNAL

OF THE

AMERICAN CHEMICAL SOCIETY.

VOLUME I.

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# Chemical Reviews 化学评论

Impact Factor: 62.1 | Citations: 231,674



2022 IMPACT FACTOR

**62.1**

**Chemical Reviews** 是最受推崇同时也是排名最高的期刊之一，涵盖了化学学科所有的研究领域，为有机化学，无机化学，物理化学，分析化学，理论化学和生物化学各领域的重要研究提供全面，权威，关键和可读性强的综述文章。

除了综述文章以外，期刊定期出版权威专题，重点关注新兴研究领域的单一主题或方向。

**期刊收录研究方向：化学，化学综合**

# Organic-Inorganic Chemistry 有机与无机化学

## ■ The Journal of Organic Chemistry

有机化学领域的旗舰型期刊。

## ■ Organic Letters

有机化学快报期刊，也是有机化学领域被引用次数最多的期刊。



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5.2  
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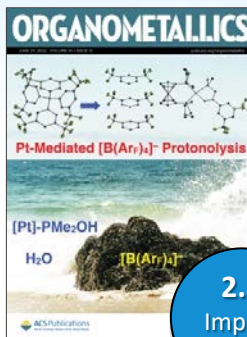
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## ■ Inorganic Chemistry

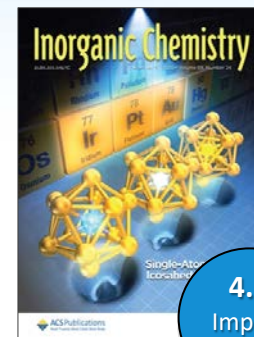
无机化学领域被引用次数最多的期刊。

## ■ Crystal Growth & Design

晶体学领域被引用次数最多的期刊。



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Impact  
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Factor



# Physical Chemistry 物理化学

## ■ The Journal of Physical Chemistry A

## ■ The Journal of Physical Chemistry B

## ■ The Journal of Physical Chemistry C

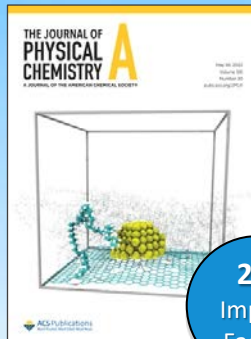
**JPC A:** 分子、离子、自由基、团簇和气溶胶物理化学的实验、理论和计算研究。

**JPC B:** 生物物理、生物化学、生物材料和软物质领域的实验、理论和计算研究。

**JPC C:** 纳米、低维和块状材料物理化学的实验、理论和计算研究;界面的化学转变;以及能量转换和储存。

## ■ The Journal of Physical Chemistry Letters

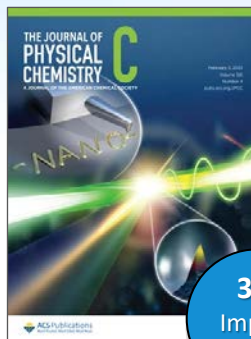
**JPCL:** 物理化学领域的快报类期刊。



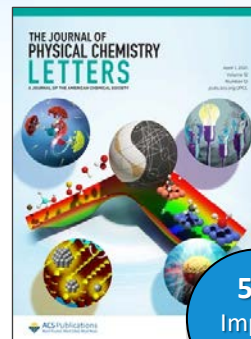
2.9  
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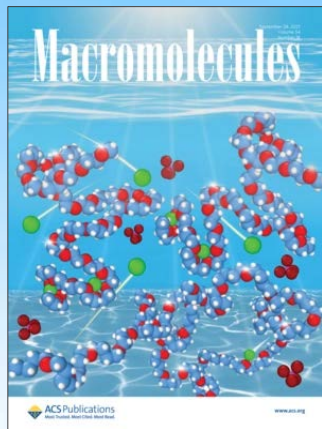


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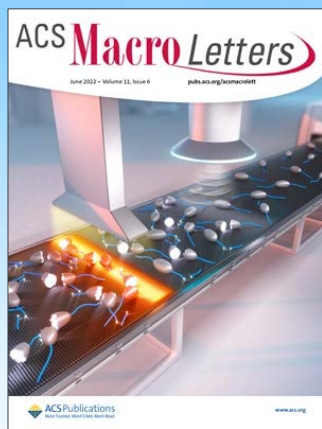
# Polymer Science 高分子科学



*Macromolecules*

IMPACT FACTOR

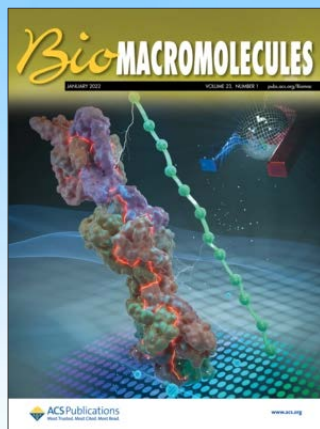
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*ACS Macro Letters*

IMPACT FACTOR

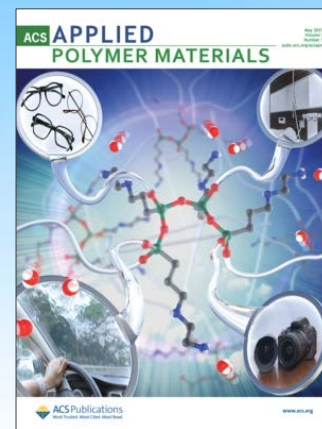
**5.8**



*Biomacromolecules*

IMPACT FACTOR

**6.2**

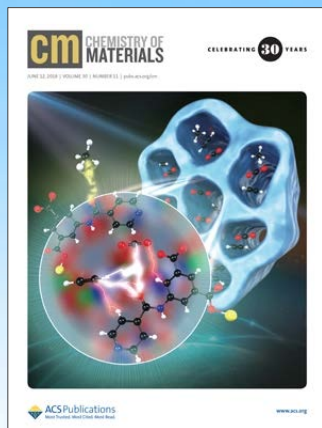


*ACS Applied Polymer Materials*

IMPACT FACTOR

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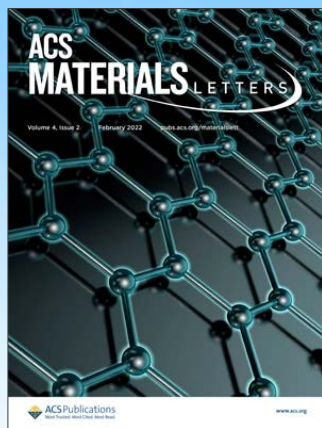
# Materials Science & Engineering 材料科学与工程



*Chemistry of  
Materials*

IMPACT FACTOR

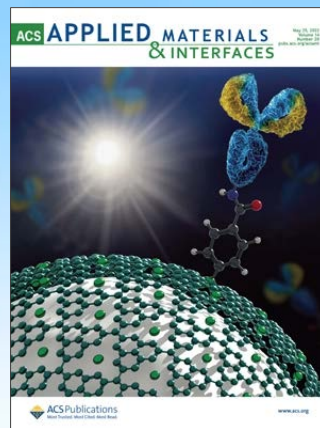
**8.6**



*ACS Materials  
Letters*

IMPACT FACTOR

**11.4**



*ACS Applied  
Materials &  
Interfaces*

IMPACT FACTOR

**9.5**



*ACS Catalysis*

IMPACT FACTOR

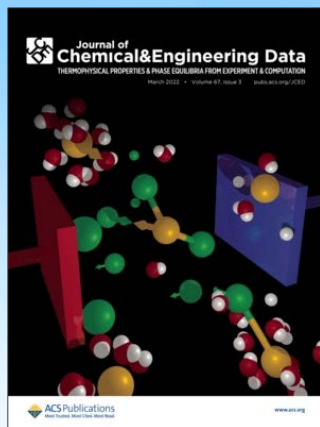
**12.9**

# Energy and Transportation 化工与能源



*Industrial &  
Engineering  
Chemistry Research*

IMPACT FACTOR  
**4.2**



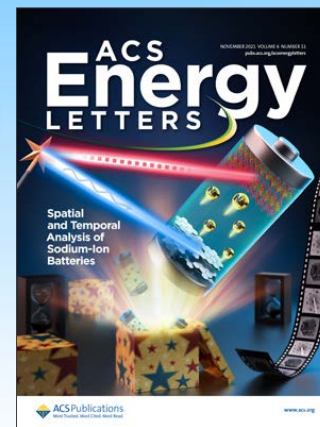
*Journal of Chemical  
& Engineering Data*

IMPACT FACTOR  
**2.6**



*Energy & Fuels*

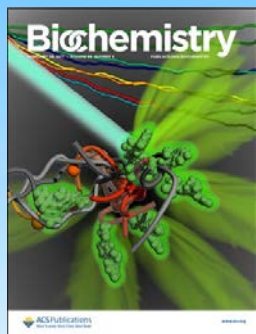
IMPACT FACTOR  
**5.3**



*ACS Energy Letters*

IMPACT FACTOR  
**22.0**

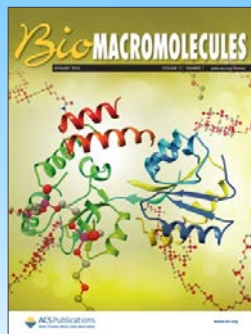
# Biotechnology 生物技术



生物化学



生物共轭化学



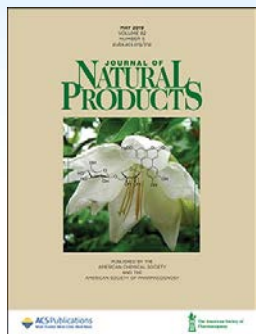
生物大分子



农业&食品科学



生物材料



天然产物研究



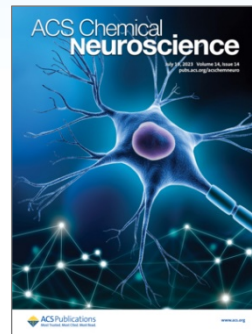
蛋白质组学



合成生物学



化学生物学



化学神经科学

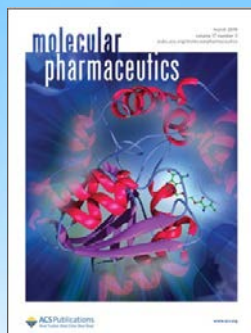
# Pharmaceuticals 药物化学



药物化学领域的  
顶级期刊



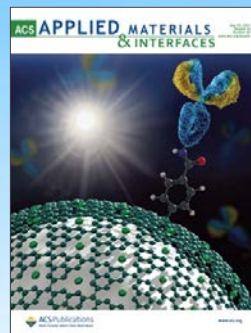
药物化学快报



分子药剂学



药物制剂



界面现象&应用



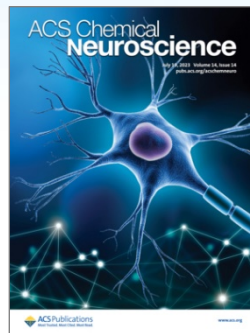
天然产物研究



毒理学



药学与转化科学

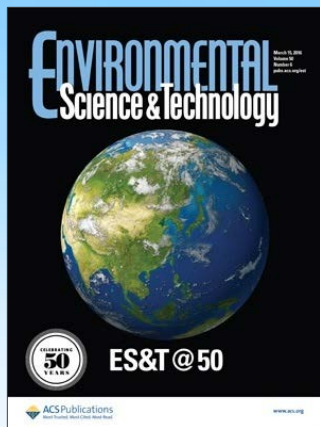


化学神经科学



传染病研究

# Environmental Science 环境科学与技术



*Environmental  
Science &  
Technology*

IMPACT FACTOR  
**11.4**



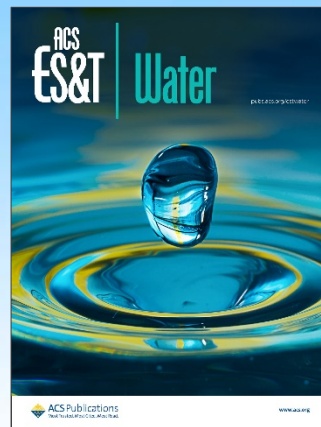
*Environmental  
Science &  
Technology Letters*

IMPACT FACTOR  
**10.9**



*ACS ES&T  
Engineering*

IMPACT FACTOR  
**7.1**



*ACS ES&T  
Water*

IMPACT FACTOR  
**5.3**



*ACS Earth and  
Space Chemistry*

IMPACT FACTOR  
**3.4**

# Education, Healthcare & Safety 化学教育, 健康与安全

## Journal of Chemical Education

化学教育期刊 JCE 创刊于1924年, 是世界上首屈一指的化学教育期刊杂志。

作为化学教育领域和机构的期刊资源, 内容通常涉及了化学课程内容, 化学实验设计, 教学方法和化学教育学。

## ACS Chemical Health & Safety

期刊内容包括化学品安全与风险评估, 安全教育及培训, 安保流程, 实验室及化学品储存布局, 紧急响应和计划, 有害材料, 新生污染物, 法规要求和执行, 人为因素, 法规更新解释, 实验室事故及教训。



### *Journal of Chemical Education*

IMPACT FACTOR

**3.0**



### *ACS Chemical Health & Safety*

IMPACT FACTOR

**3.0**



# ACS 数据库主页 pubs.acs.org

The screenshot shows the ACS Publications website homepage. At the top, there are navigation links for ACS, ACS Publications, C&EN, and CAS, along with a search bar and a 'Log In' button. Below the navigation is a main banner with the text 'Most Trusted. Most Cited. Most Read.' and a 'Get Access' button. To the right of the banner is a section titled 'Latest from the ACS Axial Blog' with three articles. Below the banner is a 'Browse Content' section with seven category tiles: All Subjects, Analytical, Applied, Biological, Materials Science & Engineering, Organic-Inorganic, and Physical. At the bottom of the page are four buttons: 'Publish with ACS', 'New Products & Services', 'ACS Open Science', and 'Explore ACS Solutions'. Two yellow callout boxes are present: one pointing to the 'ACS Axial Blog' section with the text 'ACS Axial Blog 新闻', and another pointing to the 'Physical' category tile with the text '浏览所有 ACS 期刊及其出版物'.

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FOR ORGANIZATIONS FOR AUTHORS EVENTS & CONFERENCES OPEN SCIENCE

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- Materials Science & Engineering
- Organic-Inorganic
- Physical

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Publish with ACS New Products & Services ACS Open Science Explore ACS Solutions

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# 快速检索

The screenshot displays the ACS Publications website interface. At the top, there is a navigation bar with the ACS Publications logo and the tagline "Most Trusted. Most Cited. Most Read." on the left, and a search bar in the center. The search bar contains the placeholder text "Search text, DOI, authors, etc." and a magnifying glass icon. To the right of the search bar are links for "My Activity" and "Publications", along with a menu icon. Below the navigation bar, there are four main categories: "FOR ORGANIZATIONS", "FOR AUTHORS", "EVENTS & CONFERENCES", and "OPEN SCIENCE". The main content area features a large banner with the text "Most Trusted. Most Cited." and a sub-headline "ACS Publications' commitment to publishing high-quality addresses the world's most important challenges." Below this is a yellow "Get Access" button. To the right of the banner is a "NEW & NOTEWORTHY" section with three items: "Discover ACS Publications Events", "Celebrate Earth Week 2022 with Resources from the *Journal of Chemical Education*", and "ACS Publications 2021 Year in Review". Below the banner is a "Browse Content" section with seven color-coded tiles: "All Subjects", "Analytical", "Applied", "Biological", "Materials Science & Engineering", "Organic-Inorganic", and "Physical". The "Biological" tile is selected, and a filter bar below it shows "Biological" with a dropdown arrow and "Filter by Letter: A | B | C | E | I | J | M | O" with a "Remove Filters" button. Below the filter bar, the first few search results are visible: "A", "ACS ES&T Engineering", "ACS Synthetic Biology", and "Journal of Agricultural and Food".

ACS Publications  
Most Trusted. Most Cited. Most Read.

Search text, DOI, authors, etc.

My Activity Publications

FOR ORGANIZATIONS FOR AUTHORS EVENTS & CONFERENCES OPEN SCIENCE

**Most Trusted. Most Cited.**

ACS Publications' commitment to publishing high-quality addresses the world's most important challenges.

Get Access

**Browse Content**

All Subjects Analytical Applied Biological Materials Science & Engineering Organic-Inorganic Physical

Biological Filter by Letter: A | B | C | E | I | J | M | O Remove Filters

A ACS ES&T Engineering ACS Synthetic Biology Journal of Agricultural and Food

检索词, 检索式, DOI检索,  
作者检索, 引文检索

布尔逻辑算符	举例	意义和作用
AND	A AND B AND C 等同于 A B C	同时包含字段 A B C 的数据 用于 <b>查准</b> ，缩小范围，空格默认为“AND”
OR	A OR B OR C 至少含有其中一个字段	至少包含 A B C 其中一个字段的数据 用于 <b>查全</b> ，检索同义词
NOT	A B NOT C 排除某个特定的字段	检索同时包含字段 A 和 B，但不包含 C 用于 <b>排除</b> ，当不需要字段 C 出现
符号	举例	意义和作用
*	cata*	<b>零个或多个字符</b> ：catalysis, catalyzed, ...
?	palla?ium	<b>只代表一个字符</b> ：palladium
“ ”	“A B”	<b>精确检索某个特定词组</b> 如果没有“ ”，相当于 A AND B

# Case Study 检索案例：钯催化偶联反应

**NOBEL PRIZE  
IN CHEMISTRY 2010**  
颁发给三位化学家  
理查德·赫克  
根岸英一  
铃木章

钯催化偶联反应是偶联反应的一个大类，以金属钯化合物作为催化剂，它是均相催化剂的研究和应用的活跃领域。

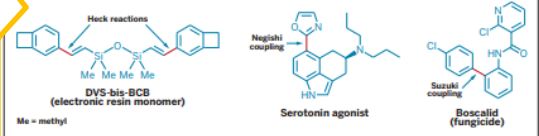
**C&EN**  
**news of the week**  
OCTOBER 11, 2010 EDITED BY WILLIAM G. SCHULZ & LAUREN K. WOLF

**NOBEL PRIZE IN CHEMISTRY**  
AWARDS: Three chemists share prize for palladium-catalyzed cross-couplings

**NOBEL LAUREATES** garner medals minted in gold, but it was work with another noble metal—palladium—that earned three chemists the big prize this year. Richard F. Heck, Ei-ichi Negishi, and Akira Suzuki were jointly awarded the 2010 Nobel Prize in Chemistry “for palladium-catalyzed cross-couplings in organic synthesis.” Along with their medals, the three chemists will also share \$1.5 million.

Palladium-catalyzed cross-coupling reactions, in which the metal is used to catalyze the formation of carbon-carbon bonds, are widely used to make complex molecular structures. They have been employed to make materials, pharmaceuticals, and other biologically active compounds.

**VERSATILITY** Heck, Negishi, and Suzuki couplings have been used to make various fine chemicals.



Me = methyl

“This is a very exciting day for organic chemistry,” comments Stephen L. Buchwald, a chemistry professor at Massachusetts Institute of Technology. “This is a well-deserved award that is long overdue. It is hard to overestimate the importance of these processes in modern-day synthetic chemistry. They are the most used reactions by those in the pharmaceutical

uses Pd to wed an aryl halide with an olefin. “It’s turned out to be something of value to the chemistry community,” Heck says of the reaction that bears his name.


In 1977, Negishi, who is now 75 and the Herbert C. Brown Distinguished Professor of Organic Chemistry at Purdue University, used Pd to catalyze couplings of organoboron reagents with organohalides. Two years later, Suzuki, who is 80 and currently a chemistry professor at Japan’s Hokkaido University, began developing a Pd-catalyzed coupling of organoboron compounds with organohalides.

“The key word here is versatility,” said Negishi, when describing his chemistry to reporters during an early-morning phone call on the day of the announcement. “One of our dreams is to be able to synthesize any organic compound of importance, whether it is a medically important compound or important from the point of view of materials science.”

He likened Pd-catalyzed cross-couplings to the Grignard reaction, a carbon-carbon bond-forming reaction developed by Victor Grignard, the 1912 Nobel Laureate in Chemistry. “The Grignard reaction made possible the synthesis of a wide variety of organic com-

pounds,” Negishi told reporters. “We came up with a totally different method that not only complements but also surpasses in versatility Grignard chemistry.”

“The award recognizes fundamental chemistry at its best,” says American Chemical Society President and Purdue University professor Joseph S. Francisco. “The beauty of this work is that these cross-couplings are



Heck  
Negishi  
Suzuki

Chem. Eng. News 2010, 88, 41, 7

赫克反应

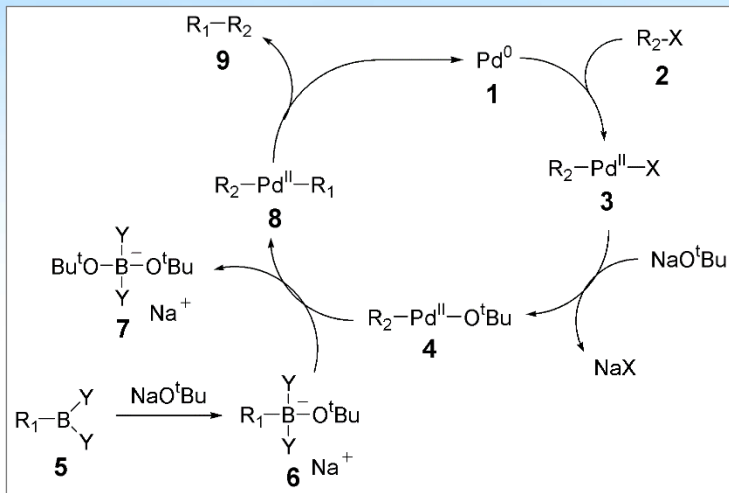
Heck Reaction

根岸英一反应

Negishi Reaction

铃木-宫浦反应

Suzuki-Miyaura Reaction



Suzuki Mechanism

# 钯催化偶联反应（金属催化 - 有机合成 - 药物合成）

## Search: Palladium-Catalyzed Cross-Coupling

Diarylmethanol  
Derivatives  
With  
Diborylmethane  
作为反应底物

Article

### Palladium-Catalyzed Cross-Coupling Reaction of Diarylmethanol Derivatives with Diborylmethane

Kento Asai, Masahiro Miura, and Koji Hirano\*

*The Journal of Organic Chemistry* 2022, 87, 11, 7436-7445 (Article)

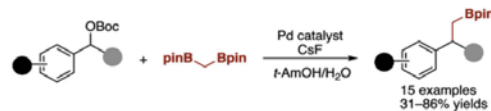
Publication Date (Web): May 24, 2022

DOI: 10.1021/acs.joc.2c00715

Abstract

Full text

PDF



JOC  
The Journal of Organic Chemistry

Article

### Palladium-Catalyzed Cross-Coupling of *N*-Sulfonylaziridines with Boronic Acids

Megan L. Duda and Forrest E. Michael\*

*Journal of the American Chemical Society* 2013, 135, 49, 18347-18349 (Communication)

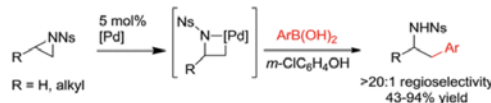
Publication Date (Web): November 25, 2013

DOI: 10.1021/ja410686v

Abstract

Full text

PDF



JACS  
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY

主要发表在  
JACS, JOC, OL,  
Chemical Review

Benzyl  
Thioacetates  
and Aryl Halides  
作为反应底物

Article

### Palladium-Catalyzed Cross-Coupling of Benzyl Thioacetates and Aryl Halides

Krista M. Wager and Matthew H. Daniels

*Organic Letters* 2011, 13, 15, 4052-4055 (Letter)

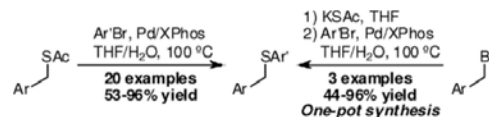
Publication Date (Web): July 5, 2011

DOI: 10.1021/ol201564j

Abstract

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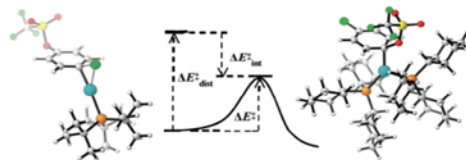
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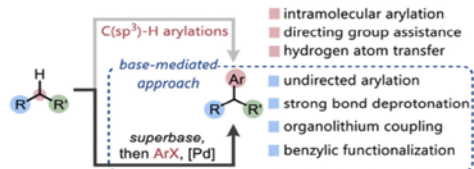
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ABSTRACT

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

Patrick Pfaff, Kusal T. G. Samarasinghe, Craig M. Crews\*, and Erick M. Carreira\*

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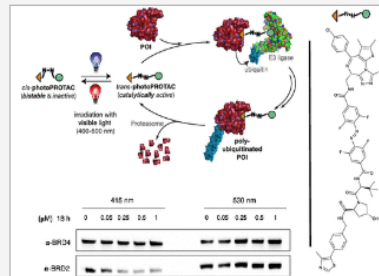
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Abstract  
摘要

Off-tissue effects are persistent issues of modern inhibition-based therapies. By merging the strategies of photopharmacology and small-molecule degraders, we introduce a novel concept for persistent spatiotemporal control of induced protein degradation that potentially prevents off-tissue toxicity. Building on the successful principle of bifunctional all-small-molecule Proteolysis Targeting Chimeras (PROTACs), we designed photoswitchable PROTACs (**photoPROTACs**) by including *ortho*-F<sub>4</sub>-azobenzene linkers between both warhead ligands. This highly bistable yet photoswitchable structural component leads to reversible control over the topological distance between both ligands. The *azo-cis*-isomer is observed to be inactive because the distance defined by the linker is prohibitively short to permit complex formation between the protein binding partners. By contrast, the *azo-trans*-isomer is active since it can engage both protein partners to form the necessary and productive ternary complex. Importantly, due to the bistable nature of the *ortho*-F<sub>4</sub>-azobenzene moiety employed, the photostationary state of the **photoPROTAC** is persistent, with no need for continuous irradiation. This technique offers reversible on/off switching of protein degradation that is compatible with an intracellular environment and, therefore, could be useful in experimental exploration of biological signaling pathways—such as those crucial for oncogenic signal transduction. Additionally, this strategy may be suitable for therapeutic intervention to address a variety of diseases. By enabling reversible activation and deactivation of



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Materials & Methods

材料和方法

Results

结果

Discussion

讨论

Conclusion

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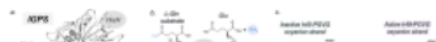
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## Introduction

Proteins reshape their function in response to environmental changes through allosteric process in which two distinct sites within a protein or protein complex are functionally regulated enzymes. effector binding at a distal site alters the thermodynamic and/or kinetic reaction at the active site. (3) The transfer of chemical information between the two sites is mediated by structural (4) and/or dynamical (5) changes that generally make accessible conformation characteristic of the enzyme active state. (6,7) To attain such a catalytic binding finely tunes the enzyme dynamic conformational ensemble by reshaping the relative conformational states and/or the time scales of structural fluctuations and conformational bidirectional communication between distal sites occurs at the ternary complex, i.e., when substrate are bound at their respective sites, and propagates through dynamic network interactions. (9-10) Capturing the time evolution of the allosteric activation of enzymes at ternary complex involves deciphering the interplay of fast and slow conformational dynamics substrate binding. (11) The transient nature of both the ternary complex and the allosteric undergoing turnover hampers the structural and dynamic characterization of allosteric identification of functionally relevant states. (12-17) It is therefore not surprising that this remains hidden for several enzymes.

Allosteric regulation operating in the model enzyme imidazole glycerol phosphate synthase (IGPS) from *Thermotoga maritima* has been investigated from structural and dynamical perspectives. (18-30) IGPS is a heterodimeric enzyme belonging to class I glutamine amidotransferases (GATase) that encompasses the catalytic interplay between HisH and HisF subunits (Figure 1). HisH catalyzes glutamine hydrolysis producing glutamate and ammonia. The HisF cyclase monomer couples the ammonia produced by HisH, which migrates through an internal tunnel, with N-[(5-phosphoribulose)formimino]-5-aminoimidazole-4-carboxamide ribonucleotide (PRFAR). The latter also acts as the allosteric effector for the reaction occurring in HisH. The binding of PRFAR, ca. 30 Å far away from the HisH active site, enhances 4500-fold the basal glutaminase activity of IGPS, while the substrate affinity is only moderately altered. (30)

## Figure 1



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### Supporting Information

The Supporting Information is available free of charge at <https://pubs.acs.org/doi/10.1021/jacs.1c12629>.

Detailed description of computational methods, supplements, and movies (PDF)

Movie S1: conventional molecular dynamics simulations: tryoxanion hole formation in substrate-free PRFAR-IGPS (MP4)

Movie S2: accelerated molecular dynamics simulations: sp-Gln substrate binding in the HisH active site (MP4)

Movie S3: accelerated molecular dynamics simulations: sp-Gln substrate binding in IGPS (global view) (MP4)

Movie S4: accelerated molecular dynamics simulations: allosteric activation of IGPS in the ternary complex (MP4)

### Time Evolution of the Millisecond Allosteric Activation of Imidazole Glycerol Phosphate Synthase

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

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

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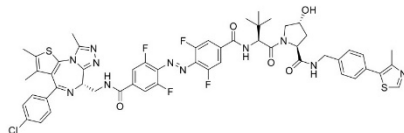
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活化化合物  
命名, 编号  
结构式  
合成步骤

活化化合物  
表征分析  
Rf, NMR, IR,  
ESI-HRMS

(2S,4R)-1-((S)-2-(4-((E)-4-(((S)-4-(4-chlorophenyl)-2,3,3-trimethyl-6H-thieno[3,2-f][1,2,4]triazolo[4,3-a][1,4]diazepin-6-yl)methyl)carbamoyl)-2,6-difluorophenyl)diazenyl)-3,5-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 **S4** (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. NaHCO<sub>3</sub> and the aq. phase was extracted three times with 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% EtOAc/4% iPrOH/2% H<sub>2</sub>O) to afford photoPROTAC-1 as an orange oil (16.0 mg, 14.0  $\mu$ mol, 51%).

Rf = 0.36 (85% EtOAc/10% iPrOH/5% H<sub>2</sub>O).

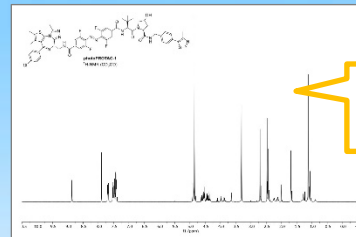
<sup>1</sup>H NMR (500 MHz, CD<sub>3</sub>OD)  $\delta$  = 8.87 (s, 1H), 7.70 (dd, J = 5.1, 1.6 Hz, 2H), 7.67 (dd, J = 5.1, 1.6 Hz, 2H), 7.52 (d, J = 8.5 Hz, 2H), 7.48 (d, J = 8.5 Hz, 2H), 7.44 – 7.40 (m, 4H), 4.91 (s, 1H), 4.65 – 4.50 (m, 4H), 3.87 (dd, J = 13.6, 7.0 Hz, 2H), 4.35 (d, J = 15.4 Hz, 1H), 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, CD<sub>3</sub>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, 133.3, 132.0, 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.

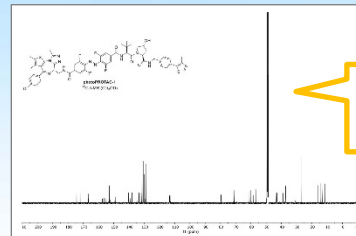
<sup>19</sup>F NMR (471 MHz, CD<sub>3</sub>OD)  $\delta$  = -121.4, -121.5.

IR: 3322, 2925, 28855, 1665, 1533, 1427, 1343, 1243, 1090, 1047, 967, 843.

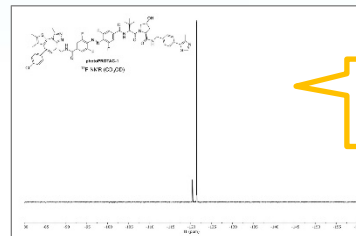
ESI-HRMS: calcd. for C<sub>36</sub>H<sub>35</sub>ClF<sub>6</sub>N<sub>11</sub>O<sub>5</sub>S<sub>2</sub> [M+H]<sup>+</sup> 1108.3135, found 1108.3144.



<sup>1</sup>H-NMR



<sup>13</sup>C-NMR



<sup>19</sup>F-NMR

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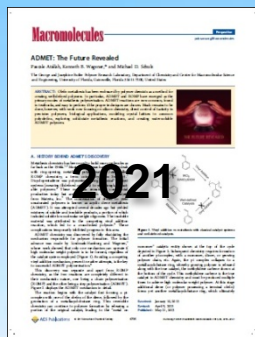
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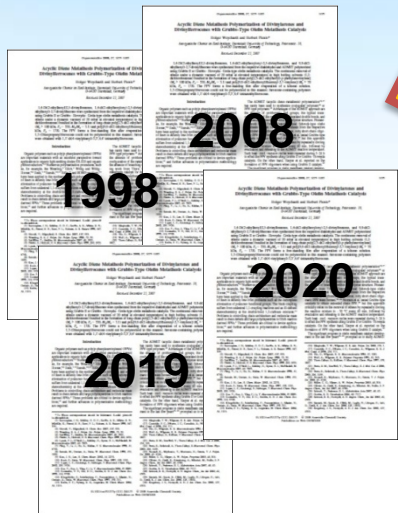


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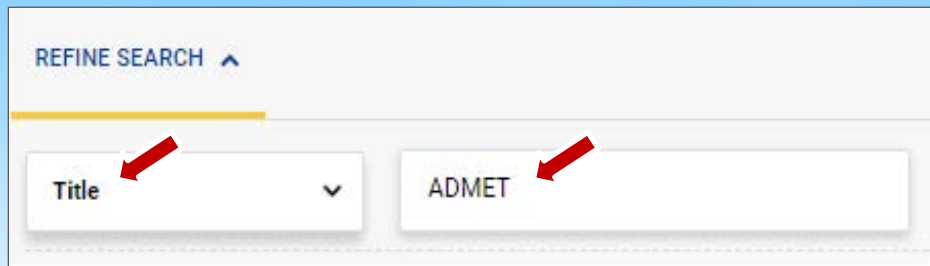
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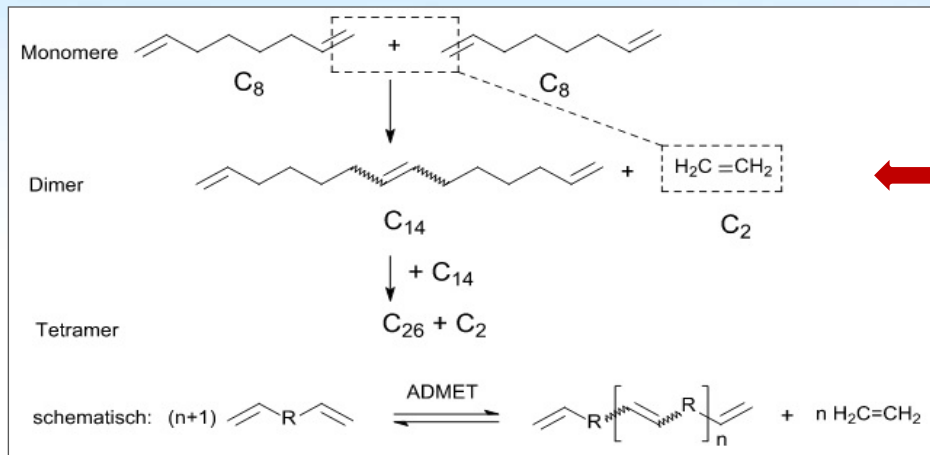
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### ADMET: The Future Revealed

Faruq A. Adiloh, Kenneth E. Wagene,\* and Michael D. Schick

The George and Cynthia Baker Science Research Laboratory, Department of Chemistry and Center for Macromolecular Science and Engineering, University of Florida, Gainesville, Florida 32611-7210, United States

**ABSTRACT:** Cyclic metathesis has been introduced by polymer chemists as a method for creating well-defined polymers. In particular, ADMET and ROMP have emerged as the primary routes to suitable polystyrenes. ADMET reactions are now commonly found in textbooks, and easy to perform if the proper techniques are chosen. Much remains to be done, however, with such new living/active chain ends, direct control of tacticity in polymer polymers, biological applications, modifying crystal lattices for common polystyrene, exploring suitable metathesis reactions, and creating noncyclic ADMET polymers.




#### A. HISTORY BEHIND ADMET'S DISCOVERY

Metathesis chemistry has long been used to build macromolecules as far back as the 1940s.<sup>1,2</sup> Most of the times that this deals with ring-opening metathesis polymerization (also called ROMP chemistry, a term coined by Tim Saegusa).<sup>3</sup> Direct metathesis was first proposed using classical metathesis systems (osmium tetroxide) to yield long, linear, isotactic polymers.<sup>4</sup> These materials were in commercial production but had very poor molecular weight distributions. The combination of olefins to yield unsaturated polymers is known as cyclic olefin metathesis (COMET). It was attempted several decades ago but yielded mixtures of soluble and insoluble products, a portion of which included soluble low molecular weight oligomers. The insoluble material was attributed to the competing ring addition reaction, which led to a crosslinked polymer.<sup>5</sup> These complications impeded further progress in this area.

ADMET chemistry was discovered by fully elucidating the mechanism responsible for polymer formation. The initial advance was made by Livshits, Hwang, and Wagene,<sup>6</sup> who first showed that only one mechanism can operate if high molecular weight polymers to be formed regardless of the catalyst system employed (Figure 1). Avoiding a competing ring addition mechanism proved to be an alternative, a key to successful ADMET polymerizations.<sup>7</sup>

This discovery was separate and apart from ROMP chemistry, as the two reactions are completely different in their mechanistic nature, one being a chain polymerization (ROMP) and the other being a step polymerization (ADMET). Figure 2 displays the ADMET mechanism in detail.

The reaction begins with the catalyst first forming a pi-complex with the olefin of the diene, followed by the generation of a metallacyclobutane ring. This metallacyclobutane ring can continue to polymer formation by releasing a portion of the original catalyst, leading to the "closed" or



**Figure 1.** Vinyl addition to metathesis with classical catalyst systems and ring addition reaction.

monomer" catalyst only closes at the top of the cycle depicted in Figure 2. Subsequent elementary ring-opening formation of another pi-complex, with a necessary, slow, ring-opening polymer chain exit. Again, the pi-complex collapses to a metallacyclobutane ring, whereby growing polymer is released along with the free catalyst, the metallacyclobutane closes at the bottom of the cycle. The metallacyclobutane is the true catalyst in ADMET chemistry and used for potential multiple times to achieve high molecular weight polymers. At this stage additional diene (or polymer possessing a terminal olefin) forms yet another metallacyclobutane ring, which ultimately

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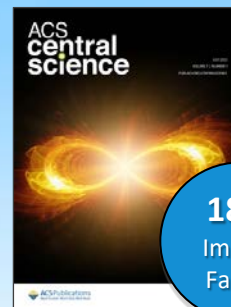
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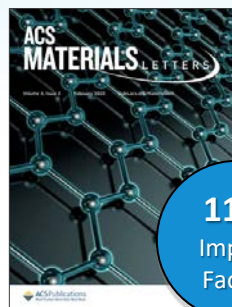
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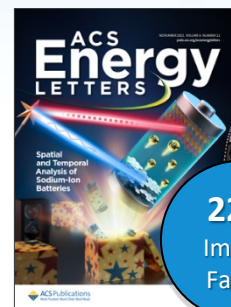
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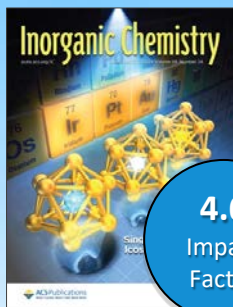
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要求该研究在科学上是有效的，但不过于要求研究工作的重要性或新颖性。



4.6

Impact  
Factor

无机化学



5.2

Impact  
Factor

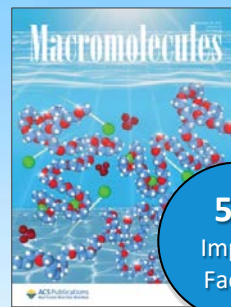
有机化学



7.4

Impact  
Factor

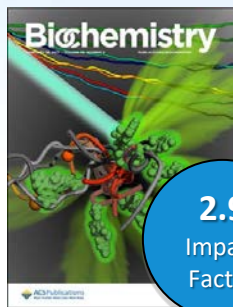
分析化学



5.5

Impact  
Factor

高分子科学



2.9

Impact  
Factor

生物化学



5.1

Impact  
Factor

天然物研究



6.1

Impact  
Factor

农业与食品科学



3.4

Impact  
Factor

地球化学

# 投稿的几个注意点

- 期刊基本信息：是否被 **SCIE** 收录，**JCR** 分区，中科院分区
- 期刊 **Author Guideline** 和 **Journal Scope**：自己的研究是否符合其范围
- 投稿到出版的时间：应对日益快速的科学交流
- 订阅期刊资讯，经常会看到征稿新闻


# 从投稿到出版的时间


- **Article / Research Article:** 9 - 10 周
- **Letter / Communication:** 4 - 5 周
- **Review:** 作者提交建议书, 编辑部邀稿
- **投稿到初审决定平均时间:** 通常在 3 - 10 天

## Peer Review Metrics




# ACS Publishing Center 投稿平台

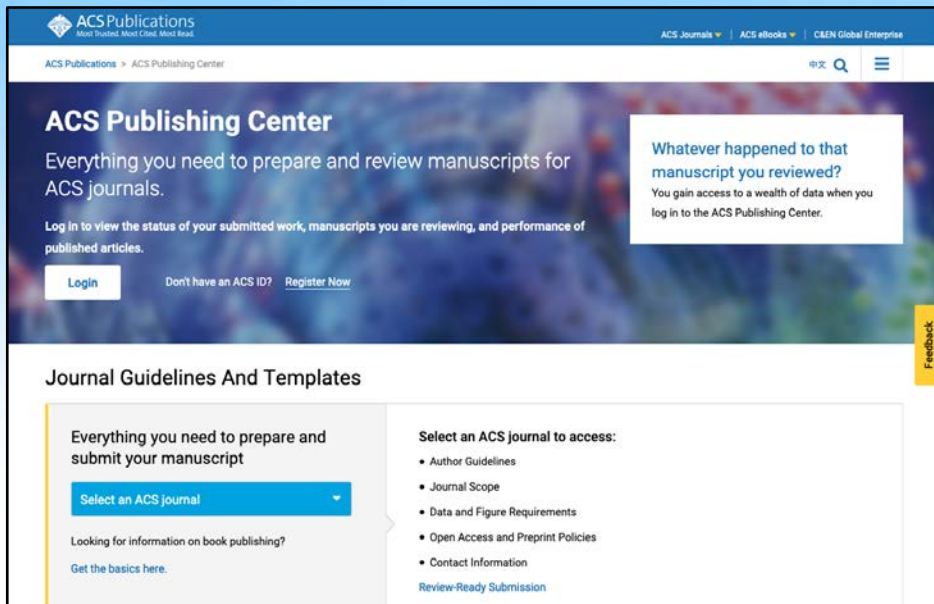
 准备和上传稿件

 作者投稿指南

 了解同行评议

 了解出版政策

[\*\*\*publish.acs.org/publish\*\*\*](https://publish.acs.org/publish)



The screenshot shows the ACS Publishing Center website. At the top, there is a navigation bar with the ACS Publications logo and the tagline "Most Trusted. Most Cited. Most Read." on the left, and links for "ACS Journals", "ACS eBooks", and "C&EN Global Enterprise" on the right. Below the navigation bar, the main heading reads "ACS Publishing Center" followed by the text "Everything you need to prepare and review manuscripts for ACS journals." A call to action says "Log in to view the status of your submitted work, manuscripts you are reviewing, and performance of published articles." with a "Login" button and links for "Don't have an ACS ID?" and "Register Now". A white box on the right contains the text: "Whatever happened to that manuscript you reviewed? You gain access to a wealth of data when you log in to the ACS Publishing Center." Below this, there is a section titled "Journal Guidelines And Templates" with a dropdown menu "Select an ACS journal" and a list of links: "Author Guidelines", "Journal Scope", "Data and Figure Requirements", "Open Access and Preprint Policies", "Contact Information", and "Review-Ready Submission". A "Feedback" button is visible on the right edge of the page.

# ACS Publishing Center 投稿平台

[publish.acs.org/publish](https://publish.acs.org/publish)

## ACS Publishing Center

Everything you need to prepare and review manuscripts for ACS journals.

Log in to view the status of your submitted work, manuscripts you are reviewing, and performance of published articles.

Login

Don't have an ACS ID? [Register Now](#)

Whatever happened to that manuscript you reviewed?

You gain access to a wealth of data when you log in to the ACS Publishing Center.

**步骤 1**  
注册 ACS ID

## Journal Guidelines And Templates

Everything you need to prepare and submit your manuscript

Journal of Agricultural and Food Chemistry

Looking for information on book publishing?

Get the basics here.

**步骤 2**  
选择 ACS 期刊  
进行投稿

## JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

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More about *Journal of Agricultural and Food Chemistry*

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**步骤 3**  
作者投稿指南

**步骤 4**  
上传稿件

# ACS Publishing Center 投稿平台

Welcome to the ACS Publishing Center!

## 1 Major Revision

# The Sustainable Production of Quantum Colloidal Nanocrystals: Advanced Optical

Major Revision Overdue **April 07, 2023**. [Submit Revision](#)

Updated as of March 16, 2023, at 9:00 PM EST (1:00 AM GMT). Please allow up to 24 hours for new activity to be reflected. Submissions remain on this list until 60 days after final decision.

作者目前需要处理的稿件

## Your Articles And Manuscripts

Updated as of March 16, 2023, at 9:00 PM EST (1:00 AM GMT). Please allow up to 24 hours for new activity to be reflected. Submissions remain on this list until 60 days after final decision.

发表 Submissions  
评审 Reviews  
出版 Published  
跟进 Following

### Submissions (3) [See More](#)

#### Major Revision

The Sustainable Production of Quantum Colloidal Nanocrystals: Advanced Optical

#### In Peer Review

Minimizing the Resource and Environmental Impacts for

### Reviews (1) [See More](#)

#### Rejected

www.wiley.com/journal/ange and should be in

### Published (10) [See More](#)

#### Most Recent

Sustainable Recycling of Electronic Materials in Quantum Colloidal Nanocrystals

+149 downloads

How to Utilize Voluntary Action to Reduce the Hydrogen and De...

+24 downloads

### Following

You're not following/tracking any articles...yet!

The ACS Publishing Center lets you identify and follow activity for articles of interest.

[Follow specific ACS Journal Articles](#)

# 期刊科技论文的基本结构

## 前段

标题

摘要

关键字

## 中段

正文

I 引言  
M 方法  
R 结果  
D 讨论

## 后段

C 结论

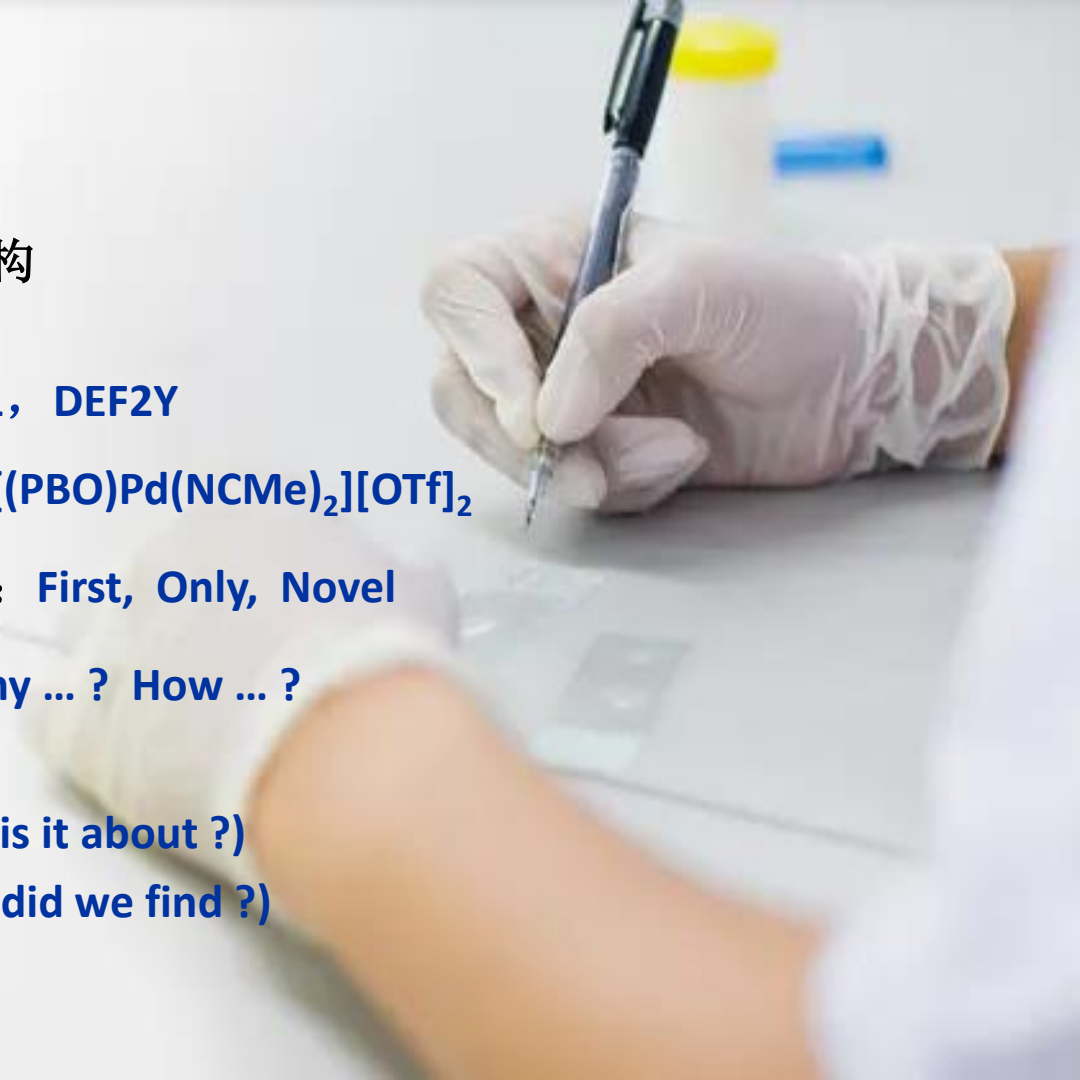
SI 资料

致谢

参考文献

# Title 标题

- ◆ 形式 通常是名词性的短语结构
- ◆ 避免 复杂难懂的缩写: **B97-1, DEF2Y**  
复杂的命名或分子式: **[(PBO)Pd(NCMe)<sub>2</sub>][OTf]<sub>2</sub>**  
难以证实或主观的词语: **First, Only, Novel**  
把标题写成设问句: **Why ... ? How ... ?**
- ◆ 表达 研究的核心内容 (**What is it about ?**)  
研究的关键结果 (**What did we find ?**)





# Abstract 摘要

**Purpose**  
目的

**Problem Statement**  
问题陈述

**Methodology**  
方法论

**Major Findings**  
主要发现

**Conclusion**  
结论

## Anatomy of an Abstract

### Purpose & Problem Statement

(keep the big-picture in mind)

### Methodology & Major Findings

(highlight key discoveries)

### Conclusion

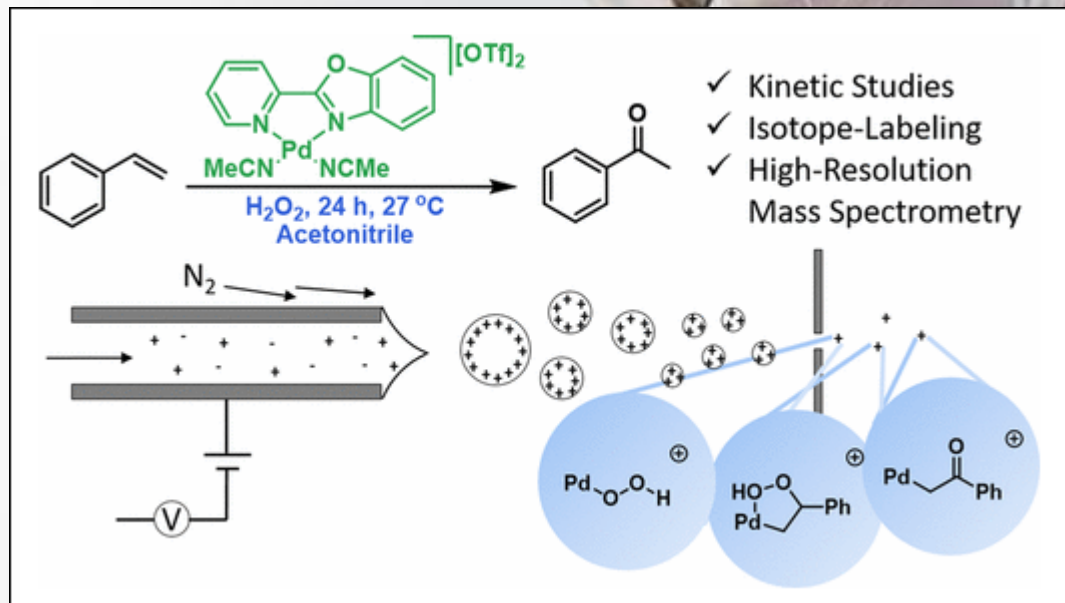
(summarize the significance)

Engineered 3D DNA crystals are promising scaffolds for bottom-up construction of three-dimensional, macroscopic devices from the molecular level. Nevertheless, this has been hindered by the highly constrained conditions for DNA crystals to be stable. Here we report a method to prepare robust 3D DNA crystals by postassembly ligation to remove this constraint. Specifically, sticky ends at crystal contacts were enzymatically ligated, and the covalent bonds significantly enhanced crystal stability, e.g., being stable at 65 °C. This method also enabled the fabrication of DNA crystals with complex architectures including crystal shell, core-shell, and matryoshka dolls. Furthermore, we have demonstrated the applications of the robust DNA crystals in biocatalysis and protein entrapment. Our study removes one key obstacle for the applications of DNA crystals and offers many new opportunities in DNA nanotechnology.

# Graphics 图片

思考：设计哪些图片，讲述你的科研故事。

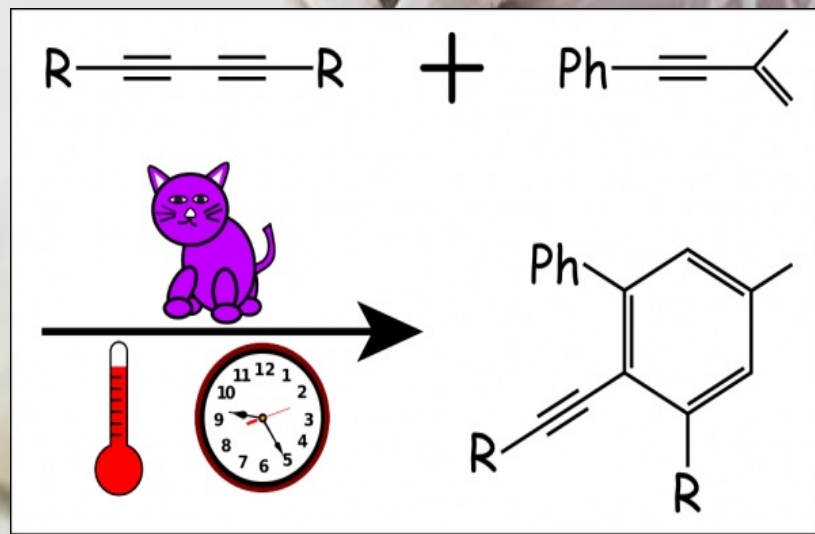
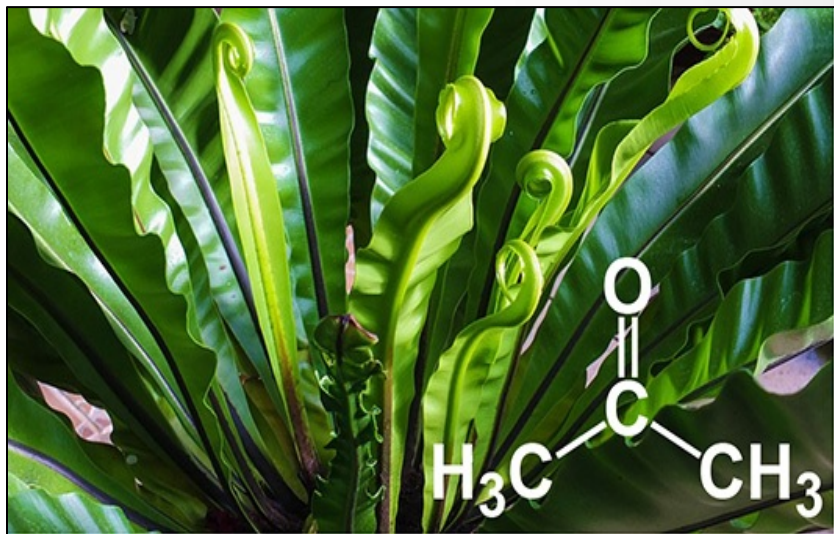
- Be clear
- Be precise
- Informative
- Support your text
- Use color
- Original
- Unpublished



*J. Am. Chem. Soc.*, 2017, 139 (36), pp 12495–12503

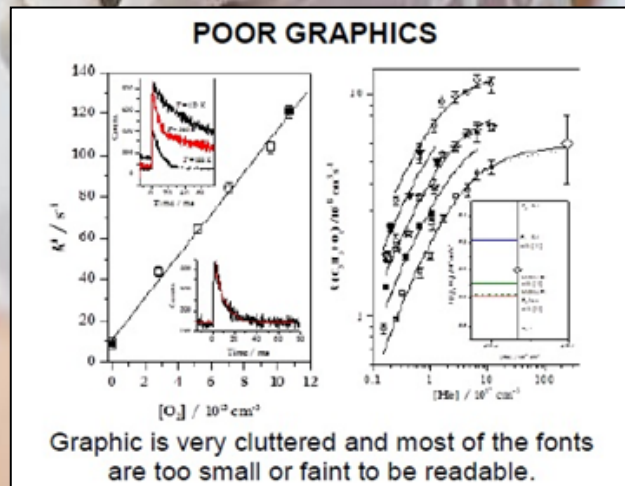
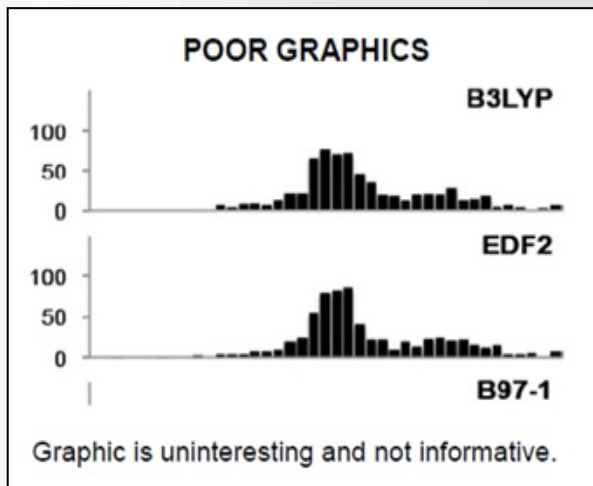
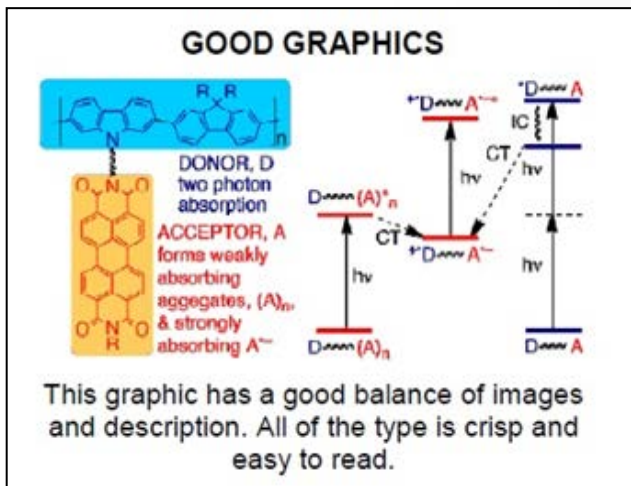
# Graphics 图片

思考：它们是合格的图片吗？



# Graphics 图片

思考：这些图片有什么区别？



# Graphics 图片

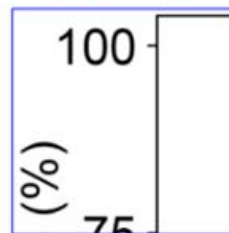
## Minimum Resolution 最低分辨率

- Black and white line art, 1200 dpi
- Grayscale art, 600 dpi
- Color art, 300 dpi

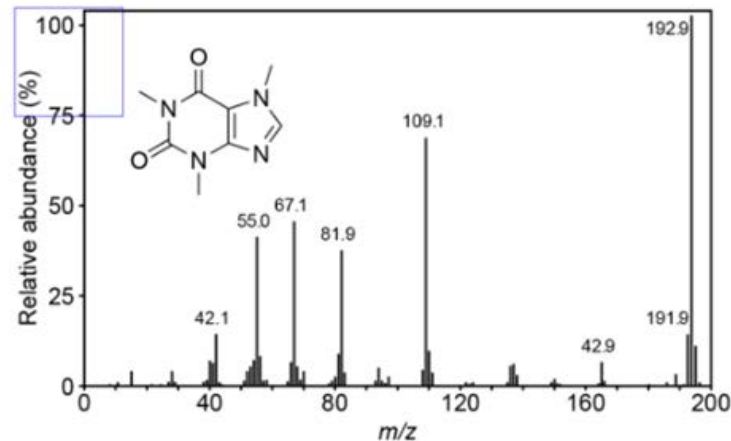
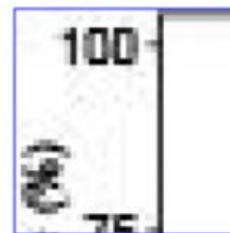
## Size 尺寸

- Single-column graphics: 240 points wide
- Double-column graphics: 300 - 504 points
- The maximum depth: 660 points
- Caption: 12 pts
- Fonts: Helvetica or Arial

High Resolution



Unacceptable Resolution



# Language and Text 语言

科技论文写作的目的:

1. 简化, 准确
2. 避免个人感情色彩
3. 语句使用的准确性是高效写作的目标

哪些常见的英文写作误区大家需要避免呢?



## Language and Text 语言

避免使用不恰当的词语

避免使用缩略词:

✗ **wasn't**

✓ **was not**

✗ **in the lab**

✓ **in the laboratory**



## Language and Text 语言

避免使用不恰当的词语

避免使用 **it is, there are, this is** 这类句式结构:

- ✗ **It is a procedure that is often used.**
- ✓ **This procedure is often used.**
- ✗ **There are seven steps that must be completed.**
- ✓ **Seven steps must be completed.**



## Language and Text 语言

### 使用性别中立语言

~~Policeman~~ Police officer

~~Chairman~~ Chair

~~Man-made~~ synthetic, artificial, etc.

~~Stewardess~~ Flight attendant

~~The corresponding author should  
place an asterisk after his name.~~

The name of the corresponding author  
should be followed by an asterisk.

# Language and Text 语言

## Mechanism of Catalytic Oxidation of Styrenes with Hydrogen Peroxide in the Presence of Cationic Palladium(II) Complexes

### ABSTRACT :

Kinetic studies, isotope labeling, and in situ high-resolution mass spectrometry are used to elucidate the mechanism for the catalytic oxidation of styrenes using aqueous hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) and the cationic palladium(II) compound,  $[(\text{PBO})\text{Pd}(\text{NCMe})_2][\text{OTf}]_2$  (PBO = 2-(pyridin-2-yl)benzoxazole).

Previous studies have shown that this reaction yields acetophenones with high selectivity. We find that  $\text{H}_2\text{O}_2$  binds to Pd(II) followed by styrene binding to generate a Pd-alkylperoxide that liberates acetophenone by at least two competitive processes, one of which involves a palladium enolate intermediate that has not been previously observed in olefin oxidation reactions. We suggest that acetophenone is formed from the palladium enolate intermediate by protonation from  $\text{H}_2\text{O}_2$ . We replaced hydrogen peroxide with t-butyl hydroperoxide and found that, although the palladium enolate intermediate was observed, it was not on the major product-generating pathway, indicating that the form of the oxidant plays a key role in the reaction mechanism.

专业词汇

化合物命名

分子式

# Language and Text 语言

## Mechanism of Catalytic Oxidation of Styrenes with Hydrogen Peroxide in the Presence of Cationic Palladium(II) Complexes

### ABSTRACT :

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时态的表达

现在时

过去时

现在完成时





ACS Publications

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# ACS Publications

## 同行评审与学术道德



# Publishing Process



开展科研实践



论文写作



期刊投稿



同行审稿人  
进行评审



副编辑审稿



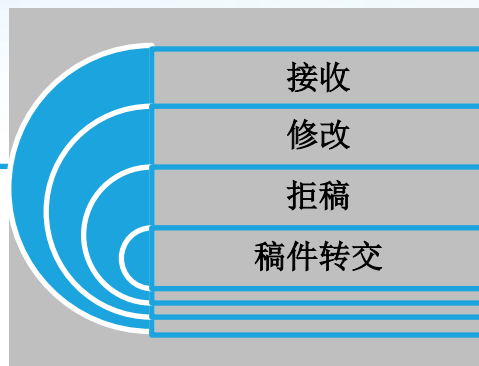
主编初审



稿件检测



审稿人意见  
编辑决定



编辑校正  
数字出版

## Editorial Review (Pre-Screening) 编辑初审

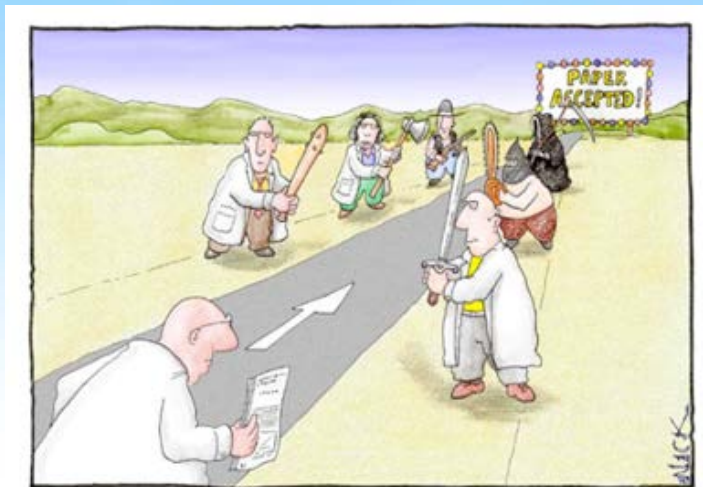
- Scope 符合范围
- Scientific merit 科学价值
- Significance 意义和重要性

### 初审之后，快速做出决定：

- Peer Review Process 外审
- Immediately Reject 拒稿

### 初审的作用：

- 避免稿件堆积
- 做出快速回复



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

## **External Review** 外审 / 同行评审

### **Appropriate Scope** 符合范围

The work should resonate with the journal's target audience, which improves its chances for reaching its intended readers.

### **Novelty/Urgency** 新颖原创

The manuscript should be original and provide insight into a challenging problem or fundamental issue, advancing the discipline in a timely way. Avoid reporting just an incremental improvement with a slightly different set of conditions.

### **Technical Validity** 技术要求

The research should be well designed, and the experiments, data collection and interpretation should be completed at a high level.

### **High Quality** 稿件质量

The manuscript should be clear, concise, and formatted correctly. If the writing is confusing and contains grammatical errors, reviewers may be unable to judge the scientific quality.

# 审稿人的视角

Please rank the manuscript according to the criteria below, as compared to all papers published in the field, not just those published in TJAC

		Not suitable for TJAC		Suitable for TJAC	
		Low	Moderate	High	Top 5%
Significance	重要性	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Novelty	新颖性	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presentation	写作质量	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broad Interest	读者兴趣	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 出版建议

### \* Recommendation

- Publish as it; no revisions needed
- Publish after minor revisions
- Consider after major revisions
- Do not publish

接收 **Accept**

小修 **Minor revisions**

大修 **Major revisions**

拒稿 **Reject**

给编辑的保密意见 (可选)

Comments to the Editor (optional)

\*Please respond to the following:

	Yes	No	In Part
Are the conclusions adequately supported by the data?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are the literature references current and appropriate?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are the figures clear and professional?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are all data in the SI relevant and presented clearly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

给作者添加评审意见

\*Comments to the Author

Type or paste your review directly into the text box or type "Review attached" (and attach the file below), as appropriate.



## 回复评审意见

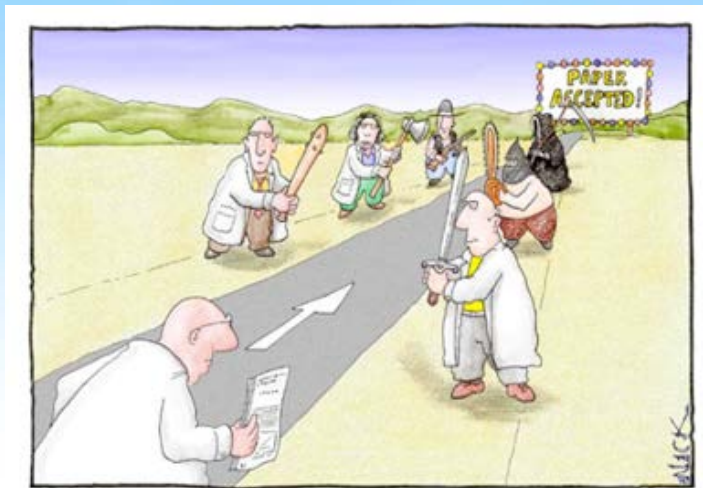
1. 仔细阅读审稿人的评语和编辑决定
2. 及时回复，注意时间期限，回复你的改动是什么
3. 如果有不同意见，请用科学的语言进行回复
4. 特殊情况：申诉

## 编辑的审稿工作

- 仔细阅读稿件
- 分析评审报告
- 确认补充数据或实验
- 给作者做出一个最终的决定

## 编辑决定

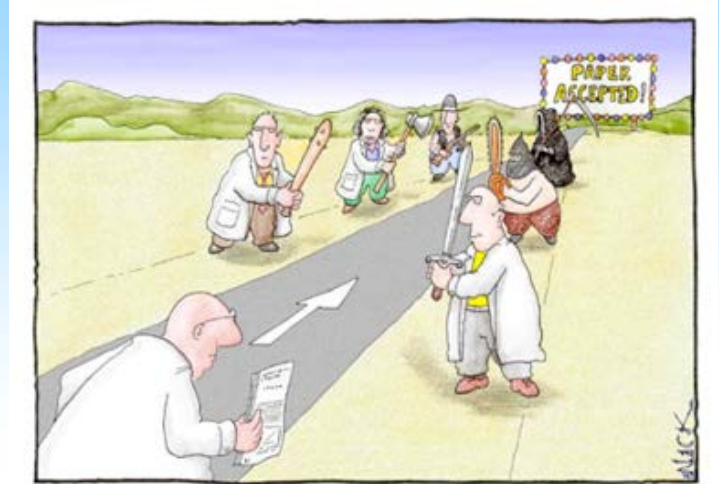
- **Accept** 接收
- **Revise** 小修, 大修
- **Transfer** 稿件转交服务
- **Reject** 拒稿, 但也不用灰心



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

# 违反学术道德的常见情况

- 抄袭和自我抄袭
- 一稿多投
- 数据造假或篡改
- 有问题的原创作者



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

# 违反学术道德如何被发现

- 从技术上来说:

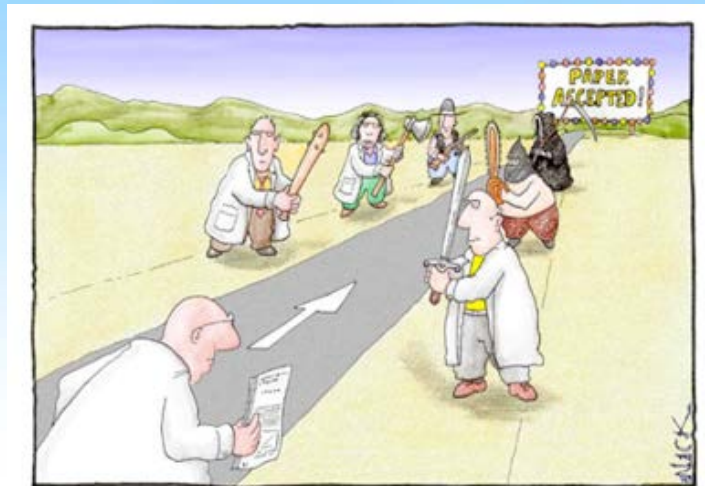
**CrossCheck**

**Image checking Software**

- 从科学交流上来说:

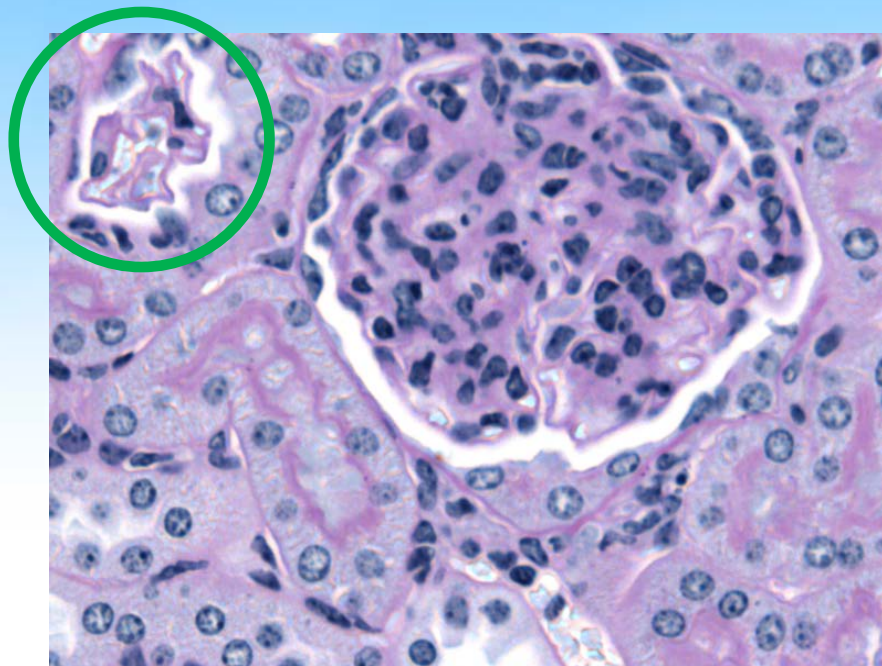
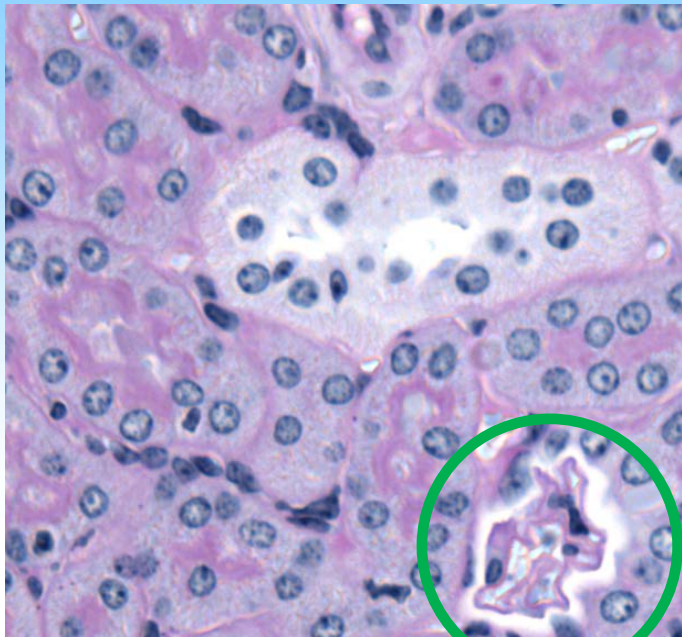
**Social Networking**

**(blogs, Facebook, Twitter)**

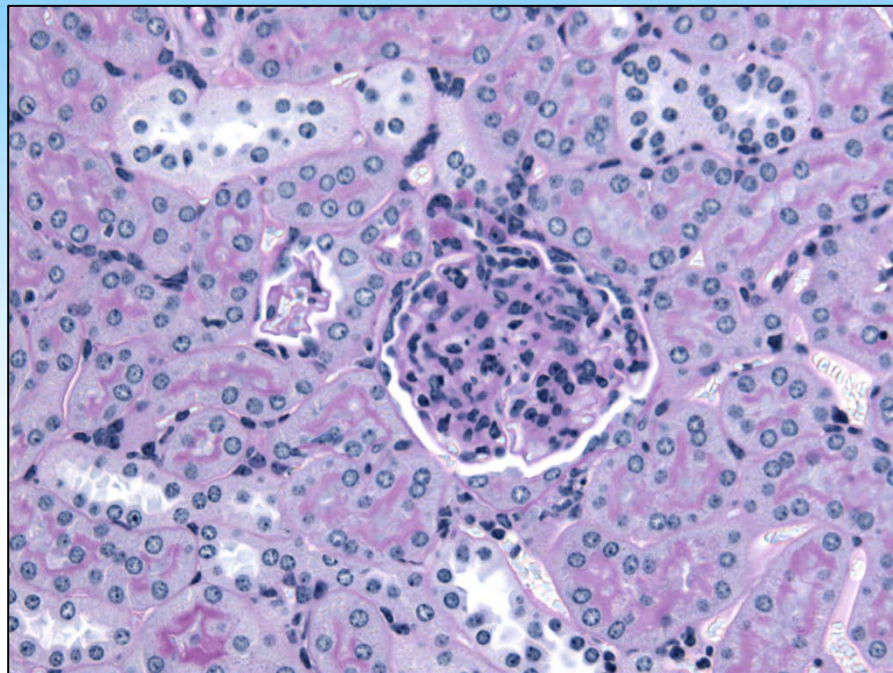


Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

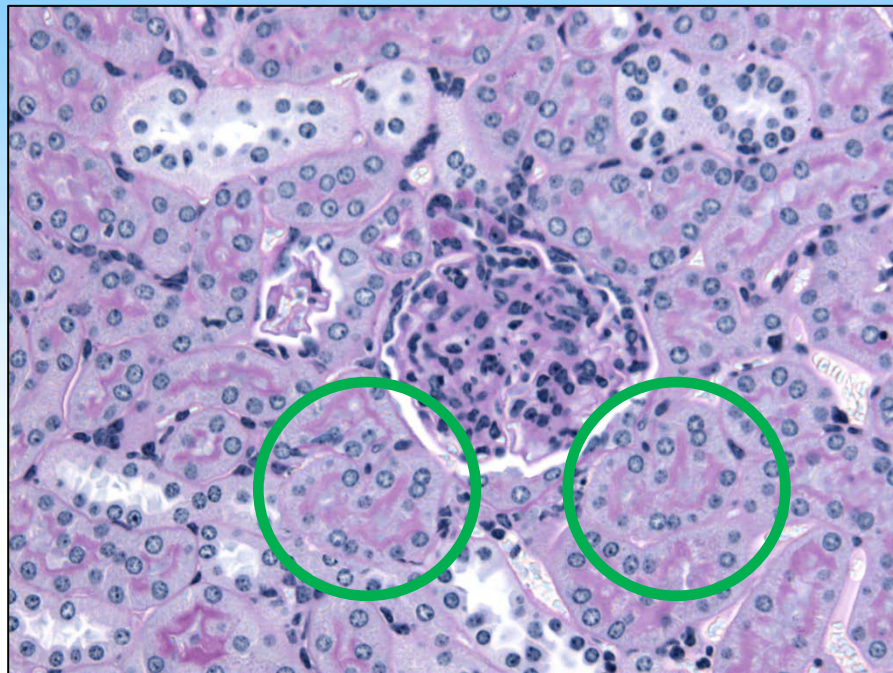
你能找到两幅图中相同的部分吗？



你能找到这幅图被人为修改过的地方吗？



肉眼几乎找不到，但是图像检测工具可以。



# 如果文章被撤稿，原因是什么？

- 进一步的研究揭示了数据中的缺陷
- 无法复制的结果
- 错误的分析
- 意外违反学术道德
- 故意违反学术道德



# 更正 Correction / 撤稿 Retraction

RETURN TO ISSUE | < PREV **ARTICLE** NEXT >




**\* ADDITION / CORRECTION** This article has been corrected. View the notice.

## Photocatalytic Gas Phase Reactions

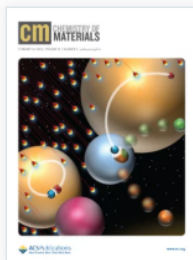
Murielle Schreck and Markus Niederberger\*

**Cite This:** *Chem. Mater.* 2019, 31, 3, 597-618  
Publication Date: January 16, 2019  
<https://doi.org/10.1021/acs.chemmater.8b04444>  
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Article Views: **1119** | Altmetric: **6** | Citations: **-**  
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Chemistry of Materials

---

RETURN TO ISSUE | < PREV **ARTICLE** NEXT >




**\* ORIGINAL ARTICLE** This notice is a correction

## Correction to Photocatalytic Gas Phase Reactions

Murielle Schreck and Markus Niederberger\*

**Cite This:** *Chem. Mater.* 2019, 31, 4, 1469  
Publication Date: February 12, 2019  
<https://doi.org/10.1021/acs.chemmater.9b00418>  
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Article Views: **436** | Altmetric: **6** | Citations: **-**  
[LEARN ABOUT THESE METRICS](#)

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[PDF \(218 KB\)](#)

# Correction

# 更正 Correction / 撤稿 Retraction

**cm** CHEMISTRY OF MATERIALS

Correction to Photocatalytic Gas Phase Reactions

In our review on photocatalytic gas phase reactions, we should have included in Section 3.2, Specific Examples from Literature, the work of Ozin and co-workers. The topic of this particular section is how to increase the efficiencies of photocatalytic gas phase reactions. Since their first papers in 2014,<sup>(1,2)</sup> Ozin and co-workers have been significantly contributing to the field of photocatalytic gas-phase reduction of CO<sub>2</sub> to chemicals and fuels, addressing different aspects like selectivity, the role of residual carbon contamination on the sample, influence of illumination, batch vs flow reactors, surface chemistry of the photocatalysts, or photothermal effects.<sup>(3-5)</sup>

**References** ARTICLE SECTIONS  ▾

This article references 5 other publications.

1. O'Brien, P. G.; Sandhel, A.; Wood, T. E.; Jelle, A. A.; Hoch, L. B.; Perovic, D. D.; Mims, C. A.; Ozin, G. A. Photomethanation of Gaseous CO<sub>2</sub> over Ru/Silicon Nanowire Catalysts with Visible and Near-Infrared Photons. *Adv. Sci.* 2014, 1, 1400001, DOI: 10.1002/adv.201400001 [Crossref], [CAS] [Google Scholar]

This publication has no figures.

What has been corrected?

# 更正 Correction / 撤稿 Retraction

The screenshot shows the ACS Publications website interface. At the top left is the ACS Publications logo with the tagline 'Most Trusted. Most Cited. Most Read.' To the right is a search bar with the placeholder text 'Search text, DOI, authors, etc.' and a magnifying glass icon. Further right are navigation links for 'My Activity', 'Publications', and a menu icon. Below the header, there are navigation links: 'RETURN TO ISSUE', '< PREV', 'ARTICLE', and 'NEXT >'. The main article title 'Mechanical Reconfiguration of Stereoisomers' is highlighted with a red box. Below the title are the authors: Kelly M. Wiggins<sup>†</sup>, Todd W. Hudnall<sup>†</sup>, Qilong Shen<sup>‡</sup>, Matthew J. Kryger<sup>‡</sup>, Jeffrey S. Moore<sup>‡</sup> and Christopher W. Bielawski<sup>†\*</sup>. A 'View Author Information' dropdown is visible. To the right of the article information is a thumbnail image of the JACS journal cover. Below the article information, there are statistics: 'Cite This: J. Am. Chem. Soc. 2010, 132, 10, 3256-3257', 'Publication Date: February 18, 2010', and 'https://doi.org/10.1021/ja910716s'. There are also metrics for 'Article Views' (4704), 'Altmetric' (7), and 'Citations' (68), with a link to 'LEARN ABOUT THESE METRICS'. Below the metrics are 'Share', 'Add to', and 'Export' options. At the bottom left, there are buttons for 'Read Online', 'PDF (1 MB)', and 'Supporting Info (1)'. The 'Abstract' section is partially visible at the bottom, starting with 'Poly(methyl acrylate) of varying molecular weight was grown from the enantiopure ditopic initiator (R)- or (S)-1,1'-binaphthyl-2,2'-bis-(2-bromoisobutyrate). Subjecting CH<sub>3</sub>CN solutions of high-molecular-weight derivatives (M<sub>N</sub> > 25 kDa) to sonication at 0 °C resulted in >05%'. A large red text overlay '文章由于违反学术道德被撤稿 Retraction !!!' is positioned over the right side of the page.

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**Mechanical Reconfiguration of Stereoisomers**  
Kelly M. Wiggins<sup>†</sup>, Todd W. Hudnall<sup>†</sup>, Qilong Shen<sup>‡</sup>, Matthew J. Kryger<sup>‡</sup>, Jeffrey S. Moore<sup>‡</sup> and Christopher W. Bielawski<sup>†\*</sup>

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**Abstract**

Poly(methyl acrylate) of varying molecular weight was grown from the enantiopure ditopic initiator (R)- or (S)-1,1'-binaphthyl-2,2'-bis-(2-bromoisobutyrate). Subjecting CH<sub>3</sub>CN solutions of high-molecular-weight derivatives (M<sub>N</sub> > 25 kDa) to sonication at 0 °C resulted in >05%

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Retraction !!!

# 更正 Correction / 撤稿 Retraction

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Retraction

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## Retraction of “Mechanical Reconfiguration of Stereoisomers”

Kelly M. Wiggins, Todd W. Hudnall, Qilong Shen, Matthew J. Kryger, Jeffrey S. Moore,  
and Christopher W. Bielawski\*

*J. Am. Chem. Soc.* **2010**, *132*, 3256–3257. DOI: 10.1021/ja910716s

Based on an investigation conducted by The Office of Research Integrity at The University of Texas at Austin, it was determined that the data and scientific conclusions of this article are unreliable as a result of scientific misconduct by one of the co-authors affiliated with the University at the time of its publication. The authors retract this article accordingly.

The original paper was published February 18, 2010 (*J. Am. Chem. Soc.* **2010**, *132*, 3256–3257. DOI: 10.1021/ja910716s), and retracted March 11, 2015.

## 撤稿说明

基于德克萨斯大学奥斯汀分校诚信研究办公室进行的一项调查，在发表这篇文章时，由于该大学的一名联合作者在科学上的不端行为，因此确定这篇文章的数据和科学结论是不可靠的。作者据此撤回了这篇文章。



**Questions**



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