

Springer Nature 学术资源助力高校科研工作

孙红涛 Arthur Sun
Springer Nature 大中华区客户发展经理

2026年 CALIS 培训周 青岛



SPRINGER NATURE

目录

- Springer Nature Link平台资源简介（Springer期刊+Springer图书）
- Nature期刊平台简介
- SpringerProtocols数据库
- SpringerMaterials数据库

SPRINGER NATURE

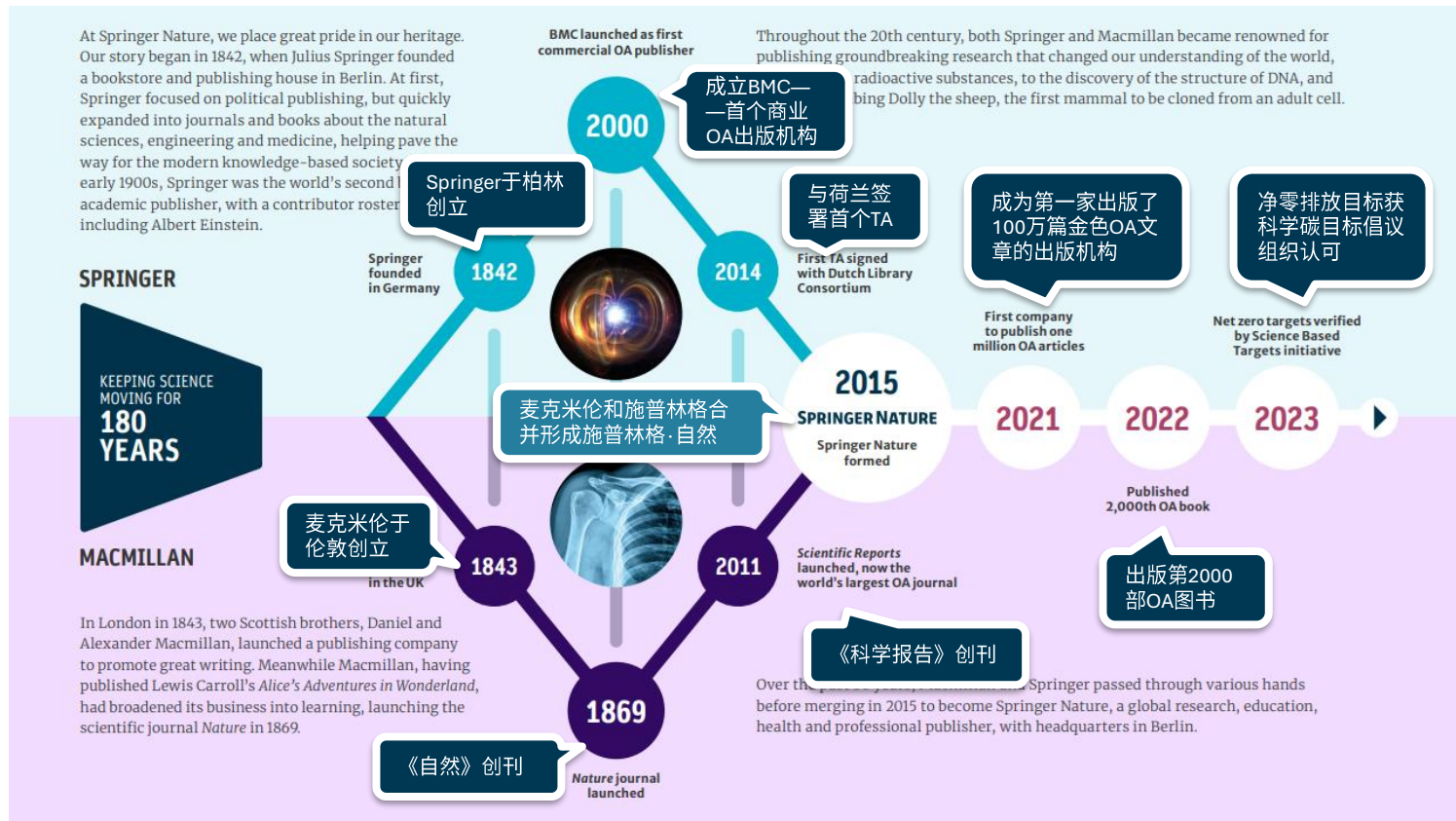
施普林格·自然

超过180年以来，施普林格·自然
一直致力于为整个科研群体提供最佳服务，以促进探索发现。



SPRINGER NATURE

超过180年的创新历程 令人信赖的知识来源



SPRINGER NATURE



nature portfolio



palgrave
macmillan



J.B. METZLER

Apress®

SCIENTIFIC
AMERICAN

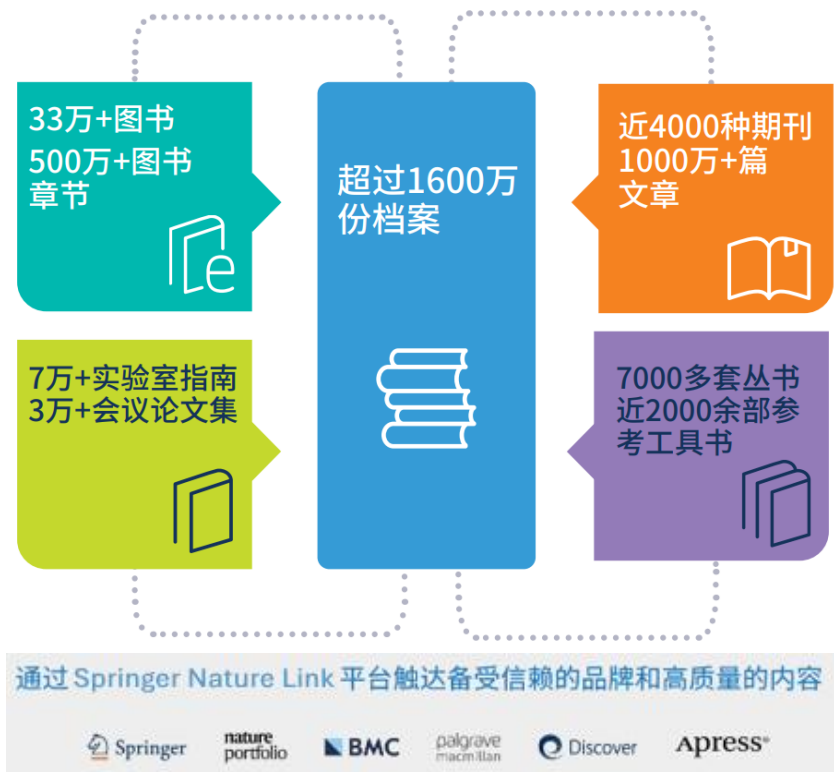
Cureus

1.0

Springer Nature Link
平台资源简介

Springer Nature Link平台概览

含千万文献的学术资源库



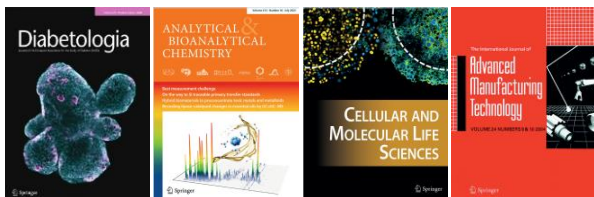
- 提供全面的科学、技术和医学以及人文和社会科学的期刊、图书、丛书、会议论文集、参考工具书和实验室指南等文献资源。
- 通过Springer Nature Link，您可以快速、准确地访问超过1600万份科学文献。包含Springer、nature portfolio、BMC、Palgrave Macmillan和Apress等备受信赖品牌的出版物。
- 平台每天都会新增内容，每年增加大约1.2万本电子图书、3千份实验室指南以及超过30万篇期刊论文。
- 兼具深度与广度的内容，以及完备的检索工具，使Springer Nature Link平台成为世界各地成千上万科研人员的不二选择。

Springer期刊

始于1842年，包括2000余种期刊

- 涵盖科学、技术和医学以及人文社科等所有学科领域
- 约83%的Springer期刊拥有影响因子，52%的期刊IF获得增长
- 1954种被SCIE/SSCI/AHCI/ESCI收录
- 170种期刊在一个或多个学科类别中排名前10位
- 529种期刊学科排名前25%（Q1），1170种期刊位居领域前50%

高使用量 期刊



高被引 期刊



*本次盘点的Springer期刊总数为2345（含OA期刊），上述数据可能会因筛选条件不同而有所变化；以上期刊指标数据源于2024年Journal Citation Reports, Clarivate Analytics 2025。

Springer期刊 主要学科领域

科学、
技术和
工程



人文科学和
社会科学



医学和
生命科学



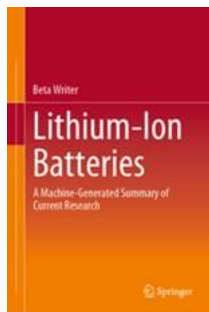
Springer Nature电子图书

科研与学习的卓越之选

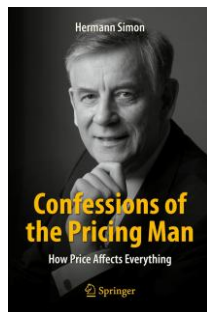
30万+电子图书
22个电子书学科合集

包括Springer,
Palgrave Macmillan,
Apress等品牌图书

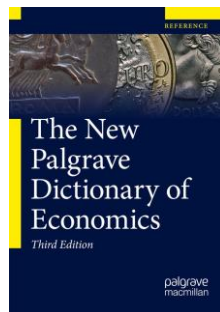
- 涵盖科学、医学、技术、人文和社会科学领域经同行评议的必备学术图书
- 包括学术专著、会议论文集、简报、参考工具书、教科书和系列丛书等
- 作为全球知名的大型学术图书出版机构，每年新出版**12,000**余种图书
- 拥有**400+**位遍布全球的资深图书出版编辑，为研究质量提供保证
- 关注中国的学术科研发展，每年出版**700+**种中国作者编撰的图书



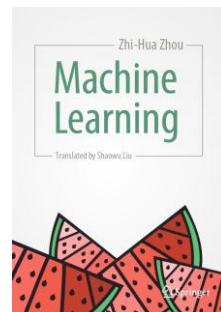
《锂离子电池》



《定价制胜》



《帕尔格雷夫
经济学大辞典》

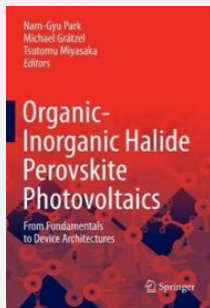


《机器学习》

Springer Nature电子图书 - 内容完善 包含所有图书类型，不受数字版权管理 (DRM) 限制

从本科生到教授，从教学到科研，每一步都有适合您的电子图书

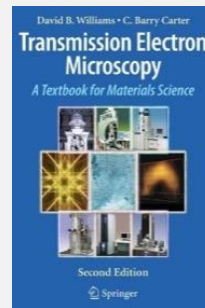
Monographs
学术专著



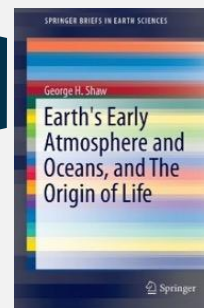
Series
丛书



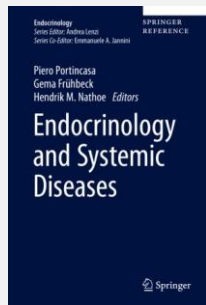
Textbooks
教科书



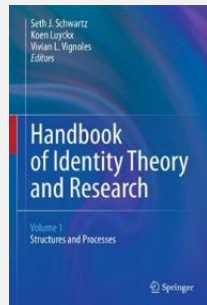
Briefs
短书



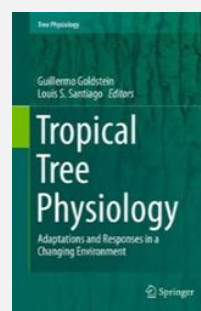
References
参考工具书



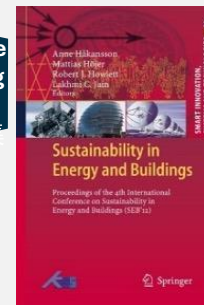
Handbook
手册



Contributed Volumes
编著



Conference Proceedings
会议论文集



Springer Nature电子图书 - 内容完善 为每个学科领域提供高质量学科内容



科学、技术与医学

- 生物医学和生命科学
- 化学与材料科学
- 计算机科学
- 地球与环境科学
- 能源
- 工程学
- 智能技术与机器人学
- 数学与统计学
- 医学
- 物理学与天文学
- 专业与应用计算
- Synthesis技术前沿报告合集
- 人工智能 2025 新增!
- 机械工程 2025 新增!
- 护理学 2026 新增!



人文社科

- 行为科学与心理学
- 商业与管理
- 经济与金融学
- 教育学
- 历史
- 法律与犯罪学
- 文学、文化与媒体研究
- 政治学与国际研究
- 哲学与宗教
- 社会科学
- 运筹学 2026 新增!

主页 全新页面，更好体验

访问网址: link.springer.com

导航栏

检索框

账号登录

SPRINGER NATURE Link Log in


Find a journal Publish with us Track your research Search Cart

Home for all research

Search for articles, journals, books, authors


[Advanced search](#)

185 million monthly downloads **24 million** monthly readers **3 million** authors submit annually




Discover open access

探索开放获取



Publish with us

出版您的成果



Track your research

追踪出版进程

主页 集出版与阅读为一体

Call for papers
[Log in](#) for personalised recommendations.

征稿中的特刊 (登录后可能推荐)

Collection
Edge-Computing AI for Medical Devices
Electronic medical devices can be implantables, wearables, and remote. These devices can collect various multimodal and multigrain bio-signals...

Submission deadline
31 October 2025

Collection
Interruption of Amino Acids Supply as Anti-Tumor Strategy
The interruption of amino acids supply has emerged as a promising anti-tumor strategy, with research focusing on the metabolic vulnerabilities of cancer...

Submission deadline
31 December 2025

Collection
Photothermal Membranes for Water Treatment
This topical collection aims to showcase the latest developments in photothermal materials and their applications in solar-driven water treatment and...

Submission deadline
23 June 2025

[See all calls for papers →](#)

Trending research

最新研究：集合Springer、《自然》系列期刊、BMC、Discover等施普林格-自然旗下优质内容

Article
The state and fate of Glacier Perito Moreno Patagonia
[Communications Earth & Environment](#)
Open access

Article
Hamsters with long COVID present distinct transcriptomic profiles associated with neurodegenerative processes in brainstem
[Nature Communications](#)
Open access

Brief Report
Assessing social behaviour between baleen whales (Mysticeti) and dolphins (Delphinidae)
[Discover Animals](#)
Open access

Original Research
Solitary silence and social sounds: music can influence mental imagery, inducing thoughts of social interactions
[Scientific Reports](#)
Open access

Article
Translation and cultural adaptation of quality of school life for deaf students in high school: national sample from Saudi Arabia
[Humanities and Social Sciences Communications](#)
Open access

Featured journals **精选期刊**

Artificial Intelligence Review
Artificial Intelligence Review is a fully open access journal publishing state-of-the-art research in artificial intelligence and cognitive science.

Journal Impact Factor	13.9 (2024)
Downloads	2.9M (2024)

Discover Sustainability
Discover Sustainability is an open access journal publishing research across all fields relevant to sustainability.

Journal Impact Factor	3.0 (2024)
Downloads	838.8k (2024)

Journal of Epidemiology and Global Health
The Journal of Epidemiology and Global Health is an international peer-reviewed journal which aims to impact global epidemiology and international...

Journal Impact Factor	3.1 (2024)
Downloads	469.3k (2024)

Browse by subject **按学科主题浏览**

[Biological Sciences](#)

[Business and Management](#)

[Chemistry](#)

[Computer Science](#)

[Earth and Environmental Sciences](#)

[Health Sciences](#)

[Humanities and Social Sciences](#)

[Materials Science](#)

[Mathematics](#)

[Physics and Astronomy](#)

[Statistics](#)

[Technology and Engineering](#)

Featured books **精选图书**

An Introduction to Statistical Learning

The Algorithm Design Manual

Hypertension and Cardiovascular Disease in Asia

Electronics for Beginners

Managing your Mental Health during your PhD

Advances in Diabetes Research and Management

Technology Roadmapping and Development

Chief Sustainability Officers At Work

Surgery

想知道自己所在的机构是否已获得Springer Nature Link平台的授权访问？

The screenshot shows the footer of the Springer Nature website. It features a dark blue background with white text. The footer is organized into four columns: 'Discover content' (with links for Journals A-Z and Books A-Z), 'Publish with us' (with links for Journal finder, Publish your research, and Open access publishing), 'Products and services' (with links for Our products, Librarians, Societies, and Partners and advertisers), and 'Our imprints' (with links for Springer, Nature Portfolio, BMC, Palgrave Macmillan, and Apress). Below these columns is a horizontal line, followed by a row of links: 'Your privacy choices/Manage cookies', 'Your US state privacy rights', 'Accessibility statement', 'Terms and conditions', 'Privacy policy', and 'Help and support'. Below this row is another link: 'Cancel contracts here'. At the bottom left, there is a white box with an orange border containing the IP address '221.217.140.219' and the text 'Springer Nature Affiliates (3000093925) - Nature America Incorporated (3002782314)'. At the bottom right, there is a white button with the text '下拉主页到最底部'. At the very bottom, the Springer Nature logo and copyright notice '© 2024 Springer Nature' are displayed.

Discover content
[Journals A-Z](#)
[Books A-Z](#)

Publish with us
[Journal finder](#)
[Publish your research](#)
[Open access publishing](#)

Products and services
[Our products](#)
[Librarians](#)
[Societies](#)
[Partners and advertisers](#)

Our imprints
[Springer](#)
[Nature Portfolio](#)
[BMC](#)
[Palgrave Macmillan](#)
[Apress](#)

[Your privacy choices/Manage cookies](#) [Your US state privacy rights](#) [Accessibility statement](#) [Terms and conditions](#) [Privacy policy](#) [Help and support](#)

[Cancel contracts here](#)

221.217.140.219
Springer Nature Affiliates (3000093925) - Nature America Incorporated (3002782314)

SPRINGER NATURE
© 2024 Springer Nature

已授权

The screenshot shows the footer of the Springer Nature website, similar to the one on the left. It features a dark blue background with white text. The footer is organized into four columns: 'Discover content' (with links for Journals A-Z and Books A-Z), 'Publish with us' (with links for Journal finder, Publish your research, and Open access publishing), 'Products and services' (with links for Our products, Librarians, Societies, and Partners and advertisers), and 'Our imprints' (with links for Springer, Nature Portfolio, BMC, Palgrave Macmillan, and Apress). Below these columns is a horizontal line, followed by a row of links: 'Your privacy choices/Manage cookies', 'Your US state privacy rights', 'Accessibility statement', 'Terms and conditions', 'Privacy policy', and 'Help and support'. Below this row is another link: 'Cancel contracts here'. At the bottom left, there is a white box with an orange border containing the IP address '117.133.77.21' and the text 'Not affiliated'. At the bottom right, the Springer Nature logo and copyright notice '© 2024 Springer Nature' are displayed.

Discover content
[Journals A-Z](#)
[Books A-Z](#)

Publish with us
[Journal finder](#)
[Publish your research](#)
[Open access publishing](#)

Products and services
[Our products](#)
[Librarians](#)
[Societies](#)
[Partners and advertisers](#)

Our imprints
[Springer](#)
[Nature Portfolio](#)
[BMC](#)
[Palgrave Macmillan](#)
[Apress](#)

[Your privacy choices/Manage cookies](#) [Your US state privacy rights](#) [Accessibility statement](#) [Terms and conditions](#) [Privacy policy](#) [Help and support](#)

[Cancel contracts here](#)

117.133.77.21
Not affiliated

SPRINGER NATURE
© 2024 Springer Nature

未授权

根据用户所在的不同空间位置，**Springer Nature Link**平台的登录方法可以划分成以下两大类：

1) 在校或者到馆访问

学校和图书馆的IP范围已得到平台授权，用户通过台式电脑、笔记本电脑或者IPAD、手机等各种移动终端连接到学校或者图书馆的网络，即可自动获得平台访问权限。

2) 远程访问

远程登录方法一：VPN代理登录

用户在台式电脑、笔记本电脑或者IPAD、手机等各种移动终端上，通过VPN连接到学校或者图书馆的内部网络环境，即可自动获得平台访问权限。

远程登录方法二：CARS1（教育网）远程认证登录（教工号、学号认证登录）

点击CARS1远程登录链接，页面将自动跳转至大学统一身份认证系统页面，输入本人账号和密码登录，即可使用平台资源。

远程登录方法二：CARS1（教育网）远程认证登录（教工号、学号认证登录）

The diagram illustrates the process of logging into a Springer Nature book page via an institution's system. It starts with the book page, moves to the 'Access this book' section, then to a modal window for institutional access, and finally to a CARS1 login page.

Book Page: The book is "Generative AI: How ChatGPT and Other AI Tools Will Revolutionize Business" by Tom Taulli, published by Apress. The page shows an overview with authors, a list of bullet points, and a note: "This is a preview of subscription content, log in via an institution to check access."

Access this book: The page lists two options: eBook (EUR 46.99) and Softcover Book (EUR 54.99). A button "Log in via an institution" is highlighted with an orange box.

Access through your institution: A modal window prompts the user to "Access subscription content by using your institution's login system". It asks to "Find your institution: (e.g. University College London)" and has a search box containing "Beihang University". An alternative link "log in with your Springer Nature account" is also provided.

CARS1 Login Page: The final step shows the CARS1 login page for Beijing University of Aeronautics and Astronautics. It includes fields for "输入工号" (Enter ID) and "输入密码" (Enter Password), a "登录" (Login) button, and a "忘记密码" (Forgot password) link.

导航条在所有页面可见

SPRINGER NATURE Link

Find a journal | Publish with us | Track your research | | [Login](#) | [Cart](#)

Home for all research

Search for articles, journals, books, authors

[Advanced search](#)

185 million monthly downloads	24 million monthly readers	3 million authors submit annually
---	--------------------------------------	---

大多数用户可通过关键词
检索获取内容

高级检索

高级检索

Search for articles, journals, books, authors, videos

"human resource management"

Search

Advanced search

Search help

检索帮助



高级检索中的所有字段都支持布尔运算符（AND、OR、NOT）和短语匹配（对精确短语使用引号“”）。

- 关键词：搜索文档的所有部分，包括标题、摘要和正文（不包括补充文件）。
- 标题：查找文档标题中包含关键词的出版物。
- 作者或编辑：搜索特定作者或编辑的作品。可以输入多个名称，以逗号分隔。
- 在期刊中：将搜索限制在发表文档的特定期刊上。可以输入多个期刊名称，以逗号分隔。
- 发布日期：按特定日期范围筛选结果。

Advanced search

 You can refine your search with the operators AND, OR, NOT, (,), " ". [Learn more](#)

检索帮助

Keywords

For example, "dna replication" NOT sequencing

"human resource management"

Title

For example, The Archaeology of Contemporary America

Author(s) or Editor(s)

For example, John Bell Doe OR J.B. Doe

In journal(s)

For example, Nature Neuroscience

Date published

Last 3 months

Last 6 months

Last 12 months

Last 24 months

Custom dates

Start year

(YYYY)

End year

(YYYY)

Search

检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

Search for articles, journals, books, authors, videos

Advanced search Search help

Showing 1 - 20 of 61,874 results

Download results (.csv) RSS feed

Sort by (updates page)

- Relevance
- Relevance
- Date published (new to old)
- Date published (old to new)

Content type

内容类型

Chapter Full access

访问权限

MicroRNA Qubit

Date published

We use Schrödinger's wave equation to show that it is possible to work with physical transformations from microRNA (miRNA) information. Quantum...

Languages

Yoichi Robertus Fujii in The MicroRNA Quantum Code Book 2023

Subjects

Disciplines

内容标题

Article Partial access

MicroRNA Biogenesis in Cell Senescence Induced by Chronic Endoplasmic Reticulum Stress

Subdisciplines

内容摘要

Abstract
MicroRNAs are small noncoding RNAs that regulate gene expression; stabilize the cell phenotype; and play an important role in cell...

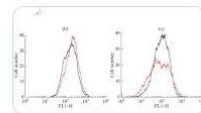
作者/编者名

D. M. Zaichenko, A. A. Mikryukova, ... A. A. Moskvovtsev in Molecular Biology 08 August 2023

出版时间

文章所在期刊名/章节所在图书名

图书/期刊封面/文章焦点图



优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

human resource management

Advanced search Search help

Showing 1 – 20 of 561,666 results

Download results (.csv) RSS feed Sort by (updates page) Relevance

Content type

- Chapter (308,888)
- Article (251,778)
- Research article (208,795)
- Conference paper (62,767)
- Review article (26,349)
- Reference work entry (21,344)
- News article (1,586)
- Book (811)
- [Show more](#)

Publishing model

- Open access (92,360)

Date published

- Last 3 months
- Last 6 months
- Last 12 months
- Last 24 months
- Custom dates

Clear selected Update results

Chapter Full access

Human Resource Management

This chapter outlines what Human Resource Management (HRM) for workplace inclusion of PWD involves. Drawing on state-of-the-art research findings, we...

Paul Boselie, Jasmijn van Harten, Laura van Os in Shaping Inclusive Workplaces for Persons with Disabilities 2026 [Open access](#)

Chapter Full access

Strategic Human Resource Management

Delving into the strategic dimension of human resource management (HRM), this chapter defines and explores the meaning of strategy, its features, and...

Neema Gupta, Ashish K. Gupta in Human Resource Management for Organisational Success 2025

Article Full access

Leveraging digital human resource management to optimize organizational performance in Vietnam

Although numerous studies have examined the effects of digital human resource management on organizational performance, the findings have been...

Suong Huynh Thi Thu, Minh Pham, Hai-Nam Luc in Humanities and Social Sciences Communications 11 June 2025 [Open access](#)

Chapter Full access

Strategic Human Resource Management

对搜索结果排序：

- 相关性
- 由新到旧
- 由旧到新

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

[Advanced search](#) [Search help](#)

Showing 1–20 of 442,435 results

Sort by (updates page) **Relevance**

Content Type

- Chapter (259,391)
- Article (173,216)
- Research article (131,978)
- Conference paper (131,944)
- Review article (19,613)
- Reference work entry (9,021)
- Book (8,463)
- News article (6,035)
- Conference proceedings (4,211)
- Collection (1,115)
- Protocol (564)
- Call for papers (497)
- Textbook (310)
- Book series (138)
- Journal (81)
- Video segment (31)

Article | **Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review**

Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...

Khalid H. Arar, Hamit Özen, ... Selahattin Turan in [Smart Learning Environments](#)
22 July 2025 | [Open access](#)

Article | **Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy**

The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...

Serkan Cengiz, Adem Peker in [Current Psychology](#)
03 February 2025 | [Open access](#)

Article | **Artificial intelligence versus collective intelligence**

The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...

Harry Halpin in [AI & SOCIETY](#)
11 March 2025 | [Open access](#)

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

The screenshot shows a search results page for 'artificial intelligence'. At the top, there is a search bar with the text 'artificial intelligence' and a 'Search' button. Below the search bar are links for 'Advanced search' and 'Search help'. The main content area displays a list of search results, each with a title, author information, and a brief abstract. The first result is titled 'Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review' by Khalid H. Arar, Hamit Özen, and Selahattin Turan, published in 'Smart Learning Environments' on 22 July 2025. The second result is 'Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy' by Serkan Cengiz and Adem Peker, published in 'Current Psychology' on 03 February 2025. The third result is 'Artificial intelligence versus collective intelligence' by Harry Halpin, published in 'AI & SOCIETY' on 11 March 2025. On the left side of the page, there is a sidebar with various filter options: 'Content Type', 'Publishing model' (with a sub-filter for 'Open access (59,241)'), 'Date published', 'Languages', 'Subjects', 'Disciplines', 'Subdisciplines', 'Sustainable Development Goals (SDGs)', and 'Accessibility'. A 'Clear selected' button and an 'Update results' button are located at the bottom of the sidebar. On the right side of the page, there are options to 'Download results (.csv)', 'RSS feed', and 'Sort by (updates page)'. A dropdown menu is open, showing 'Relevance' as the selected sort option, with other options being 'Date published (new to old)' and 'Date published (old to new)'. The page also features a diagram illustrating the relationship between different concepts in the first article.

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

[Advanced search](#) [Search help](#)

Showing 1-20 of 442,435 results

Sort by (updates page) **Relevance**

Content Type
Publishing model
Date published
 Last 3 months
 Last 6 months
 Last 12 months
 Last 24 months
 Custom dates
Start year (YYYY) End year (YYYY)
Languages
Subjects

Article | **Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review**
Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...
Khalid H. Arar, Hamit Özen, ... Selahattin Turan in [Smart Learning Environments](#)
22 July 2025 | [Open access](#)

Article | **Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy**
The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...
Serkan Cengiz, Adem Peker in [Current Psychology](#)
03 February 2025 | [Open access](#)

Article | **Artificial intelligence versus collective intelligence**
The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...
Harry Halpin in [AI & SOCIETY](#)
11 March 2025 | [Open access](#)

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

The screenshot shows a search results page for 'artificial intelligence'. At the top, there is a search bar with the text 'artificial intelligence' and a 'Search' button. Below the search bar, there are links for 'Advanced search' and 'Search help'. The main content area displays search results, starting with 'Showing 1-20 of 442,435 results'. There are options to 'Download results (.csv)' and an 'RSS feed'. A 'Sort by' dropdown menu is set to 'Relevance'. The first article listed is 'Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review' by Khalid H. Arar, Hamit Özen, and Selahattin Turan, published on 22 July 2025. The second article is 'Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy' by Serkan Cengiz and Adem Peker, published on 03 February 2025. The third article is 'Artificial intelligence versus collective intelligence' by Harry Halpin, published on 11 March 2025. On the left side, there are several filter categories: 'Content Type', 'Publishing model', 'Date published', 'Languages', and 'Subjects'. The 'Languages' filter is expanded, showing a list of languages with checkboxes and counts: English (433,401), German (7,533), Dutch (146), French (106), Italian (37), Portuguese (7), Spanish (6), and Polish (1). At the bottom of the filter section, there are buttons for 'Clear selected' and 'Update results'.

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

[Advanced search](#) [Search help](#)

Showing 1-20 of 442,435 results Sort by (updates page) **Relevance**

Content Type

Publishing model

Date published

Languages

Subjects

- Machine learning (58,770)
- Artificial intelligence (56,545)
- Computational intelligence (38,368)
- Learning algorithms (24,318)
- Computer vision (21,892)
- Knowledge based systems (18,024)
- Data mining (15,603)
- Algorithms (15,418)

[Show more](#)

Article **Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review**

Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...

Khalid H. Arar, Hamit Özen, ... Selahattin Turan in [Smart Learning Environments](#)
22 July 2025 | [Open access](#)

Article **Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy**

The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...

Serkan Cengiz, Adem Peker in [Current Psychology](#)
03 February 2025 | [Open access](#)

Article **Artificial intelligence versus collective intelligence**

The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...

Harry Halpin in [AI & SOCIETY](#)
11 March 2025 | [Open access](#)

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

The screenshot shows a search interface for 'artificial intelligence' on the Springer Nature platform. The search bar contains the text 'artificial intelligence' and a search button. Below the search bar, there are links for 'Advanced search' and 'Search help'. The results section shows 'Showing 1-20 of 442,435 results'. On the left, there are several filter categories: 'Content Type', 'Publishing model', 'Date published', 'Languages', and 'Disciplines'. The 'Disciplines' filter is expanded, showing a list of categories with checkboxes and counts: Computer science (139,508), Engineering (103,728), Medicine & public health (24,587), Business and management (22,931), Science, humanities and social sciences, multidisciplinary (16,058), Education (10,339), Philosophy (9,927), and Life sciences (9,466). There is a 'Show more' link below the list. At the bottom of the filter section, there are 'Clear selected' and 'Update results' buttons. On the right side of the results, there are options to 'Download results (.csv)' and 'RSS feed', and a 'Sort by' dropdown menu currently set to 'Relevance'. The search results list includes three articles, each with a title, author information, and a brief abstract. The first article is 'Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review' by Khalid H. Arar, Hamit Özen, and Selahattin Turan. The second article is 'Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy' by Serkan Cengiz and Adem Peker. The third article is 'Artificial intelligence versus collective intelligence' by Harry Halpin.

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

[Advanced search](#) [Search help](#)

Showing 1–20 of 442,435 results Sort by (updates page) **Relevance**

Content Type

Article **Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review**

Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...

Khalid H. Arar, Hamit Özen, ... Selahattin Turan in [Smart Learning Environments](#)
22 July 2025 | [Open access](#)

Subdisciplines

- Artificial intelligence (137,998)
- Computational intelligence (53,151)
- Computer communication networks (33,686)
- Information systems applications (incl. internet) (25,834)
- User interfaces and human computer interaction (22,414)
- Data mining and knowledge discovery (20,984)
- Computer applications (19,866)
- Image processing and computer vision (19,490)

[Show more](#)

Relevance

- Relevance
- Date published (new to old)
- Date published (old to new)

Article **Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy**

The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...

Serkan Cengiz, Adem Peker in [Current Psychology](#)
03 February 2025 | [Open access](#)

Article **Artificial intelligence versus collective intelligence**

The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...

Harry Halpin in [AI & SOCIETY](#)
11 March 2025 | [Open access](#)

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

Sustainable Development Goals (SDGs)

- Learn more about Springer Nature's SDG Programme
- Good health and well-being (29,969)
- Affordable and clean energy (15,210)
- Quality education (14,237)
- Industry, innovation and infrastructure (10,088)
- Peace, justice, and strong institutions (5,669)
- Climate action (5,523)
- Sustainable cities and communities (4,927)
- Zero hunger (4,155)
- Responsible consumption and production (3,820)
- Life on land (2,563)
- Decent work and economic growth (1,990)
- Reduced inequalities (1,130)
- Life below water (1,015)
- Clean water and sanitation (1,002)
- Gender equality (466)
- No poverty (218)
- Partnerships for the goals (115)

Download results (.csv) Sort by (updates page) **Relevance**

Article | **Relevance**
Date published (new to old)
Date published (old to new)

Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review
Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...
Khalid H. Arar, Hamit Özen, ... Selahattin Turan in Smart Learning Environments
22 July 2025 | [Open access](#)

Article | **Generative artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy**
The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...
Serkan Cengiz, Adem Peker in Current Psychology
03 February 2025 | [Open access](#)

Article | **Artificial intelligence versus collective intelligence**
The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...
Harry Halpin in AI & SOCIETY
11 March 2025 | [Open access](#)

优化检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

使用筛选项优化搜索结果

筛选项包括：

- 内容类型
- 出版模式
- 出版日期
- 语言
- 主题
- 学科
- 子学科
- 联合国可持续发展目标 (SDGs)
- 可访问性

Search for articles, journals, books, authors, videos

artificial intelligence

[Advanced search](#) [Search help](#)

Showing 1-20 of 442,435 results [Download results \(.csv\)](#) [RSS feed](#) Sort by (updates page) **Relevance**

Content Type Full access

Artificial intelligence, generative artificial intelligence and research integrity: a hybrid systemic review

Current advances in academic research stem from two main sources: artificial intelligence technologies and the specific field of generative...

Khalid H. Arar, Hamit Özen, ... Selahattin Turan in [Smart Learning Environments](#)
22 July 2025 | [Open access](#)

Publishing model

Artificial intelligence acceptance and artificial intelligence anxiety among university students: the sequential mediating role of attitudes toward artificial intelligence and literacy

The use of artificial intelligence (AI) applications is increasing in daily life. However, despite its remarkable capabilities, the widespread...

Serkan Cengiz, Adem Peker in [Current Psychology](#)
03 February 2025 | [Open access](#)

Date published

Artificial intelligence versus collective intelligence

The ontological presupposition of artificial intelligence (AI) is the liberal autonomous human subject of Locke and Kant, and the ideology of AI is...

Harry Halpin in [AI & SOCIETY](#)
11 March 2025 | [Open access](#)

Languages

Subjects

Disciplines

Subdisciplines

Sustainable Development Goals (SDGs)

Accessibility

- Support visual adjustments (2,047)
- Support non-visual reading (37)

保存检索结果

搜索结果列表默认显示Springer Nature Link平台上所有相关内容：包含来自Springer, BMC, Nature Portfolio, Palgrave Macmillan等平台的内容。

Search for articles, journals, books, authors, videos

"human resource management"

[Advanced search](#) [Search help](#)

下载检索结果
(最多1000个)

RSS 订阅

Showing 1-20 of 29,085 results

Sort by (updates page) **Relevance**

Content type	Chapter
Human Resource Management	Human Resource Management
This chapter outlines what Human Resource Management is and how it is applied in the workplace. Drawing on state-of-the-art research findings, it provides a comprehensive overview of the field.	This chapter outlines what Human Resource Management is and how it is applied in the workplace. Drawing on state-of-the-art research findings, it provides a comprehensive overview of the field.
Paul Boselie, Jasmijn van Harten, Laura van Oort, 2026 Open access	Paul Boselie, Jasmijn van Harten, Laura van Oort, 2026 Open access
Reference work entry	Reference work entry
Human Resource Management	Human Resource Management
in <i>The Palgrave Encyclopedia of Private Equity</i>	in <i>The Palgrave Encyclopedia of Private Equity</i>
2025	2025
Chapter	Chapter
International Human Resource Management	International Human Resource Management
This chapter examines international human resource management (IHRM) in Japanese multinational corporations, focusing on practices for managing...	This chapter examines international human resource management (IHRM) in Japanese multinational corporations, focusing on practices for managing...
Kiwako Asai in <i>Human Resource Management in Japan</i>	Kiwako Asai in <i>Human Resource Management in Japan</i>
2025	2025

```
<?xml version="2.0" ?>
<channel>
  <title>Latest Results</title>
  <description>The latest content available from Springer</description>
  <link>http://link.springer.com/link</link>
  <item>
    <title>Computational Methods for Affect Detection from Natural Language</title>
    <description>A broad overview of natural language processing in affective computing is given by this title. Its goal is to familiarize the reader with current approaches in affective computing as well as the most relevant concepts related to this field (affect, sentiment, subjectivity and others). Research in human affect has a long established tradition in social sciences - Philosophy, Psychology, Socio-psychology, Cognitive Science, Pragmatics, Marketing, Communication. The study of affect from a computational point of view is a recent field in Artificial Intelligence, denominated "Affective Computing". Despite the novelty of the subject, the volume and importance of research in automatic human affect recognition, classification and simulation has been constantly growing in the past decades, leading to the development of further sub-areas of research. One of these directions deals with the study of automatic affect treatment from text, in the Artificial Intelligence area of Natural Language Processing. In this context, different tasks have been developed, from emotion detection, subjectivity analysis, opinion mining to sentiment analysis and appraisal analysis.</description>
    <link>https://link.springer.com/book/9783319006024</link>
    <pubDate>2100-03-27</pubDate>
    <guid>9783319006017</guid>
  </item>
</channel>
```

SPRINGER NATURE

也可按首字母搜索所有
Springer Nature旗下期
刊或图书

Discover content

[Journals A-Z](#)

[Books A-Z](#)

Publish with us

[Publish your research](#)

[Open access publishing](#)

Products and services

[Our products](#)

[Librarians](#)

[Societies](#)

[Partners and advertisers](#)

Our imprints

[Springer](#)

[Nature Portfolio](#)

[BMC](#)

[Palgrave Macmillan](#)

[Apress](#)

Journals A-Z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Search Journals **climate change**

A ◀ Previous 1 2 Next ▶

356 publications

AAPPS Bulletin	Acta Physiologiae Plantarum	Allergy, Asthma & Clinical Immunology
AAPS Open	Acta Politica	Alpine Botany
AAPS PharmSciTech	Acta Scientiarum Mathematicarum	Alzheimer's Research & Therapy

期刊关键词

Books A-Z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Search Books **climate change**

A ◀ Previous 1 2 3 4 5 ...134 Next ▶

26732 publications

A 25-Year Perspective on Logic Programming	A Book on C	A Calculus for Factorial Arrangements
A 3D Visualization Teaching-Learning Trajectory for Elementary Grades Children	A Boole Anthology	A Calculus of Communicating Systems
	A Boolean Algebra	A Calculus of Distributed and Parallel Processes

图书关键词

Search for articles, journals, books, authors, videos

climate change

Showing 1-20 of 54 results Journal Sort by (updates page) Relevance

Content type Journal (54)

Date published

Last 3 months

Last 6 months

Last 12 months

Last 24 months


Custom dates

Start year (YYYY) **End year** (YYYY)

Languages


Journal

Current Climate Change Reports




Journal

Nature Climate Change



Journal

Economics of Disasters and Climate Change



检索期刊

Search for articles, journals, books, authors, videos

climate change

Showing 1-20 of 3,807 results Book Sort by (updates page) Relevance

Content type Book (3,807)

Conference proceedings (339)

Textbook (106)

Reference work (93)

Date published

Last 3 months

Last 6 months

Last 12 months

Last 24 months

Custom dates

Start year (YYYY) **End year** (YYYY)


Textbook | Full access

Climate Change

An Interdisciplinary Introduction

This textbook introduces and explains the issues around climate change and its mitigation. It includes topics across disciplines and can be used as a...

Thomas Brewer
2024




Book | Full access

Climate Change Adaptation

Traditional Wisdom and Cross-Scale Understanding


This book discusses how climate change needs to be anchored in indigenous knowledge with reference to resource management, infrastructure,...

Nalini Bikkina, Rama Mohana R. Turaga
2024



Book | Full access


Climate Change and Finance



检索图书

The screenshot shows the homepage of the Journal of Business Ethics. The layout includes a header with the journal title and Springer logo, a navigation bar with links like 'Submit your manuscript', and a main content area with an 'Overview' section and 'Journal metrics'. Numbered annotations (1-12) are placed over the page to identify key features.

- 1) 期刊名称
- 2) 期刊出版模式（开放获取、混合期刊或订阅模式）
- 3) 在线提交稿件
- 4) 用户所在机构
- 5) OA文章投稿资助信息
- 6) 关于期刊：宗旨与范围、编委会成员名单、编辑政策等
- 7) 期刊内容：所有文章、合集、卷次与期次、订阅期刊更新提醒等
- 8) 作者须知：投稿指南、投稿前检查清单、费用和资助、征稿信息等
- 9) 期刊最新资讯
- 10) 期刊简介、主编
- 11) 影响因子等出版相关数据
- 12) 合作出版机构/学术组织logo


(13)  **Journal of Business Ethics** **Latest issue** **March 2026** **Volume 204, Issue 3** (14)

(15) [View all volumes and issues →](#)

(16) **Latest articles**

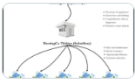
Effectiveness of Formal and Informal Controls in Deterring Misreporting: The Role of Whistleblowing Mechanism and Ethical Leadership

Vincent K. Chong, Muhammad Irdam Ferdiansah ... David R. Woodliff
Original Paper | Open access | 06 March 2026




Bridging Different Institutional Logics: The Role of Institutional Work in Translating Sustainable Product-Service Systems Across Contexts

Rıfqi Buğra Bağcı, Jawwad Z. Raja & Ismail Gölgeci
Original Paper | Open access | 04 March 2026



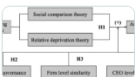
Unethical Organizational Practices as a Stressor, Mediated by Moral Emotions and Moderated by Ethical Leadership

Adam Tresidder, Emma Wituk ... Rachael H. Pyram
Original Paper | Open access | 01 March 2026




CEO Awards and Audit Opinion Shopping in Non-Winning Peer Firms

Jun Hu, Qi Fang ... Yukun Pan
Original Paper | 28 February 2026




From Welfare to Well-Groomed: How Income Conditions Influence Moral Perception of Beauty Consumption

Yu Qin, Mayuko Nishii & Kosuke Motoki
Original Paper | Open access | 26 February 2026

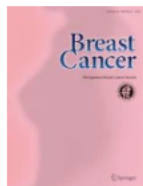


(17) [View all articles →](#) This journal has [987 open access articles →](#)

(18) **Sign up for alerts**
Get notified when new articles are published. 

- 13) 最新出版期次
- 14) 查看最新期次的所有内容
- 15) 查看所有卷次与期次
- 16) 最新发表文章
- 17) 查看所有文章
- 18) 订阅提醒：在新文章发布时收到邮件通知

查看所有卷次与期次



Latest issue

March 2025 | [Volume 32, Issue 2](#)

[View all volumes and issues](#) →

期刊内容

Articles [^] For authors [∨]

- Articles >
- Collections >
- Volumes and issues >**
- Online first articles >
- Sign up for alerts >

在本刊内检索

Search for articles, journals, books, authors, videos

* [Search](#)

[Advanced search](#) [Search help](#)

Showing 1-20 of 2,482 results [RSS feed](#) Sort by (updates page) [Relevance](#) [∨]

Content type [^]

- Article (2,482)
- Research article (1,921)
- Review article (312)
- News article (2)

Date published [^]

- Last 3 months
- Last 6 months
- Last 12 months

Article ^{Full access}

c-Myc knockdown restores tamoxifen sensitivity in triple-negative breast cancer by reactivating the expression of ERα: the central role of miR-152 and miR-148a

Background
Poor prognosis of triple-negative breast cancer (TNBC) is owing to its intrinsic heterogeneity and lack of targeted therapies. Emerging...

Chao Dong, Yonghong Sun, ... Binlin Ma in [Breast Cancer](#)
03 March 2025

查看期刊最新资讯

Journal updates

Editorials by Editors in Chief

Collections

View all special issues, award winning papers and other collections curated by Journal of Business Ethics editors on key ethical issues facing businesses and societies today.

Looking for items?

Looking for Call for Papers, Special Issue Guidelines or Section Descriptions?
Click "View all Updates" below

[View all updates →](#)

Journal information

Electronic ISSN 1573-0697 Print ISSN 0167-4544

期刊电子/纸本刊号

收录本刊的摘要数据库 (例如: CNKI) 或索引数据库 (例如: SCI)

Abstracted and indexed in

ABS Academic Journal Quality Guide	EBSCO	Philosopher's Index
ANVUR	ECONIS	Portico
Australian Business Deans Council (ABDC) Journal Quality List	ERIH PLUS	ProQuest
BFI List	EconLit	PsycINFO
Baidu	FNEGE	Research Papers in Economics (RePEc)
CLOCKSS	Google Scholar	SCImago
CNKI	JSTOR	SCOPUS
CNPIEC	Naver	Social Science Citation Index
Chinese Academy of Medical Science (CAMS)	Norwegian Register for Scientific Journals and Series	TD Net Discovery Service
Current Contents/Social & Behavioral Sciences	OCLC WorldCat Discovery Service	Wanfang
Dimensions	Ovid Discovery	eLibrary.ru
	PhilPapers	

Home > Journal of the Knowledge Economy > Article

(1) Sustainable Human Resource Management —A Systematic Literature Review and Directions for Future Research

(2) Published: 02 October 2024
Volume 16, pages 11407–11444, (2025) Cite this article (4)

Access provided by Springer Nature Affiliates

(3) Download PDF (3) Save article (5)

(7) Gaitree Ramgolam, Needesh Ramphul & Hemant Chittoor

(8) 1332 Accesses 14 Citations Explore all metrics →

(9) Abstract

The concept of sustainability is gaining high interest from scholars and researchers in all areas including sustainable human resource management (SHRM). The adoption of SHRM practices allows organisations to become more efficient, productive and competitive while ensuring environmental, social and economic outcomes. The objective of this systematic literature review is to examine the state of SHRM by determining current trends and theoretical aspects. Consequently, this will allow a better understanding of SHRM and therefore help to establish gaps and future research agenda. Articles were selected based on the PRISMA framework and were analysed in depth to provide comprehensive review on SHRM and its emerging issues. The study integrates previous insights on the topic to provide a far-reaching theoretical analysis that highlights the trends, dimensions, characteristics, practices, outcomes and models and theories related to SHRM. The findings of the paper identify areas for future research to expand the theories of SHRM.

(6) Journal of the Knowledge Economy

Aims and scope →
Submit manuscript →

(10) Sections (11) Figures (12) References

- Abstract
- Introduction
- Theory
- Methodology
- Results
- Discussion
- Future Avenues for Research
- Limitations
- Conclusion
- Appendix
- References
- Acknowledgements
- Author information
- Ethics declarations
- Additional information

- 1) 文章标题
- 2) 文章类型、在线出版日期、卷次、页码（期次）
- 3) 下载PDF全文、查看是否获得机构授权访问
- 4) 引用文章
- 5) 收藏文章
- 6) 访问文章所发表的期刊；了解期刊的宗旨与范围、在线投稿
- 7) 作者信息
- 8) 文章下载/访问次数、引用次数
- 9) 文章摘要
- 10) 文章结构导航
- 11) 图表
- 12) 参考文献

SPRINGER NATURE Link Account

Find a journal Publish with us Track your research Search


Home > Journal of the Knowledge Economy > Article

Sustainable Human Resource Management —A Systematic Literature Review and Directions for Future Research

Published: 02 October 2024
Volume 16, pages 11407–11444, (2025) [Cite this article](#)

Access provided by Springer Nature Affiliates

[Download PDF](#) [Remove from your saved research](#)



[Journal of the Knowledge Economy](#)

[Aims and scope](#) [Submit manuscript](#)

SPRINGER NATURE Link Account

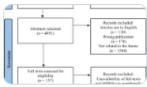
Find a journal Publish with us Track your research Search

Saved research [Cart](#)

Saved research

Article
Sustainable Human Resource Management—A Systematic Literature Review and Directions for Future Research

Gaitree Ramgolam, Needesh Ramphul & Hemant Chittoo in [Journal of the Knowledge Economy](#)
2 October 2024



[Remove from list](#)

Home > Journal of the Knowledge Economy > Article

(1) Sustainable Human Resource Management —A Systematic Literature Review and Directions for Future Research

(2) Published: 02 October 2024
Volume 16, pages 11407–11444, (2025) **(4)** Cite this article

(3) Download PDF **(5)** Save article

(6) Journal of the Knowledge Economy

(7) Gaitree Ramgolam, Needesh Ramphul & Hemant Chittoor

(8) 1332 Accesses 14 Citations **Explore all metrics** →

(9) Abstract

The concept of sustainability is gaining high interest from scholars and researchers in all areas including sustainable human resource management (SHRM). The adoption of SHRM practices allows organisations to become more efficient, productive and competitive while ensuring environmental, social and economic outcomes. The objective of this systematic literature review is to examine the state of SHRM by determining current trends and theoretical aspects. Consequently, this will allow a better understanding of SHRM and therefore help to establish gaps and future research agenda. Articles were selected based on the PRISMA framework and were analysed in depth to provide comprehensive review on SHRM and its emerging issues. The study integrates previous insights on the topic to provide a far-reaching theoretical analysis that highlights the trends, dimensions, characteristics, practices, outcomes and models and theories related to SHRM. The findings of the paper identify areas for future research to expand the theories of SHRM.

(10) Sections **(11)** Figures **(12)** References

[Abstract](#)
[Introduction](#)
[Theory](#)
[Methodology](#)
[Results](#)
[Discussion](#)
[Future Avenues for Research](#)
[Limitations](#)
[Conclusion](#)
[Appendix](#)
[References](#)
[Acknowledgements](#)
[Author information](#)
[Ethics declarations](#)
[Additional information](#)

- 1) 文章标题
- 2) 文章类型、在线出版日期、卷次、页码（期次）
- 3) 下载PDF全文、查看是否获得机构授权访问
- 4) 引用文章
- 5) 收藏文章
- 6) 访问文章所发表的期刊；了解期刊的宗旨与范围、在线投稿
- 7) 作者信息
- 8) 文章下载/访问次数、引用次数
- 9) 文章摘要
- 10) 文章结构导航
- 11) 图表
- 12) 参考文献

Home > Nature Communications > Article > Metrics

9033 Accesses | 1 Citation | 235 Altmetric | 35 Mentions

Metrics

Discovery of the most compact 3+1-type quadruple star system TIC 120362137

Last updated: Thu, 26 Mar 2026 4:02:27 UTC

📄 Accesses

Accesses is an approximate count of unique views and downloads. This number can fluctuate depending on multiple factors. We update counts daily.

9033

Accesses

📄 Citations

Citation counts are provided by Dimensions and depend on their data availability. Counts will update daily, once available.

1

Citation

📊 Altmetric



- 14 tweets
- 1 Facebook pages
- 1 Redditors
- 1 Wikipedia page
- 2 blogs
- 33 news outlets
- 1 Video uploaders
- 1 Mendeley

Altmetric calculates a score based on the online attention an article gets — the higher the score, the more online attention an article has received.

The donut visual summarises attention from different sources such as social media and news outlets. A breakdown is shown in the legend.

Older articles have had more time to get noticed, so Altmetric provides context data for articles of a similar age.

This article is in the 99th percentile (ranked 992nd) of the 226,385 tracked articles of a similar age in all journals and the 98th percentile (ranked 29th) of the 1,837 tracked articles of a similar age in *Nature Communications*.

View more on [Altmetric](#).

🗨️ Mentions

Researchers Discover Four-star System More Crowded Than Mercury's Orbit

ZME Science

Astrônomos descobrem quatro estrelas 'quase grudadas' em formação rara; vídeo

Veja on-line

This list highlights individual mainstream news articles and blogs that cite the article. Not all news and blogs link to articles in a way that Altmetric can pick up, so they are not representative of all media.

Altmetric are responsible for the curation of this list and provide updates hourly.

文章被访问或被请求访问的次数

衡量学术成果在社交媒体和公共平台上影响力的指标

文章在新闻媒体及博客被提及的详情

在Dimensions上记录下的被引用次数

Sustainable Human Resource Management—A Systematic Literature Review and Directions for Future Research

Download PDF

(13)


Similar content being viewed by others



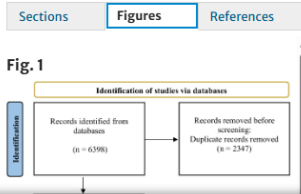
Integrating Sustainability into HRM: An Innovative Approach Towards Zero Carbon Industry
Chapter | © 2025



Designing an Interactionist Approach for Sustainable HRM: Might the Borders and Overlaps with Internal...
Chapter | © 2022



Sustainable HRM and well-being: systematic review and future research agenda
Article | 14 July



13) 热门相关内容

14) 由机器学习智能推荐，探索相关学科领域的最新文章、图书与新闻

15) 在线阅读全文

(14)

Explore related subjects

Discover the latest articles, books and news in related subjects, sorted using machine learning

Corporate Environmental Management

Cultural Resource Management

Diversity Management and Women in Business

Human Resource Development

Human Resource Management

Sustainable Growth

Sustainable Human Resource Management Practices

Home > Subject

Cultural Resource Management

Uncover the latest and most impactful research in Cultural Resource Management. Explore pioneering discoveries, insightful ideas and new methods from leading researchers in the field.

Latest research

Feasibility Study of Recovering Iron Resources from Red Mud with Different Grades via the Hfsmelt Smelting Reduction Process: Slag Regulating and Iron Separation
Jia Guo, Honghang Zhou... Xuewei Lv in *Metallurgical and Materials Transactions B*
Article | 09 March 2026




Continuance intention of cultural museum virtual human based on PLS-SEM analysis of MRT and UGT
Xinxin Sun, Feiyang Wang & Wenkui Jin in *ijgg Heritage Science*
Article | Open access | 06 March 2026

Modified resource measures for quantum resource theory
Zhe Ji, Lei Li... Ming Lin in *Quantum Information Processing*
Article | 03 March 2026

Optimization of architectural cultural heritage protection and sustainable development strategy based on deep learning and data mining
Fanwei Meng in *Discover Artificial Intelligence*
Article | Open access | 03 March 2026

Augmented Reality-Enabled heritage preservation using artificial intelligence, Blockchain, and collaborative repositories
Vanishree Kool Mahesh, Lakshmi Anand & Agneta Trijoshi in *Multimedia Tools and Applications*
Article | 02 March 2026

Related journals

	<p>Built Heritage</p> <p>Built Heritage aims to enhance pluralism and criticism in debates on heritage conservation and revitalization with a globalized perspective. The...</p>	<p>Publishing model: Open Access</p> <p>Downloads: 418,280 (2025)</p> <p>Submission to first decision (median): 22 days</p>
	<p>Environmental Management</p> <p>Environmental Management publishes research on the assessment, use, conservation, and management of the environment and natural resources. Contribution...</p>	<p>Publishing model: Hybrid</p> <p>Journal Impact Factor: 3.0 (2024)</p> <p>Downloads: 1,339,227 (2025)</p> <p>Submission to first decision (median): 9 days</p>
	<p>Human Ecology</p> <p>The theoretical orientation of Human Ecology emphasizes the problem-solving significance of human culture and behavior, from food procurement to...</p>	<p>Publishing model: Hybrid</p> <p>Journal Impact Factor: 1.7 (2024)</p> <p>Downloads: 483,730 (2025)</p> <p>Submission to first decision (median): 12 days</p>

[View all journals →](#)

(15) Introduction

Sustainability has become a key focus area of interest for organisations because people and businesses to achieve their present needs without causing harm to the environment for future generations (Garza-Reyes et al., 2019). Accordingly,

Sustainable Human Resource Management—A Systematic Literature Review and Directions for Future Research [Download PDF](#)

References

Abu-Mahfouz, S., Halim, M. S. A., Bahkia, A. S., Alias, N., & Tambi, A. M. (2023). Sustainable human resource management practices in organizational performance: The mediating impacts of knowledge management and work engagement. *Journal of Entrepreneurship, Management and Innovation*, 19(2), 57–97.

[Article](#) [Google Scholar](#)

Ahmić, A., & Smajlović, S. (2022). Sustainable Human Resource Management relationship with the human resource risk. *Economic Review*, 20(2), 65–78.

[Google Scholar](#)

Aibaghi-Esfahani, S. A. E. E. D., Rezaii, H., Koochmeshki, N., & Sharifi-Parsa, S. A. E. E. D. (2017). Sustainable and flexible human resource management for innovative organizations. *AD-Minister*, 30, 195–215.

[Article](#) [Google Scholar](#)

Al-Abbadi, L. H. (2021). The effect of sustainable HRM practices on employee job outcomes of service industry in Jordan. *Journal of Management Information and Decision Sciences*, 24(S6), 1–15.

[Google Scholar](#)

Alghnimi, A. A. W. M., Habeeb, L. M., & Kadhim, R. I. (2020). The mediating effect of employee engagement between sustainable HRM practices and job performance. *International Journal of Innovation, Creativity and Change*, 13(6), 643–659.

[Google Scholar](#)

Sections Figures References

Abu-Mahfouz, S., Halim, M. S. A., Bahkia, A. S., Alias, N., & Tambi, A. M. (2023). Sustainable human resource management practices in organizational performance: The mediating impacts of knowledge management and work engagement. *Journal of Entrepreneurship, Management and Innovation*, 19(2), 57–97.

[Article](#) [Google Scholar](#)

Ahmić, A., & Smajlović, S. (2022). Sustainable Human Resource Management relationship with the human resource risk. *Economic Review*, 20(2), 65–78.

[Google Scholar](#)

Aibaghi-Esfahani, S. A. E. E. D., Rezaii, H., Koochmeshki, N., & Sharifi-Parsa, S. A. E. E. D. (2017). Sustainable and flexible human resource management for innovative organizations. *AD-Minister*, 30, 195–215.

[Article](#) [Google Scholar](#)

Al-Abbadi, L. H. (2021). The effect of sustainable HRM practices on employee job outcomes of service industry in Jordan. *Journal of Management Information and Decision Sciences*, 24(S6), 1–15.

[Article](#) [Google Scholar](#)

Alghnimi, A. A. W. M., Habeeb, L. M., & Kadhim, R. I. (2020). The mediating effect of employee engagement between sustainable HRM practices and job performance. *International Journal of Innovation, Creativity and Change*, 13(6), 643–659.

[Article](#) [Google Scholar](#)

- 在文章正文之后或右边栏菜单中均可查看该文章引用的参考文献。
- 多数参考文献提供外部链接（例如Google Scholar等），点击可访问参考文献摘要或原文。

About this article

查看文章历史版本



Check for updates

引用该文章，以ris格式导出引文，可使用Reference Manager等引文管理工具打开，或直接拷贝页面上的引文信息

Cite this article

Ramgolam, G., Ramphul, N. & Chittoo, H. Sustainable Human Resource Management—A Systematic Literature Review and Directions for Future Research. *J Knowl Econ* 16, 11407–11444 (2025). <https://doi.org/10.1007/s13132-024-02273-5>

[Download citation](#) ↓

Received
04 April 2024

Accepted
27 July 2024

Published
02 October 2024

Version of record
02 October 2024

Issue date
September 2025

DOI

<https://doi.org/10.1007/s13132-024-02273-5>

Share this article

Anyone you share the following link with will be able to read this content:

<https://rdcu.be/e75d9>

Copy shareable link to clipboard

Provided by the Springer Nature SharedIt content-sharing initiative

获取文章分享链接

文章关键词

Keywords

[Human resource management](#)

[Sustainable human resource management](#)

[Sustainability](#)

[Sustainable human resource management practices](#)

[PRISMA](#)



图书主页 - 概览

- 1) 题名/书名、副标题
- 2) 图书类型、版权年、版本
- 3) 以PDF格式下载图书
- 4) 作者/编者以及所属机构
- 5) 图书概览
- 6) 本书所属系列
- 7) 访问/下载次数、引用次数和Altmetric指数
- 8) 关于本书
- 9) 相关阅读
- 10) 关键词
- 11) 在本书内检索
- 12) 本书章节目录 (可在线阅读)
- 13) 以PDF格式下载单个图书章节
- 14) 快速导航 (图书概览、关于本书、关键词、章节目录、作者/编者简介、图书编目信息等)

Home > Textbook

An Introduction to Statistical Learning (1)

with Applications in R

Textbook | © 2021 (2)
Latest edition

Access provided by Springer Nature Affiliates

Download book PDF ↓ (3)

Overview

(4) Authors: [Gareth James](#), [Daniela Witten](#), [Trevor Hastie](#), [Robert Tibshirani](#)

(5)

- Presents an essential statistical learning toolkit for practitioners in science, industry, and other fields
- Demonstrates application of the statistical learning methods in R
- Includes new chapters on deep learning, survival analysis, and multiple testing
- Covers a range of topics, such as linear regression, classification, resampling methods, shrinkage approaches, tree-based methods, support vector machines, clustering, and deep learning

↓ Show all

(6) Part of the book series: [Springer Texts in Statistics \(STS\)](#) (14)

(7) 578k Accesses | 800 Citations | 68 Altmetric

About this book

An Introduction to Statistical Learning provides an accessible overview of the field of statistical learning, an essential toolset for making sense of the vast and complex data sets that have emerged in fields ranging from biology to finance to marketing to astrophysics in the past twenty years. This book presents some of the most important modeling and prediction techniques, along with relevant applications. Topics include linear regression,

(9) Similar content being viewed by others

 Machine learning and the James-Stein estimator Article Open access 30 June 2023	 An Introduction to R for Quality Control Chapter © 2015	 Statistical inference and large-scale multiple testing for high-dimensional regression models Article 05 July 2023
---	---	--

Keywords

R software | data mining | inference | statistical learning | supervised learning | unsupervised learning

(11) Search within this book

(12) Table of contents (13 chapters)

Front Matter | Pages i-xv | (13) Download chapter PDF ↓

Buy print copy

Softcover Book	EUR 65.39
Hardcover Book	EUR 92.64
MyCopy Softcover	EUR 39.99

Tax calculation will be finalised at checkout

Sections

- Overview
- About this book
- Keywords
- Table of contents (13 chapters)
- Reviews
- Authors and Affiliations
- About the authors
- Bibliographic Information
- Publish with us

图书章节页面 - 概览

- 1) 章节名称
- 2) 章节在线出版时间
- 3) 引用本章节
- 4) 授权机构
- 5) 章节所在图书
- 6) 以PDF和EPUB格式下载本书
- 7) 作者及所属机构
- 8) 章节访问/下载次数
- 9) 章节摘要
- 10) 访问权限提示及下载PDF
- 11) 相关阅读
- 12) 章节正文
- 13) 章节结构及快速导航、章节中的图表
- 14) 作者及编者信息
- 15) 版权信息
- 16) 关于本章节

Home > Natural Orifice Specimen Extraction Surgery > Chapter

(1) Perioperative Preparation of NOSES for Colorectal Cancer

(2) Chapter | First Online: 18 July 2018
(3) pp 11–17 | [Cite this chapter](#)
(4) ● Access provided by Springer Nature Affiliates

(6) [Download book PDF](#) [Download book EPUB](#)

(7) Xishan Wang, Zheng Liu & Hanguo Hu

(8) 368 Accesses

(9) **Abstract**

Preoperative preparation, especially mechanical and/or antibiotic bowel preparation, is a routine procedure before colorectal examinations and surgeries. Bowel preparation aims to decrease bacterial load and stool burden and facilitates surgeries. With popularization of ERAS (Enhanced Recovery after Surgery), some have discontinued routine preoperative preparation; however, preparation is still vitally important in NOSES. It involves many aspects including bowel preparation, psychology preparation, and vaginal preparation for the female. Without preoperative preparation, outcomes may suffer.

(10) Access provided by Springer Nature Affiliates. [Download chapter PDF](#)

(11) **Similar content being viewed by others**

Perioperative Preparation of NOSES
Chapter © 2021

Perioperative Preparation of NOSES
Chapter © 2023

Controversies in preoperative bowel preparation in gynecologic and gynecologic oncology...
Article 01 August 2020

(12) Preoperative preparation, especially mechanical and/or antibiotic bowel preparation, is a routine procedure before colorectal examinations and surgeries. Bowel preparation aims to decrease bacterial load and stool burden and facilitates surgeries. With popularization of ERAS (Enhanced Recovery after Surgery), some have discontinued routine preoperative preparation; however, preparation is still vitally important in NOSES. It involves many aspects including bowel preparation, psychology preparation, and vaginal preparation for the female. Without preoperative preparation, outcomes may suffer.

(5) Natural Orifice Specimen Extraction Surgery

(13) **Sections** **Figures**

- [Abstract](#)
- [Bowel Preparation](#)
- [Vaginal Preparation](#)
- [Treatment Principles of Concomitant Diseases](#)
- [Psychological Preparation](#)
- [Indications and Contraindications of NOSES fo...](#)
- [Aseptic and Non-touch Procedures of NOSES f...](#)
- [Author information](#)

(14) **Author information**

Authors and Affiliations
Cancer Hospital Chinese Academy of Medical Sciences, Beijing, China
Xishan Wang & Zheng Liu
The Second Affiliated Hospital of Harbin Medical University, Harbin, China
Hanguo Hu

Editor information

Editors and Affiliations
Department of Colorectal Surgery, Cancer Hospital Chinese Academy of Medical Sciences, Beijing, China
Xishan Wang

Rights and permissions
[Reprints and permissions](#)

(15) **Copyright information**

© 2018 Springer Nature Singapore Pte Ltd. and People's Medical Publishing House

(16) **About this chapter**

Cite this chapter
Wang, X., Liu, Z., Hu, H. (2018). Perioperative Preparation of NOSES for Colorectal Cancer. In: Wang, X. (ed.) Natural Orifice Specimen Extraction Surgery. Singapore, Springer. [https://doi.org/10.1007/978-98-14-04448-8_2](#)

Download citation
DOI: [10.1007/978-98-14-04448-8_2](#)

DOI [https://doi.org/10.1007/978-98-14-04448-8_2](#) **Published** 18 July 2018 **Publisher Name** Springer, Singapore

Print ISBN 978-981-13-0445-1 **Online ISBN** 978-981-13-0444-4 **eBook Packages** Health Science [Study Drive](#)

Share this chapter
Anyone you share the following link will be able to read this content:
[Get shareable link](#)

Published with us
Publish with us

免费期刊查找工具：Journal Finder

不再与你的“梦中情刊”擦肩而过

Journal Finder 为您提供：

- **个性化的期刊推荐：**我们的期刊匹配技术能基于您的研究细节寻找相关的期刊；
- **超过 3000 本期刊：**检索范围涵盖施普林格·自然旗下上千种期刊，无论哪一研究领域，您都能寻找适合您阅读和发表的期刊；
- **主要的期刊信息：**检索结果包含期刊影响因子、五年影响因子、下载量、投稿至初审意见时间等多维度数据；
- **支持分享和下载：**轻松获取共享链接或下载检索结果，及时与您的共同作者及同行分享；
- **按学科领域查找：**通过学科领域浏览期刊，并进一步细分领域或按期刊指标排序。

查找适合您发表的期刊：

link.springer.com/journals



Home > Journal and funding finder

Journal and funding finder





Find the right journal for your research and explore open access funding with Springer Nature.

Enter a manuscript title, abstract, or keywords (required)
Maximum 5,000 characters

Find out if you could receive funding for open access name
Select your institution

Find journals →

Sort by: Relevance Update results Download results (.xlsx)

	Journal Impact Factor	5-year Journal Impact Factor	Downloads	Submission to first decision (median)	Relevance
 Nature Energy Hybrid Calls for papers Show more	49.8 (2023)	62.4 (2023)	3,431,013	4 days	★★★★★
 Electrical Engineering Hybrid Show more	1.6 (2023)	1.7 (2023)	345,221	8 days	★★★★★
 Journal of Electrical Engineering & Technology Hybrid Show more	1.6 (2023)	1.4 (2023)	225,943	20 days	★★★★★
 Ionics Hybrid Show more	2.4 (2023)	2.6 (2023)	741,251	5 days	★★★★☆

[Home](#) > [Journal and funding finder](#)

Journal and funding finder

Find the right journal for your research and explore open access funding with Springer Nature.

Enter a manuscript title, abstract, or keywords (required)

Maximum 5,000 characters

输入文章题目、摘要或关键词

Find out if you could receive funding for open access publication costs. Enter your institution name

▼ [Select your institution](#)



[Find journals](#) →

Our brands



nature
portfolio



palgrave
macmillan



Browse by subject

[Biological sciences](#)

[Earth and environmental sciences](#)

[Mathematics](#)

[Business and management](#)

[Health sciences](#)

[Physics and astronomy](#)

[Log in](#)



Discover content

[Journals A-Z](#)

[Books A-Z](#)

Publish with us

[Journal finder](#)

[Publish your research](#)

[Open access publishing](#)

Sort by: Relevance ▼

Update results

📄 Download results (.xlsx)

Journal Impact Factor (high to low)

5-year Journal Impact Factor (high to low)

Downloads (high to low)

Submission to first decision (median) (shortest to longest)

Funding (high to low)

Relevance

Submission to first decision (median)

Showing 1 - 20

Machine Learning

Control, Robotics, Automation

Artificial Intelligence

Computer Modelling

Natural Language Processing (NLP)

Education and Information Technologies

Publishing Model	Journal Impact Factor	Downloads	Submission to first decision (median)
Hybrid	5.4 (2024)	5,267,191	29 days

Computers and Education

Digital Education and Educational Technology

User Interfaces and Human Computer Interaction

Education

Computer and Information Systems Applications

Computer Application in Social and Behavioral Sciences

SN Computer Science

Publishing Model	Downloads	Submission to first decision (median)
Hybrid	1,696,119	96 days

Computer Science

Computer Engineering and Networks

Software Engineering

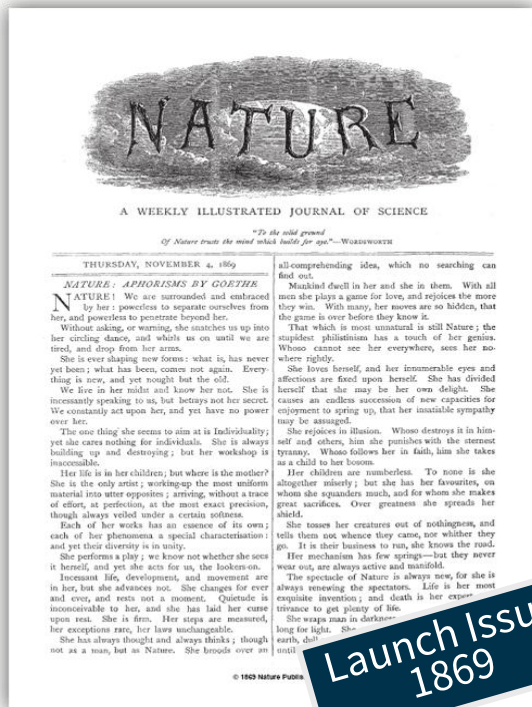
Data Structures and Information Theory

Computer Imaging, Vision, Pattern Recognition and Graphics

i For open access publishing costs and funding options [select your institution](#). Subscription publishing is also available.

2.0

Nature期刊平台简介



- 1869年11月4日创刊
- 全球领先的科学期刊
- 涵盖各个科学领域
- Nature的使命：

向全球科学家和关注科学的人士传播全球最优质、最重大的科学进展。

人类历史上的重大科学突破



A WEEKLY ILLUSTRATED JOURNAL OF SCIENCE

*"To the solid ground
Of Nature trusts the mind that builds for aye."
- WORDSWORTH*

1880: 指纹用于刑侦技术

1896: 首次发现X射线

1903: 发现镭的放射性衰变

1925: 发现非洲类人猿——人类的起源

1927: 发现电子的波动性——电子显微镜的基石

1932: 破解原子由质子、中子和电子组成——原子能时代的开端

1953: 发现DNA的双螺旋结构——开启生物学的黄金时代

1958: 首次确定蛋白质结构——蛋白质组学

1961: 破解DNA到蛋白质的编码过程

1963: 利用地磁证据证明大陆板块漂移学说

1978: 合成第一个单克隆抗体——癌症的靶向治疗

1983: 发现艾滋病毒

1985: 在南极上空发现臭氧空洞——引发全球对环境问题的关注

1991: 纳米碳管的合成——开启新材料时代

1992: 发现30万年前的尼安德特人头骨残骸

1994: 首次合成强力抗癌新药——紫杉醇

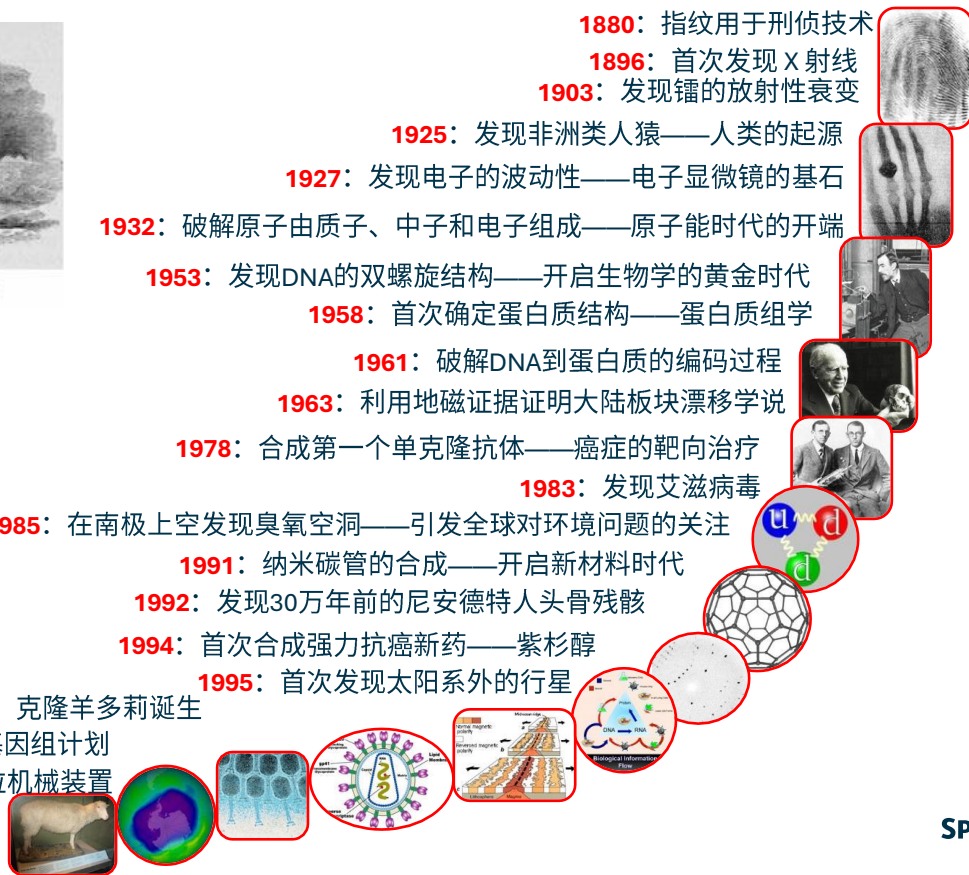
1995: 首次发现太阳系外的行星

1997: 克隆羊多莉诞生

2001: 人类基因组计划

2006: 破解安提基特拉机械装置

2012: ENCODE计划





全球引用量最高
的多学科期刊

2024年引用次数
超96万*

*以上期刊指标数据源于2024年Journal Citation Reports, Clarivate Analytics 2025; 如有出入, 欢迎指正。

**包括2026年新刊

***包括《自然-通讯》

《自然》 (Nature)

创刊于1869年, 是全球首屈一指的科学周刊, 基于科学研究的原创性、重要性、跨学科、即时性和成果的突破性, 发表最出色的经过同行评审的原创性研究。《自然》还提供快速、权威、深刻而引人注目的科研新闻资讯, 并对影响科学、科学家和更广泛公众的热点及未来趋势进行解读。

《自然》系列期刊 汇集了Nature Portfolio旗下多学科研究和综述期刊

42种《自然》系列研究期刊:

涵盖生命科学、物理科学、临床医学和社会科学领域, 不仅发表基础研究, 也发表综述、批判性评论和分析。

在62本有影响因子的《自然》及《自然》系列期刊中***:

- 在2024 JCR分区中全部位于Q1
- 有27本在一个或多个学科中排名第一, 57本位居领域Top10
- 在JCR影响因子排名前20的期刊中占据11席
- 在JCR影响因子排名前50的期刊中占据24席
- 38本期刊的影响因子提升, 个别涨幅高达50%左右

26种《自然综述》系列期刊**:

提供权威的、易于理解的、意义重大的综述内容。无论在哪一领域, 高质量的图像和强化的内容都提供上下文和联接。



访问网址:

<http://www.nature.com>

访问 www.nature.com

发现重要科研成果，浏览相关内容，管理个人设置

探索发现平台
上的热门内容

《自然》
期刊介绍

《自然》
作者须知

个人/机构订阅
Nature

浏览Nature.com
上的所有期刊

检索与发现

登录
个人帐户

The screenshot shows the Nature.com homepage. At the top left is the 'nature' logo. To its right are links for 'View all journals', a search bar with 'Search' text, and a 'Log in' link. Below the logo is a navigation bar with 'Explore content', 'About the journal', 'Publish with us', and 'Subscribe'. On the right side of this bar are 'Sign up for alerts' and 'RSS feed'. The main content area features a large article with the headline 'CRISPR makes enhanced cancer-fighting immune cells inside mice' and a sub-headline 'Gene-editing technique promises a potentially safer way to create CAF T cells with a simple injection.' To the right of the text is a large, colorful 3D molecular model of a protein complex.

全球科研领域的重大发现
及
相关新闻报道

注册电邮通讯
RSS订阅

发现《自然》热门内容

下拉菜单以快速跳转至《自然》的不同专栏

Engineering articles within *Nature*

浏览nature期刊中的工程学文章

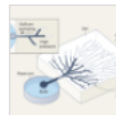
Featured

News & Views | 11 December 2024

Liquid metal pumps itself out of gels to make artificial vasculature

A fresh take on an ancient process for making moulds reverses the usual roles of soft and rigid materials. The resulting process enables complex, 3D channel systems that mimic vasculature to be made in soft biomaterials.

Michael D. Bartlett

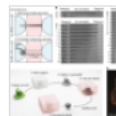


Article | 11 December 2024

Sacrificial capillary pumps to engineer multiscalar biological forms

A patterning method using gallium-based engineered sacrificial capillary pumps for evacuation is described for generating structures in soft natural hydrogels across several length scales and enabling a wide range of tissue architectures to be fabricated.

Subramanian Sundaram, Joshua H. Lee & Christopher S. Chen



浏览更广泛的主题

↑ Browse broader subjects

[Business and industry](#)

[Physical sciences](#)

浏览更窄的主题

↓ Browse narrower subjects

[Aerospace engineering](#)

[Biomedical engineering](#)

[Chemical engineering](#)

[Civil engineering](#)

[Electrical and electronic engineering](#)

[Energy infrastructure](#)

[Mechanical engineering](#)

浏览nature.com平台上所有期刊中工程学内容

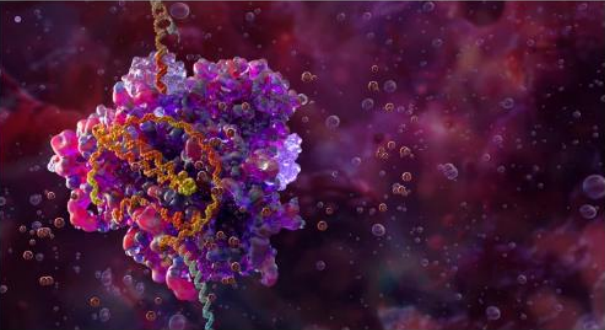
[Browse Engineering across other nature.com journals >>](#)

nature [View all journals](#) [Search](#) [Log in](#)

[Explore content](#) [About the journal](#) [Publish with us](#) [Subscribe](#) [Sign up for alerts](#) [RSS feed](#)

CRISPR makes enhanced cancer-fighting immune cells inside mice

Gene-editing technique promises a potentially safer way to create CAR T cells with a simple injection.




Major Turing computing award goes to quantum science for first time
Turing Award winners Gilles Brassard and Charles Bennett pioneered ideas that are now foundational to quantum computers and quantum communications.

Knock knock, no one's there. Study finds scientists' jokes mostly fall flat
Survey examines how often academics attempt jokes during conference talks — and how these attempts at comedy land.

Intestinal interoceptive dysfunction drives age-associated cognitive decline
Age-related microbiome changes increase medium-chain fatty acid-producing bacteria, driving GPR84-mediated myeloid inflammation, impaired vagal signalling and hippocampal dysfunction; targeting this gut-brain pathway restores memory in aged mice.

Daily briefing: How labs are coping with 'RAMageddon'
A global shortage of memory chips is forcing researchers to get creative. Plus, China's plans to become the global tech leader and the AI arms race unfolding in lecture halls.



[Contents](#) [Subscribe](#)

Davide Castelvecchi [News](#) | 18 Mar 2026
Nicola Jones [News](#) | 18 Mar 2026
Timothy O. Cox, Ashwarya S. Devason — Christoph A. Thaiss [Article](#) | [Open Access](#) | 11 Mar 2026
Flora Graham [Nature Briefing](#) | 16 Mar 2026
Current Issue | 19 Mar 2026

《自然》
热门文章精选

查看《自然》
当前最新期次

新闻资讯与时评

及时追踪全球科研新闻、分析与评论

时评分析由Nature Portfolio编辑撰写，同时编辑们也会向权威学者邀稿，就各学科领域的发展发表意见。

页面路径可随时获知当前所在位置

是否有权访问全文

News & Comment >

Lipstick on a pig: how to fight back against a peer-review bully
Scientific societies, journals, editors and researchers are pushing back against mean-spirited peer reviews.
Katarina Zimmer
Career Feature | 15 Sept 2025

GPS timekeeping is increasingly vulnerable: here's how to deliver future-proofed time
Leon Lobo, Douglas Paul & Chandler Velu
Comment | 15 Sept 2025

Mirror of the unknown: should research on mirror-image molecular biology be stopped?
Ting Zhu
Comment | 15 Sept 2025

Heroes or hoarders? The strange brains of people who collect
Andrew Robinson
Book Review | 15 Sept 2025

Weird 'time crystals' are made visible at last
Elizabeth Gibney
News | 15 Sept 2025

How should 'mirror life' research be restricted? Debate heats up
Mark Pegglov
News | 15 Sept 2025

The chatbots claiming to be Jesus: spreading gospel or heresy?
Brian Owens
News | 15 Sept 2025

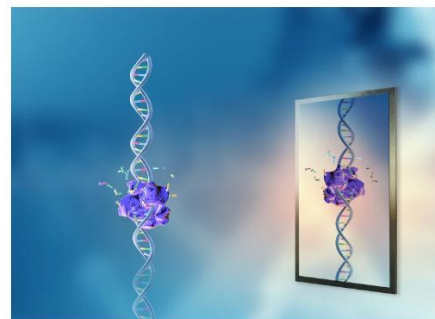
nature > news > article

NEWS | 15 September 2025

How should 'mirror life' research be restricted? Debate heats up

Some researchers are calling for strict limits, while others speak out against prematurely halting basic science.

By Mark Pegglov



Some researchers are developing biological systems that create mirror-image versions of DNA and other molecules crucial to life. Credit: Ting Zhu Lab

You have full access to this article via your institution.

Related Articles

Mirror of the unknown: should research on mirror-image molecular biology be stopped?



Mirror-image molecules separated using workhorse of chemistry



Mirror-image enzyme copies looking-glass DNA



'Elegant' catalysts that tell left from right scoop chemistry Nobel



Rare 'ambidextrous' protein breaks rules of handedness



Subjects

Scientific community | Cell biology | Chemical biology

Chemistry

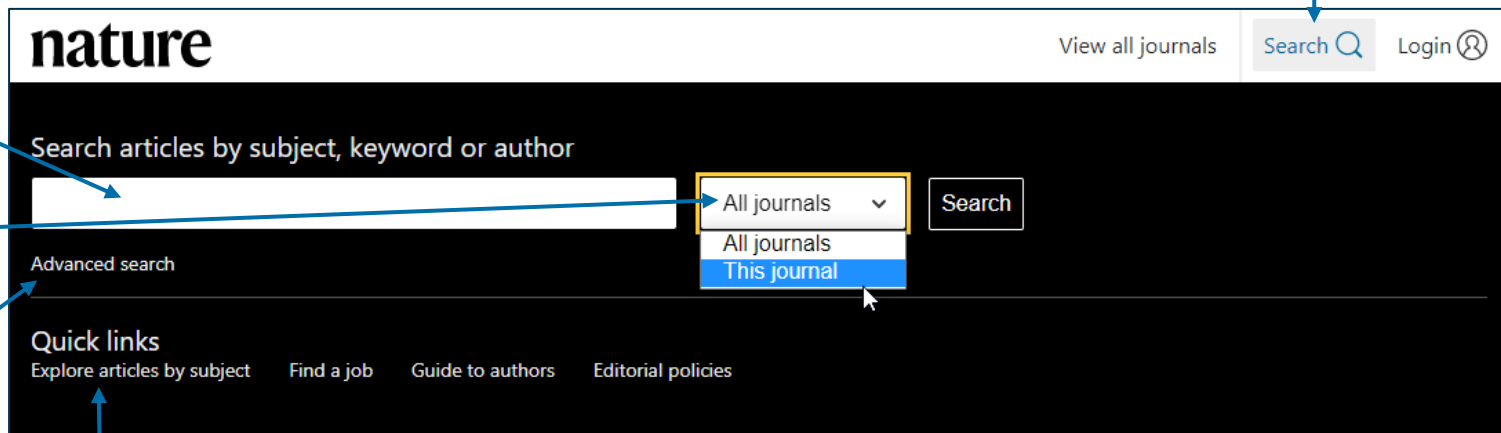
文章类型/专栏一目了然

文章所涵盖学科、主题

检索

在nature.com平台上可简洁、直观地找到您感兴趣的内容

检索框位于
所有页面的右上角



输入任意关键词以
进行一般检索

指定检索范围：整
个平台或当前期刊

高级检索可实现
更精确的检索

快速链接：按学科浏览文章、查找自然职
场发布的职位、作者指南、编辑出版政策

高级检索功能

通过附加检索条件优化检索结果

The image shows a screenshot of the Springer Nature 'Advanced search' interface. The interface is titled 'Advanced search' and 'Find articles...'. It contains several input fields and sections for refining search results. Blue arrows point from Chinese text boxes to specific fields in the interface:

- '在全文范围按关键词查找' points to the first search input field.
- '按作者姓名查找' points to the 'where the list of authors contains' input field.
- '在文章标题内查找' points to the 'where the title contains' input field.
- '指定出版年' points to the 'publication date' section, specifically the 'Year' dropdown.
- '指定期刊范围查找' points to the 'journal(s)' input field.
- '指定期刊卷次' points to the 'volume' input field.
- '指定文章页码' points to the 'start page / article no.' input field.

The interface also includes a 'Search' button at the bottom left.

Search

nanotechnology [Advanced search](#)

Journal **Article type** **Subject** **Date** [Clear all filters](#)

Sort by: Relevance Date published (new to old) Date published (old to new)

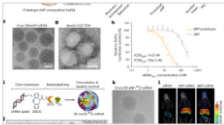
Showing 1–50 of 37424 results

Research
[Open Access](#)
 03 Feb 2025
Nature Nanotechnology
 Volume: 20, P: 532-542

6) Nature-inspired platform nanotechnology for RNA delivery to myeloid cells and their bone marrow progenitors

7) In this study, the authors present optimization and efficacy testing of apolipoprotein-based lipid nanoparticles for delivering various nucleic acid therapeutics in vivo to immune cells and their progenitors in the bone marrow.

8) Stijn R. J. Hofstraat, Tom Anbergen ... Roy van der Meel



Research
[Open Access](#)
 16 Mar 2026
Scientific Reports
 P: 1-19

Green nanotechnology: Adenanthera pavonina-derived silver nanoparticles with antibacterial and photocatalytic properties

Mobashwira Anzum, Anik Molla ... Md. Asadul Islam

Research
[Open Access](#)
 29 Jul 2009
Nature Precedings
 P: 1

NPO: Ontology for Cancer Nanotechnology Research

Dennis Thomas, Rohit Pappu & Nathan Baker

Research
Natural hyperbolicity of hexagonal boron nitride in the deep ultraviolet

按期刊、文章类型、学科、
出版时间筛选

按相关度或
出版时间排序

- 1) 文章类型
- 2) 开放获取
- 3) 出版时间
- 4) 文章所属期刊
- 5) 所属期次、页码
- 6) 文章标题
- 7) 文章摘要
- 8) 文章作者
- 9) 文章焦点图片

5) **nature climate change** View all Journals Search Q Login

Explore content ▾ About the journal ▾ Publish with us ▾ Sign up for alerts RSS feed

nature > nature climate change > articles > article

1) 2) Article | Published: 23 August 2021

The surprisingly inexpensive cost of state-driven emission control strategies 3)

Wei Peng 4) Gokul Iyer, Matthew Binsted, Jennifer Marion, Leon Clarke, James A. Edmonds & David G. Victor 4)


5) *Nature Climate Change* 11, 736–745 (2021) | Cite this article 6)

760 Accesses | 1 Citations | 432 Altmetric | Metrics

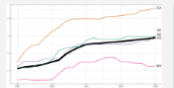
7) 8) 9) **Abstract 10)**

Traditionally, analysis of the costs of cutting greenhouse gas emissions has assumed that governments would implement idealized, optimal policies such as uniform economy-wide carbon taxes. Yet actual policies in the real world, especially in large federal governments, are often highly heterogeneous and vary in political support and administrative capabilities within a country. While the benefits of heterogeneous action have been discussed widely for experimentation and leadership, little is known about its costs. Focusing on the United States, we represent plausible variation (by more than a factor of 3) in the stringency of state-led climate policy in a process-based integrated assessment model (GCAM-USA). For a wide array of national decarbonization targets, we find that the nationwide cost from heterogeneous subnational policies is only one-tenth higher than nationally uniform policies. Such results hinge on two critical technologies (advanced biofuels and electricity) for which inter-state trade ameliorates the economic efficiencies that might arise with heterogeneous action.

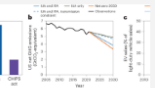
11) **Similar content being viewed by others**



Policy sequencing towards carbon pricing among the world's largest emitters



How climate policy commitments influence energy systems and the economies of US states



Supply, demand and polarization challenges facing US climate policies

12) You have full access to this article via Springer Affiliates

Download PDF

13) **Associated Content**

Cost of non-uniform climate policies

Alekh Cherp
News & Views | 23 Aug 2021

14) 15) 16)

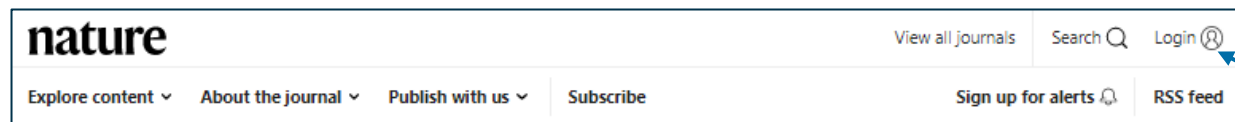
Sections Figures References

- Abstract
- Main
- Scenario design
- Heterogeneity at state level
- Mitigation efforts by sector
- Implications for nationwide cost
- Sensitivity analyses
- Discussion
- Methods
- Data availability
- Code availability
- References
- Acknowledgements
- Author information
- Ethics declarations
- Additional information
- Extended data
- Supplementary information
- Rights and permissions
- About this article
- Further reading

17) 其他信息
扩展数据
补充/辅助材料
版权与再利用许可
关于本文章
延伸阅读

- 1) 文章类型
- 2) 在线出版日期
- 3) 文章标题
- 4) 作者信息
- 5) 所发表的期刊、页码
- 6) 引用该文章
- 7) 文章下载/访问次数
- 8) 文章被引用次数
- 9) 文章Altmetric指数
- 10) 文章摘要
- 11) 阅读更多相似内容
- 12) 下载PDF全文
- 13) 文章相关内容
- 14) 文章结构导航
- 15) 图表
- 16) 参考文献
- 17) 更多信息

步骤一



点击主页右上角的“Login”登录

步骤二

已注册用户可直接登录；
尚未注册的用户可用邮件轻松注册（账户可用于Springer Nature Link、nature.com、SNAPP等施普林格·自然旗下其他平台），或使用谷歌/ORCID账号登录。

步骤三

Log in, or register a new account, to track your submissions and check your impact

Email address

123@qq.com

Continue →

OR

Continue with Google →

Continue with ORCID →

随后您的邮箱将收到一封注册确认邮件，
点击邮件中的链接以完成注册

Confirm your email address

We're improving your account to allow easier access to all of your work within Springer Nature.

To continue, follow the link in our email to 123@qq.com.

If you do not receive our email within 10 minutes contact us customerservice@springernature.com.

登录与账户管理 - 个性化推送订阅

第一时间获取您感兴趣的出版内容及信息推送

Account overview > Marketing preferences

Marketing preferences

Receive content relevant to your interests.

- I want to receive marketing emails about Springer Nature products and services, and my email can be used for digital advertising through third-party platforms. See our [privacy policy](#) for more details.
- Receive occasional updates from our third party partners on products or services that may be of interest to you.

Newsletters

Select the newsletters you would like to receive based on your interests.

- Nature India
- Nature China
- Nature Middle East
- nature.com newsletter
- The Source

Your job

Select the job title that best describes your work.

- Researcher
- Lecturer
- Healthcare professional
- Librarian
- Research manager
- Other

可按照职务/角色
勾选订阅

Your areas of interest

Select your interests to receive relevant marketing content.

Humanities and social sciences

- Arts, media and communication
- Behavioral sciences, psychology and society
- Cultural studies and education
- Business, management and economics
- Archaeology and history
- Linguistics and literature
- Philosophy and religion
- Law, politics and international studies

Life sciences

- Agriculture
- Biochemistry
- Biological sciences
- Biomedicine
- Cardiology
- Cell biology
- Clinical medicine
- Health sciences
- Imaging/radiology
- Internal medicine
- Life sciences, general
- Medicine/public health
- Microbiology
- Neurosciences
- Oncology and cancer research
- Zoology and veterinary science

Mathematics and computing

- Analysis
- Artificial intelligence
- Computer science
- Mathematics
- Statistics

Physical sciences

可按照兴趣领域
勾选订阅

Account

User Name
123@qq.com

Your work

- Submissions in progress
- Published work
- Peer review
- Editorial tasks

Account

- Track your research
- Subscriptions and purchases
- Manage your account

Log out

Explore your benefits

- Promote your latest article
- Watch your research impact grow
- Increase the visibility of your work

Reviewer dashboard

SPRINGER NATURE Account

Welcome back, Tiana Qiu

Celebrating and supporting your past, present and future contributions.

0 Articles 0 Citations 0 Accesses

Your research

Submitted Published

追踪投稿信息

查看已发表研究成果的表现

Find a journal for your next submission

Your next submission

Recommendations to help you find a home for your next submission. We use your reading history, past submissions, and your institution to personalise these to you.

Journals

Journal	Publishing model
Archives of Computational Methods in Engineering Archives of Computational Methods in Engineering is a forum for disseminating the state of the art...	Hybrid
Impact factor: 9.7 (2023)	
Downloads: 839.2k (2023)	
Submission to first decision (median): 11 days (2023)	

Journal	Publishing model
Communications Materials Communications Materials is a selective open access journal from Nature Portfolio publishing...	Open access
Impact factor: 7.5 (2023)	
Downloads: 729.3k (2023)	
Submission to first decision (median): 3 days (2023)	

Journal	Publishing model
Nature Computational Science Nature Computational Science is a multidisciplinary journal that focuses on the development and...	Hybrid
Impact factor: 12.0 (2023)	
Downloads: 707.6k (2023)	
Submission to first decision (median): 8 days (2023)	

Calls for papers


Collection	Publishing model
Statistical thermodynamics and chemical kinetics This collection of papers is originated from pr...	Hybrid

根据阅读历史、过往投稿以及所属机构，为您提供个性化的期刊推荐，帮助您找到最适合下一次投稿的发表平台

Opt out of personalised recommendations

点击右上角的 [Account]-[Track your Research]

- 投稿文章的进度
- 已发表文章的影响力
- 下次投稿推荐
- 征稿通知

 [Account](#)

User Name
123@qq.com

Your work

- [Submissions in progress](#)
- [Published work](#)
- [Peer review](#)
- [Editorial tasks](#)

Account

- [Track your research](#)
- [Subscriptions and purchases](#)**
- [Manage your account](#)


[Log out](#)


完成注册后，点击右
上角的 [Account]-
[Subscriptions and
Purchases]


进入个人账户，并随
时管理个性化推送订
阅和个人专业信息和
兴趣领域


Subscriptions and purchases

Journals and books


View bookshelf
Access your downloadable electronic purchases 


Nature journal subscriptions
Claim online access to Nature journals 

Springer+ digital subscriptions
Manage your digital subscription to Springer+ 

Nature+ digital subscriptions
Manage your digital subscription to Nature+ 

Email communications

Marketing preferences
Update your marketing preferences to let us know how we can contact you. 

Journal alerts
Manage your table of content alerts from journals. 

底部导航

下拉至nature.com任意页面底部，查看平台所有内容、作者、图书馆等更多服务的快速导航

About Nature Portfolio About us Press releases Press office Contact us	Discover content Journals A-Z Articles by subject protocols.io Nature Index	Publishing policies Nature portfolio policies Open access	Author & Researcher services Reprints & permissions Research data Language editing Scientific editing Nature Masterclasses Research Solutions
Libraries & institutions Librarian service & tools Librarian portal Open research Recommend to library	Advertising & partnerships Advertising Partnerships & Services Media kits Branded content	Professional development Nature Careers Nature Conferences	Regional websites Nature Africa Nature China Nature India Nature Italy Nature Japan Nature Middle East

[Privacy Policy](#) [Use of cookies](#) [Your privacy choices/Manage cookies](#) [Legal notice](#) [Accessibility statement](#) [Terms & Conditions](#)
[Your US state privacy rights](#)

Nature.com平台致力于确保每个人都可以访问我们的网站，包括视力、听力、认知和运动障碍者。我们一直努力改善网站的可访问性，以确保我们为所有用户提供平等的访问机会。

作为我们对可访问性承诺的一部分，我们确保我们的网站兼容：

- 常见屏幕阅读器的最新版本
- 操作系统屏幕放大镜
- 语音识别软件
- 操作系统语音包

更多信息，请访问 <https://www.nature.com/info/accessibility-statement>

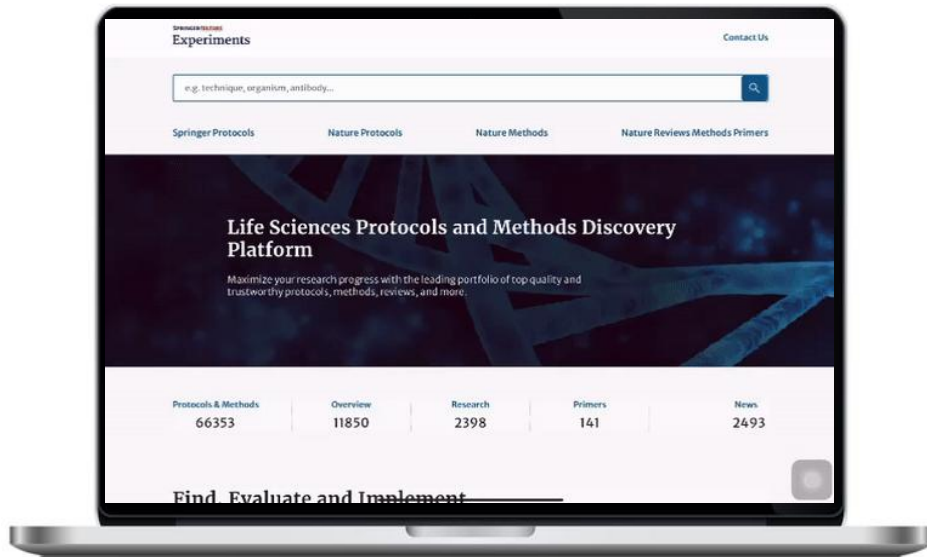
3.0

SpringerProtocols数据库
&Protocols.io平台简介

- 于2017年10月推出，整合**Springer Protocols**、**Nature Protocols**、**Nature Methods**和**Nature Reviews Methods Primers** 4个数据库内容，提供覆盖面更全面高质的实验室指南和方法
- Springer Protocols始于1981年，最初基于经典的系列丛书《分子生物学方法》，现囊括《分子生物学方法》、《药理学和毒理学方法》、《生物技术方法》和《分子医学方法》等
- 免费搜索/浏览内容；全文访问需要许可证

访问方式：

- 直接登录网址：<https://experiments.springernature.com/>
- 图书馆主页查找Springer Nature Experiments或者Springer Protocols链接
- 访问范围：校园网、VPN或Shibboleth





81,000+
PROTOCOLS

- 基于《分子生物学方法》系列丛书，生命科学领域现代实验方法学先驱
- 经过多年应用证实
- 覆盖更多细分领域

nature
protocols

3,800+
PROTOCOLS

- 加速实验室发布新技术实验方案
- 高度影响未来的研究
- 关注前沿创新研究

nature|**methods**

8,100+
ARTICLES

- 率先发表前沿方法
- 解决重要生物学问题

nature reviews
methods primers

265
ARTICLES So Far

- 涵盖生命科学和物理科学的分析、应用、统计、理论和计算方法

90,000+ 实验室指南以及方法，数字还在持续更新…

- 生物化学
- 生物信息学
- 生物技术
- 癌症研究
- 细胞生物学
- 遗传学/基因组学
- 成像
- 免疫学
- 传染性疾病
- 微生物学
- 分子医学
- 神经科学
- 药理学和毒理学
- 植物科学
- 蛋白质科学



概念识别

我们强大的算法识别检索词中的技术、有机体和细胞系字段

搜索筛选器

按出版年份、技术、抗体、有机体、细胞系、文章来源和分类和视频进行筛选，精确检索结果

The screenshot shows a search interface for "CRISPR drosophila anti-Rat". The search bar contains the query. Below the search bar, it indicates "2 results for 'CRISPR drosophila anti-Rat'". The interface includes a "Concepts identified" section with filters for "Technique: CRISPR", "Organism: Drosophila", and "Antibody: Anti-rat". On the left, there are filters for "Publication Year" (2022, 2022), "Technique" (with a list of techniques and counts), and "Antibody" (with a list of antibodies and counts). The main results area shows two entries, both from "Springer Protocols (2022)". The first entry is "Employing the CRISPR Technology for Studying Notch Signaling in the Male Gonad of Drosophila melanogaster" by Cordula Schultz. The second entry is "Functional Studies of Genetic Variants Associated with Human Diseases in Notch Signaling-Related Genes Using Drosophila" by Sheng-An Yang, Jose L. Salazar, David Li-Kroeger, and Shinya Yamamoto. The interface also features sorting options (Relevance, Most recent, Most cited, Trending) and a "Show images" toggle.

排序选项

按相关性、出版时间、引文、下载来排列结果，提高检索效率

关键信息

每个搜索结果片段都列出了文章中使用的技术和模型，帮助快速识别所需的文章

作者列表

提供完整的作者名单及工作单位

Springer Protocols (2022)

Employing the CRISPR Technology for Studying Notch Signaling in the Male Gonad of *Drosophila melanogaster*

Authors:

Cardula Schulz 

Series: Methods in Molecular Biology > Book: Notch Signaling Research

Protocol DOI: 10.1007/978-1-0716-2201-8_13

Affiliations:

1. Department of Cellular Biology, University of Georgia, Athens, GA, USA

Less

Citations: 1

Abstract

The Notch (N) signaling pathway plays versatile roles in development and disease of many model organisms (Andersson et al., *Development* 138, 3993–4012, 2011; Hori et al., *J Cell Sci*, 126, 2195–2140, 2013). However, studying a role for N in adult...[more](#)

Experimental Specifications **New**

Techniques Reagents* Other Keywords

Immunofluorescence

CRISPR

Dissection

TUNEL Labeling

* Reagents occurring with supplier names are extracted and shared by CiteAb.

Discover related articles



Determining Beta Cell Mass, Apoptosis, Proliferation, and Individual Beta Cell Size in Pancreatic Sections

2020,
Springer
Protocols

Springer Protocols

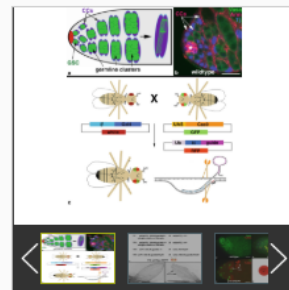
PDF

Full Text

View related articles

Figures (3) & Videos (1)

Fig. 1



Advertisement

图表和视频

深入了解本文介绍的技术并支持复杂的操作

关键词

列出文章中使用的技术、试剂和其他关键词

相关文章

基于相似的研究方法

Springer Protocols (2022)
Employing the CRISPR Technology for Studying Notch Signaling in the Male Gonad of *Drosophila melanogaster*
 Authors: Cordula Schulz
 Series: Methods in Molecular Biology > Book: Notch Signaling Research
 Protocol DOI: 10.1007/978-1-0716-2201-8_13

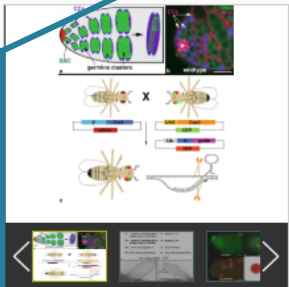
[PDF](#) [Full Text](#)

[View related articles](#)

Affiliations:
 1. Department of Cellular Biology, University of Georgia, Athens, GA, USA
[Less](#)

Citations: 1

Abstract
 The Notch (N) signaling pathway plays versatile roles in development and disease of many model organisms (Andersson et al., *Development* 138, 3993–4012, 2011; Hori et al., *J Cell Sci*, 126, 2195–2140, 2013). However, studying a role for N in adult ...more

Figures (3) & Videos (1)
 Fig. 1



Experimental Specifications New

Techniques **Reagents*** **Other Keywords**

Immunofluorescence
 CRISPR
 Dissection
 TUNEL Labeling

* Reagents occurring with supplier names are extracted and shared by CiteAb.

Discover related articles

 **Determining Beta Cell Mass, Apoptosis, Proliferation, and Individual Beta Cell Size in Pancreatic Sections** 2020, Springer Protocols

提取实验细节信息，包括抗体、蛋白质、实验模型和试剂盒

Experimental Specifications New

Techniques **Reagents*** **Other Keywords**

Antibodies	Protein	Experimental Models	Kits
Goat anti-Rat IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor™ 488		Drosophila	In Situ Cell Death Detection Kit, Fluorescein
Invitrogen Antibodies		Drosophila melanogaster	MilliporeSigma
Goat anti-Guinea Pig IgG (H+L) Highly Cross-Adsorbed Secondary		Malus domestica	In Situ Cell Death Detection Kit, TMR red
		Equus asinus	MilliporeSigma

* Reagents occurring with supplier names are extracted and shared by CiteAb.

Find, Evaluate and Implement

Optimize your lab experiments by using our at-a-glance experimental specifications like technique, organism, cell line, antibody, reagents, and supplier information.

Techniques | Organisms | Cell Lines | Antibodies

提供主题词帮助检索

Explore Topics

Delve into individual topics and related areas, curated from the latest research trends.

Molecular Biology

Fmoc Test | In Situ Hybridization | ChIP-seq | Recombinant Protein Expression | TRAP Assay | PCR

Western Blot | High-Throughput Sequencing | Single-molecule Assay | CRISPR

Sucrose Density Gradient Centrifugation | Cross-linking | Inverse PCR

Microscopy

Cryo-EM | Two-photon Microscopy | Super-resolution Microscopy | Machine Learning | Calcium Imaging

Freeze Fracture Technique

Cell and Tissue Culture

Silver Staining | Tissue Engineering | Organoid Culture | Single-cell technique | Cytotoxicity MTT Assay

Co-immunoprecipitation | 3D Cell Culture | Immunohistochemistry

Spectroscopy

NMR | Mass Spectrometry | X-ray Diffraction

Advertisement

protocols.io

Organize protocols
easily and work
seamlessly with
your colleagues

SPRINGER NATURE

PCR Protocols And Methods

Recently cited | Recently published | Review papers | Related techniques

PCR is a DNA amplification technique in which millions of DNA copies are made using a single DNA segment.

Expand summary

Recently cited

Nature Methods (2021)

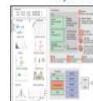
Article

Single-cell chromatin state analysis with Signac

Tim Stuart, Avi Srivastava, Shaista Madad, Caleb A. Lareau, Rahul Satija

Expand

The recent development of experimental methods for measuring chromatin state at single-cell resolution has created a need for computational tools capable of analyzing these datasets. Here we developed Signac, a comprehensive toolkit for the analysis ...more



Nature Protocols (2019)

Protocol

SHERLOCK: nucleic acid detection with CRISPR nucleases

Max J. Kellner, Jeremy G. Koob, Jonathan S. Gootenberg, Ormar O. Abudayyeh, Feng Zhang

Expand

Rapid detection of nucleic acids is integral to applications in clinical diagnostics and biotechnology. We have recently established a CRISPR-based diagnostic platform that combines nucleic acid ...



Advertisement

Recruit for
your lab or
department

nature
careers

SPRINGER NATURE

Broader concepts

Enzymatic Amplification

Nucleic Acid Amplification Techniques

主题词细化

PCR

Real-time PCR

Reverse Transcription PCR

Quantitative Reverse Transcription PCR

Colony PCR

Nested PCR

Multiplex PCR

检索结果

SPRINGER NATURE



能够访问最大和最全面的实验室指南
和方法合集



在实验室指南和方法领域最有声望的
书籍和期刊



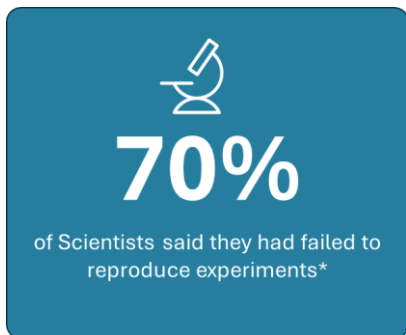
轻松搜索和浏览Experiments平台的
整个产品组合



通过文章评估页面上的关键信息为评
估每一篇文章的相关性节省宝贵的时
间

- 查找、创建并运行实验方案
- 支持研究人员合作
- 知识共享
- 创建可重复的方法
- 动态版本管理与文档
- 监管与流程合规
- 安全数据管理
- 建立最佳实践





提升科研效率

节约实验费用

改善研究方法延续性

- 协作效率低：方法更新无法同步，可追溯性差
- 资源浪费：仅在美国，每年就有约280亿美元的资源被浪费
- 重复性差：50%的临床前研究无法重复，复现成功率低至~21%



Protocols.io

01

协同工作

私有空间和开放空间相连，实现知识共享和方案个体化



05

多语言翻译

提升全球可访问性和可发现性



02

方案创建

方案结构化导入，AI辅助建立方案，实现动态和交互式文件，支持多语言翻译

03

过程记录

捕捉实验方法和工作流程的精确细节，及相应生成的数据



04

模块化出版

将方案作为独立的研究成果发表

协同工作

私有空间和开放空间相连



私有工作流程工具

- 集中所有实验方法的个体知识库
- 组织内部安全共享，防止重复开发
- 积累实验经验，缩短学习曲线，提高科研效率。
- 通过版本和权限控制，协作编辑，发布最新版本。
- 已有**89,000+**个私有实验方案被大学、初创企业和生物制药公司存储。

从私有空间开始，开发和完善方法。
再将实验方案发布，广泛分享

将公开实验方法调入私有空间，进行实践和编辑以实现个性化



开放获取仓库



- 从文献的补充资料中提取实验方法
- 采用标准格式提交方案
- 唯一可引用的DOI，支持在线搜索和更新版本控制。
- 可将私有方案加入25,000+公共协议资源中，促进社区改进，提升企业学术知名度。
- 2025年 protocols.io 访问量达260万次。

过程记录

捕捉实验方法和 workflows 的精确细节，相应生成的数据

- 创建实验方法运行记录，包含所有与 workflow 相关的信息，包括相关元数据
- 运行记录带有日期和时间戳
- 将运行记录与生成的数据进行关联

The screenshot displays a workflow management interface for a procedure named "Short CUT&RUN". The interface includes a navigation bar with tabs for "Steps", "Abstract", "Guidelines", "Warnings", "Materials", "Comments", "History", and "Metadata". A "History" pop-up window is open, showing a list of status changes:

Set step 4 to status skipped	18 May 11:55 am
Set step 3 to status failed	18 May 11:55 am
Set step 2 to status checked	18 May 11:55 am
Set step 1 to status checked	18 May 11:54 am

The main workflow view shows the following steps:

- Centrifuge 3 min 600 x g at room temperature and withdraw liquid.** Status: Done (May 13th 2025 12:51:49 pm). Includes a timer for 00:03:00 and a "START" button.
- Resuspend in 1.5 mL room temperature Wash buffer by gently pipetting and transfer if necessary to a 2 mL tube.** Status: Done (May 13th 2025 12:51:55 pm). Includes a "1.5 mL Wash buffer" label.
- Centrifuge 3 min 600 x g at room temperature and withdraw liquid.** Status: Failed (May 13th 2025 12:52:53 pm). Includes a timer for 00:03:00 and a "START" button.
- Repeat steps 3 and 4 two more times.** Status: Skipped (May 13th 2025 12:52:50 pm). Includes a "Repeat Dig-wash steps" instruction.
- Resuspend in 1 mL room temperature Wash Buffer by gently pipetting**

A "Note" section highlights a **CRITICAL STEP**: "Thorough washing removes free sugars and other molecules that can compete for binding to the Concanavalin A coated-beads, ensuring efficient binding and recovery of the cells of interest."


On the right side, a progress indicator shows "4 out of 7" steps completed. Below it, a detailed view for "STEP 1" shows "9 out of 9" steps completed, with a completion time of "Completed on Jun 05, 2025 14:16:26". At the bottom right, there are buttons for "Done", "Fail", and "Skip".

模块化出版

将方案作为独立的研究成果发表

Article | [Open access](#) | Published: 09 February 2024

Natural diversity screening, assay development, and characterization of nylon-6 enzymatic depolymerization

[Elizabeth L. Bell](#), [Gloria Rosetto](#), [Morgan A. Ingraham](#), [Kelsey J. Ramirez](#), [Clarissa Lincoln](#), [Ryan W. Clarke](#), [Japheth E. Gado](#), [Jacob L. Lilly](#), [Katarzyna H. Kucharzyk](#), [Erika Erickson](#) & [Gregg T. Beckham](#) 

[Nature Communications](#) 15, Article number: 1217 (2024) | [Cite this article](#)

Data availability

Data supporting the findings of this study are available in the main manuscript and Supplementary Information. Source Data for the figures in the main text are provided in the Source Data file. Data are also available from the corresponding author upon request. Genetic expression constructs for the enzymes expressed in the study have been deposited at **AddGene** [https://www.addgene.org/Gregg_Beckham/]. Protocols for the described LC-MS/MS analysis methods have been deposited on **protocols.io** (Method 1:

[\[https://doi.org/10.17504/protocols.io.kxygx331dg8j/v1\]](https://doi.org/10.17504/protocols.io.kxygx331dg8j/v1), Method 2:

[\[https://doi.org/10.17504/protocols.io.6qpv3k92vmk/v1\]](https://doi.org/10.17504/protocols.io.6qpv3k92vmk/v1)). The UniProtKB database used for homology searches is available from the UniProt website [<https://www.uniprot.org/blast>]. PDB 3AXG, used as the scaffold structure for visualizing NylC_K-TS, is available from the **Protein Data Bank** [<https://doi.org/10.2210/pdb3AXG/pdb>]. [Source data](#) are provided with this paper.

这是一篇研究论文，在数据可用性部分他们放置了所有相关研究成果的链接，实验方案公开在Protocol.io上



这样做的好处包括：

- 提升可发现性
- 对作者个人成果的认可
- 信息可以以适当的格式存储，并在需要时进行更新

多语言翻译

提升全球可访问性和可发现性

- 为全部 26,000 多份已公开发布的协议提供中文翻译
- 所有已公开发布的实验方法均提供中文、英语、法语、德语、日语和西班牙语版本。
- 研究人员可以用任何语言发表文章，包括中文，并自动翻译成上述语言。

这确保了：

- 研究人员可以轻松用中文搜索和访问内容
- 以中文发布的协议将被全球发现

The image shows a comparison between the English and Chinese versions of a protocol page. At the top, a language dropdown menu is open, showing options: Original, DE - German, ES - Spanish, FR - French, JA - Japanese, and ZH - Chinese - Simp/Trad. Below the menu, the English version of the protocol is shown on the left, and the Chinese version is shown on the right. A large blue arrow points from the English version to the Chinese version, indicating the translation process. The English version includes sections like 'Genomic DNA Removal', 'First-Strand cDNA Synthesis', 'CycloneSEQ Library Preparation', and 'Library Quality Control'. The Chinese version provides a direct translation of these sections.

English Version:

Abstract
This protocol is designed for full-length transcriptome library preparation on the CycloneSEQ platform.

Genomic DNA Removal

- Treat 100–500 ng total RNA with 5× gDNA Digester Mix.
 - Incubate at 42°C for 2 min.
 - Centrifuge briefly to collect liquid.

First-Strand cDNA Synthesis

- Prepare 20 μL reaction mix containing:
 - 4× HiFair SuperMix
 - Random Primers (50 μM)
 - Treated RNA template

Incubate at 72°C for 5 min.

- Heat-inactivate at 85°C for 5 sec.

Note: For high-GC RNA templates, increase incubation time.

CycloneSEQ Library Preparation

- Process cDNA into sequencing libraries using the CycloneSEQ Library Preparation Kit.
 - DNA Repair (end-repair/dA-tailing)
 - Adapter Ligation (CycloneSEQ-specific adapters)

Follow the standard whole-genome sequencing workflow.

Library Quality Control

- Quantify libraries using a Qubit fluorometer.

Chinese Version:

Abstract
该方案用于在 CycloneSEQ 平台上对提取的动物 RNA 进行全长转录组文库构建及测序。

基因组 DNA 去除

- 在无核酸酶管中，用 5× gDNA 消化混合液处理 100–500 ng 总 RNA。
 - 在 42°C 孵育 2 分钟。
 - 短暂离心以收集液体。

第一链 cDNA 合成

- 制备 20 μL 反应混合物，包含：
 - 4× HiFair SuperMix
 - 随机引物 (50 μM)
 - 处理过的 RNA 模板

在 72°C 孵育 5 分钟。

- 在 85°C 热灭活 5 秒。

注意：对于高 GC 含量的 RNA 模板，将孵育温度提高至 60°C。

CycloneSEQ 文库制备

- 使用 CycloneSEQ 通用文库制备试剂盒将 cDNA 处理为测序文库：
 - DNA 修复（末端修复 / dA 尾加）
 - 接头连接（CycloneSEQ 专用接头）

按照试剂盒中提供的标准全基因组测序工作流程步骤进行操作。

文库质量控制

受到全球领先机构的信赖

加入成千上万信赖Protocol.io的科学家行列

企业与政府客户

私人共享的许可与合作



未公开的生物制药公司

+ 更多

学术客户

私人 and 公共共享许可。



香港中文大學
The Chinese University of Hong Kong



+ 更多

期刊与出版商

在提交稿件时推荐 *protocols.io*

WILEY



1000+期刊

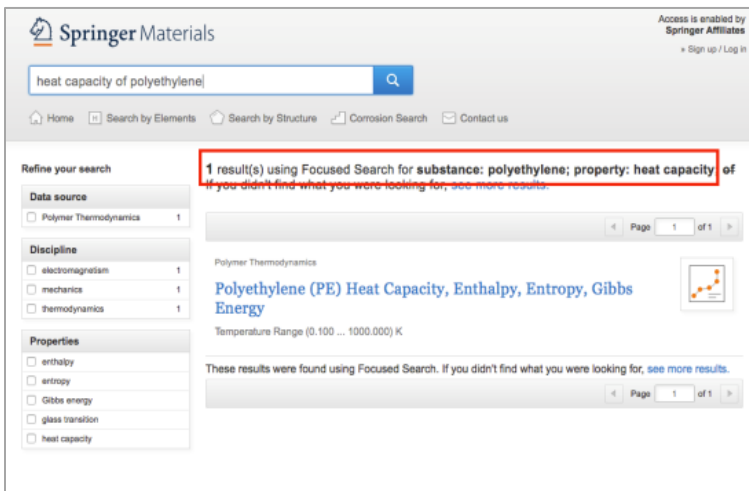
4.0

SpringerMaterials数据库简介

SpringerMaterials = 精准结果+高效搜索

SpringerMaterials 是专注于材料和物质性质的数值型数据库，是材料、化学、物理、工程、能源、半导体及相关领域研发工作的有利工具：

materials.springer.com

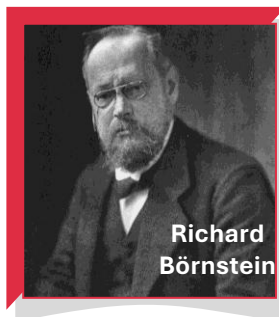
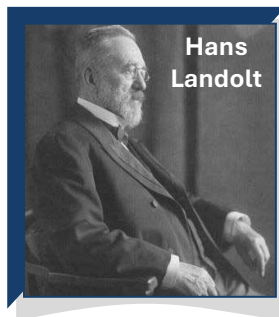


The screenshot displays the SpringerMaterials search interface. At the top, the search bar contains the query "heat capacity of polyethylene". Below the search bar, there are navigation links for Home, Search by Elements, Search by Structure, Corrosion Search, and Contact us. The search results section shows "1 result(s) using Focused Search for substance: polyethylene; property: heat capacity of". The result is titled "Polyethylene (PE) Heat Capacity, Enthalpy, Entropy, Gibbs Energy" and is categorized under "Polymer Thermodynamics". The temperature range is specified as (0.100 ... 1000.000) K. The interface also includes filters for Data source, Discipline, and Properties.

该数据库将发表在各个期刊、书籍中发表的广泛的科学技术领域里基本的、可靠的、有用的数据、规律、公式和函数关系分析筛选、严格评审、归纳整理后进行收录，为研发工作提供精准、权威的数据信息的依据。

所有的信息分析评审工作均由该领域的知名科学家和学者完成，参与人数超1000人。内容与功能持续更新。

研究人员可快捷获取权威信息，无需亲自查找散落各处数据信息并审阅原始文献，从而节省大量时间，提高研发的效率与质量



LANDOLT-BÖRNSTEIN

柏林, 1883



超过1000名专家、学者、编辑对数据进行评审



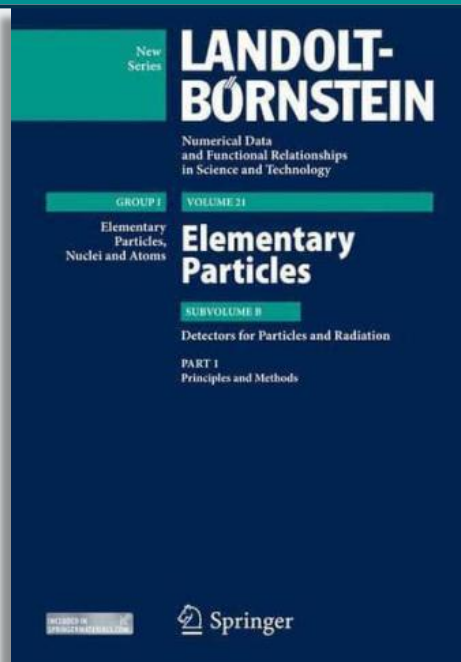
实验结果综述, 前瞻信息等等



The New Landolt-Börnstein Series (Since 1961)

Group	丛书类别	内容
I	Elementary Particles, Nuclei and Atoms	基本粒子、原子核、原子和等离子体
II	Molecules and Radicals	结构和分子常数、声光学性质、磁性能、反应动力学等等共计100余卷内容
III	Condensed Matter	晶体学, 结构与形态, 半导体, 电子、电学、光学性质, 原子缺陷与扩散, 光谱分析方法等等共计200余卷内容
IV	Physical Chemistry	力学、电学、热力学: 非水及三元水体系, 高压性质, 纯液体和复杂液体混合物的静态介电常数, 各种体系的相变温度, 表面张力, 密度, 蒸气压, Antoine常数, 多元素体系等等共计100余卷内容
V	Geophysics	岩石的物理性质, 地球物理学、月亮和行星, 海洋学, 大气热力学和动力学, 空气的物理化学性质, 气候变化
VI	Astronomy and Astrophysics	天文学与天体物理学, 太阳系研究的方法、仪器和常数, 恒星和星团, 星际物质、星系和宇宙,
VII	Biophysics	生化及物理性质, 光谱与动力学, 晶体与结构
VIII	Advanced Materials and Technology	化石与新能源, 储能储氢材料, 液晶, 金属与磁性材料, 有特殊性能的材料 (如耐高温, 耐火), 激光, 辐射防护材料等

Group I: Elementary Particles, Nuclei and Atoms



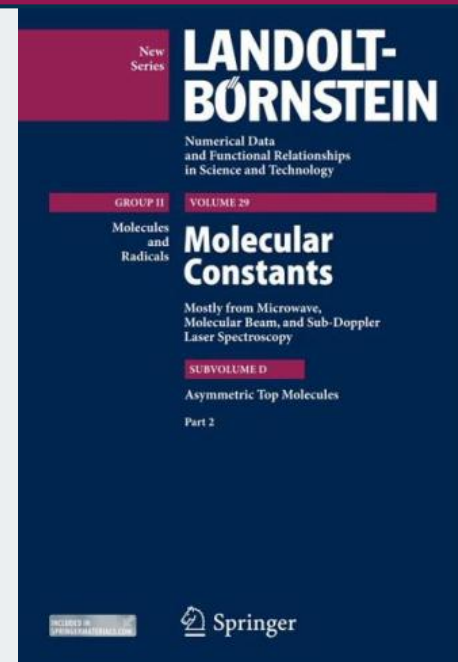
- **52 volumes**
- Approx. **19,000 pages**
- Copyright years: **1961 – 2016**

Estimated value:
\$230k / €180k

Subjects/Subdivisions

- General Topics
- Elementary Particles
- Nuclei
- Atoms and Plasmas

Group II: Molecules and Radicals



- **107 volumes**
- Approx. **35,000 pages**
- Copyright years: **1965 – 2019**

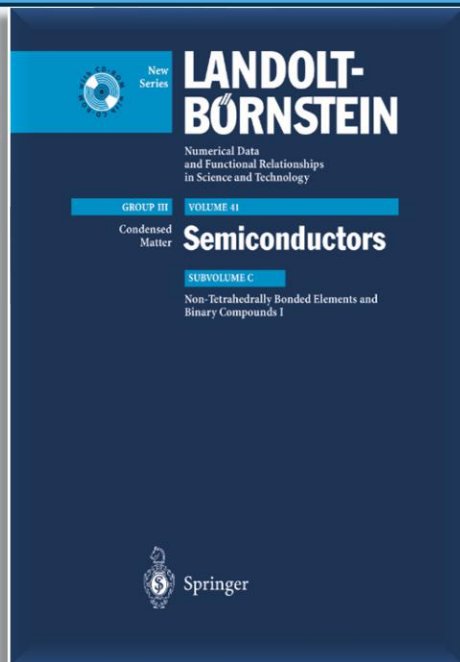
Estimated value:
\$380k / €312k

Subjects/Subdivisions

- Structure and Molecular Constants
- Acoustical and Optical Properties
- Magnetic Properties
- Reaction Kinetics

Largest group in the collection!

Group III: Condensed Matter



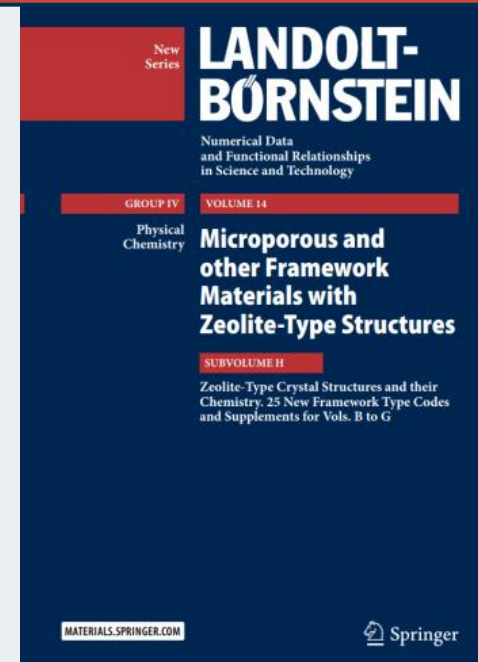
- **190 volumes**
- Approx. **80,000 pages**
- Copyright years: **1970 – 2019**

Estimated value:
\$680k / €550k

Subjects/Subdivisions

- Crystallography, Structure and Morphology
- Semiconductors
- Electronic Properties
- Electrical Properties
- Magnetic Properties
- Optical Properties
- Atomic Defects and Diffusion
- Spectroscopic Methods

Group IV: Physical Chemistry



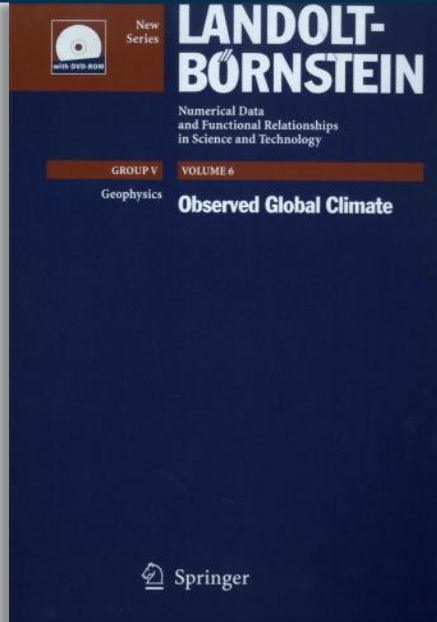
- **101 volumes**
- Approx. **30,000 pages**
- Copyright years: **1974 – 2016**

Estimated value:
\$440k / €350k

Subjects/Subdivisions

- Mechanical Properties
- Electrical Properties
- Thermodynamic Properties

Group V: Geophysics



- **12 volumes**
- Approx. **5,400 pages**
- Copyright years: **1982 – 2005**

Estimated value:
\$22k / €17k

Subjects/Subdivisions

- Properties of Rocks
- Geophysics
- Oceanography
- Meteorology
- Climatology

Group VI: Astronomy and Astrophysics



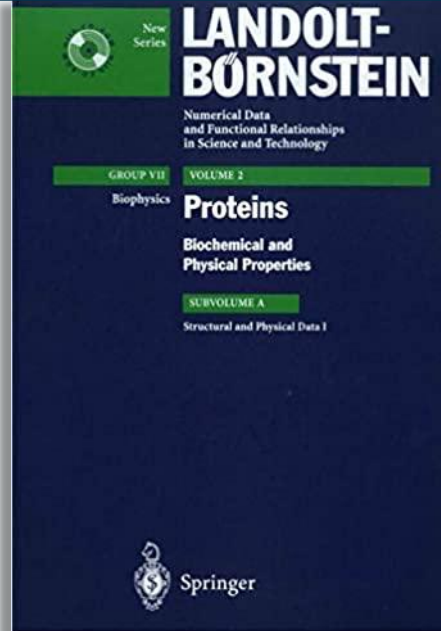
- **9 volumes**
- Approx. **3,000 pages**
- Copyright years: **1965 – 2010**

Estimated value:
\$18k / €15k

Subjects/Subdivisions

- Astronomy
- Astrophysics

Group VII: Biophysics



- **5 volumes**
- Approx. **2,200 pages**
- Copyright years: **1989-2003**

Estimated value:
\$10k / €9k

Subjects/Subdivisions

- Nucleic Acids
- Proteins

Group VIII: Advanced Materials and Technologies



- **28 volumes**
- Approx. **5,500 pages**
- Copyright years: **2002 – 2018**

Estimated value:
\$146k / €110k

Subjects/Subdivisions

- Powder metallurgy
- Refractory, Hard, and Intermetallic Materials
- Heat Resistant Steels and Superalloys
- Polymers
- Energy Technologies
- Laser Physics and Applications

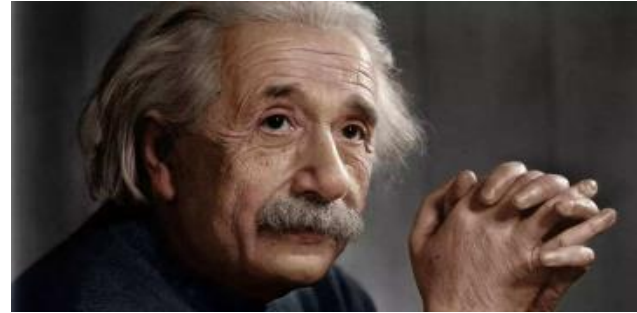
ANNALEN DER PHYSIK.

9. Die Plancksche Theorie der Strahlung und die Theorie der spezifischen Wärme; von A. Einstein.

In zwei früheren Arbeiten¹⁾ habe ich gezeigt, daß die Interpretation des Energieverteilungsgesetzes der schwarzen Strahlung im Sinne der Boltzmannschen Theorie des zweiten Hauptsatzes uns zu einer neuen Auffassung der Phänomene der Lichtemission und Lichtabsorption führt, die zwar noch keineswegs den Charakter einer vollständigen Theorie besitzt, die aber insofern bemerkenswert ist, als sie das Verständnis einer Reihe von Gesetzmäßigkeiten erleichtert. In der vorliegenden Arbeit soll nun dargetan werden, daß die Theorie der Strahlung — und zwar speziell die Plancksche Theorie — zu einer Modifikation der molekular-kinetischen Theorie der Wärme führt, durch welche einige Schwierigkeiten beseitigt werden, die bisher der Durchführung jener Theorie im Wege standen. Auch wird sich ein gewisser Zusammenhang zwischen dem thermischen und optischen Verhalten fester Körper ergeben.

Bern, November 1906.

(Eingegangen 9. November 1906.)

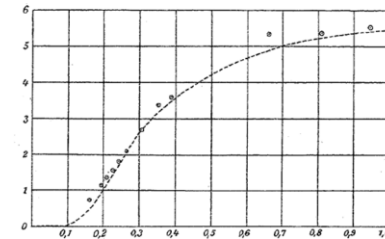


Wir entnehmen ferner den Tabellen von Landolt und Börnstein einige Angaben über ultrarote Eigenschwingungen

(metallische Reflexion, Reststrahlen) einiger durchs Körper; die beobachteten λ sind in nachstehender Tabelle unter „ $\lambda_{\text{beob.}}$ “ angegeben; die Zahlen unter „ $\lambda_{\text{ber.}}$ “ entnommen, soweit sie sich auf Atome kleiner spezifischer Wärme beziehen; für die $\lambda > 48 \mu$ sein.

Körper	$\lambda_{\text{beob.}}$	$\lambda_{\text{ber.}}$
CaFl	24; 31,6	33; >
NaCl	51,2	>
KCl	61,2	>
CaCO ₃	6,7; 11,4; 29,4	12; 21;
SiO ₂	8,5; 9,0; 20,7	20;

190 A. Einstein. Plancksche Theorie der Strahlung etc.



betreffenden festen Stoffe vorkommen, für die spezifische Wärme pro Grammäquivalent den Ausdruck¹⁾

$$(8a) \quad c = 5,94 \sum \frac{\frac{\partial v}{\partial T} \left(\frac{\partial v}{T} \right)^2}{\left(\frac{\partial v}{T} - 1 \right)^2}$$

子数据库&数据合集	内容	针对学科及研究领域
材料科学经典系列丛书	508卷Landolt-Börnstein丛书, 26卷SpringerMaterials基础知识手册, 4卷Springer手册	详见前页
无机固相数据库	320,000+ 晶体结构 40,000+ 相图 160,000+组物理化学性质	电子信息材料、能源材料、特种材料, 如半导体材料、电子材料、锂电池、催化剂、玻璃、光学材料、探测及遥感用材料器件等
MSI Eureka 数据库	4,314 份关于二元和三元金属和半导体体系的相图报告 7646个交互式相图 71000书目报告	金属及合金材料的冶炼、制造和应用, 高温高压环境下的特种材料(如钴探、航天), 燃料、能源等
腐蚀性质数据库	1000+金属体系在275+环境中的25,000组腐蚀性质数据	海洋材料、航空材料、材料防腐科学(如石化、新能源设备的长期维护)
吸附性质数据库	4,331 组吸附等温曲线, 涉及99种被吸附物和1,355种吸附剂	化学处理、提纯、燃料、能源、传感、生物材料、污染控制、气候变化
有机物质热物性数据库	51种有机物质和1,200+二元混合物的472,000组热物性数据	提纯、精细化工及药物生产与提纯, 有机材料的应用研究
高分子热力学数据库	12,000+纯高分子, 8000+混合物的28种热力学性质数据, 包含数据超过1,000,000个	塑料、包装、化工、涂料、薄膜、医学材料、生物材料
泡沫金属性质数据	300组泡沫金属的性质数据	特种金属材料, 航空航天材料, 导弹工业, 建筑、特种设备、人工骨骼
材料的光谱表征与显微成像数据合集	金属、有机物质、液体、高聚物等的紫外、红外、拉曼、PES, Mössbauer, 核磁, 及透射电镜, 扫描隧道显微镜等材料表征方法下的特征数据信息	材料和物质表征是广泛研究领域的常用数据信息
(有机&无机) 物质档案	35,684个有机和无机物的物质档案	广泛研究领域的常用数据信息

材料类型 (举例)



性能类型 (举例)



物理性质



化学性质



热力学性质



电磁性质



结构性质



机械性能



光谱学性质



原子能性质

- SpringerMaterials特有半导体模块——全球最全面的半导体和电子材料数据数据库，旨在支持电子、能源、半导体和相关领域科研人员的日常工作。
- 2400种独特的半导体材料体系和超过800种半导体相关性质
- 大量无机固相性质数据：超过**300,000个晶体结构**，约**40,000个相图**，约**150,000个物理性质数据集**，以及更多的电子和热性质，并持续更新
- 全面的实验和理论数据信息，并有先进在线工具，帮助您实现数据可视化、分析、比较、引用和下载，



Prof. John B. Goodenough,
Nobel Prize Winner 2019
U Texas @ Austin



Prof. Junhao Chu
中国科学院院士



Prof. Volker W.
Blum
Duke University
负责数据的深度电
子化&可视化功能



Prof. Ulrich Rössler
U Regensburg
半导体理论物理学家

- HybriD3 数据库 (包含 1450 多份数据表) 以及其中新增的任何数据
- 还有 3000 份关于无机钙钛矿的数据表

The screenshot displays the Springer Materials search interface. The search term 'perovskite' has yielded 53,909 results. The top result is '2,2'-(ethylenedioxy)bis(ethylammonium) lead bromide: absorption spectrum'. Below this, a graph shows the absorption spectrum with a peak at approximately 210 nm. The second result is 'Guanidinium Germanium Iodide: band gap (optical, diffuse reflectance)'. The detailed view for this compound shows a band gap of 2.7 eV. The third result is '2,2'-(ethylenedioxy)bis(ethylammonium) lead iodide: photoluminescence quantum efficiency (PLQE)'. The detailed view for this compound shows a photoluminescence quantum efficiency (PLQE) of 21%.

2,2'-(ethylenedioxy)bis(ethylammonium) lead iodide: photoluminescence quantum efficiency (PLQE)

Origin : experimental (T = 298.0 K)
Space group : P 2(1)c

Guanidinium Germanium Iodide: band gap (optical, diffuse reflectance)

Band gap (optical, diffuse reflectance)
Origin : experimental (T = 298.0 K)
Space group : P2(1)c
Download All Data (zip)

Band gap (optical, diffuse reflectance)
Crystal system: monoclinic
Fixed parameters:
• Temperature = 295.0 K

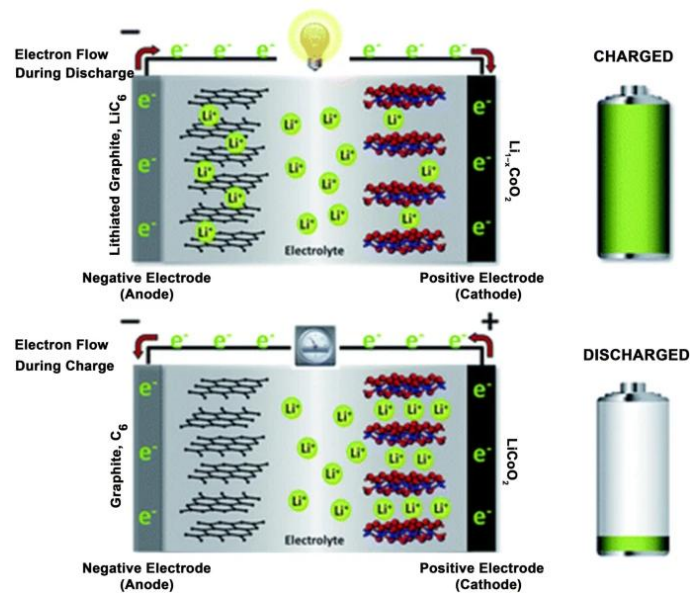
Band gap (optical, diffuse reflectance), eV
2.7

System description
Dimensionality: 3D
Sample type: single crystal


Synthesis method
Starting materials: hydroiodic acid (H₂ 57% in water), hypophosphorous acid (H₃PO₂ 50% in water), GeO₂ (99.999%), guanidinium chloride (C₃H₅N₃Cl, 98%)
Product: yellow, elongated hexagonal tabular C₃H₅N₃GeI₂ crystals
Description: GeI₄ was synthesized from GeO₂ and HI, and C₃H₅N₃I₂ was synthesized by reacting ethanolic solutions of C₃H₅NH₂Cl₂ (prepared by neutralizing C₃H₅NH₂CO₂ with sodium methoxide in EtOH and discarding NaCl) with aqueous HI. For the synthesis of C₃H₅N₃GeI₂ aqueous HI (6.8 mL, 7.58 M) and aqueous H₃PO₂ (3.4 mL, 9.14 M) were taken in a 2-neck flask. The mixture was degassed by passing a stream of nitrogen through it for 1 min. The following procedure was performed under N₂: GeI₄ (500 mg, 1 mmol) was dissolved in the mixture upon heating the flask to 120 °C using an oil bath, under constant magnetic stirring, forming a bright yellow solution. To it, C₃H₅N₃I₂ (153 mg, 1 mmol) was dissolved. The solution was evaporated to approximately half its original volume by heating at 120 °C. The stirring was discontinued, and the solution was left to cool down to room temperature. Upon cooling, the crystals formed, and they were allowed to grow for 24 h. Then, the crystals were taken out from the H₂ environment and were filtered, and washed with a minimum amount of degassed EtOH.

Experimental details
Method: Diffuse reflectance
Description: A Shimadzu UV-3101 PC double-beam, double-monochromator spectrophotometer operating from 200 to 2500 nm was used to collect optical diffuse reflectance measurements. BaSO₄ was used as a non-absorbing reflectance reference. The band gap was then estimated by converting reflectance to absorbance via the Kubelka-Munk equation: $\alpha S = (1 - R)/2R$, where R is the reflectance and α and S are the absorption and scattering coefficients, respectively.

- 由人工智能工具提取的1300多个数据点，并由德克萨斯A&M大学的主题专家验证。可在平台上作为1个批量数据集提供，可根据要求下载。
- 5电池相关属性:容量，电压，电导率，库仑效率和能量。
- 材料包括:合金、复合材料、钙钛矿、纳米材料、正极材料、负极材料、氧化物、氮化物、硫化物、Si/Sn基氧化物等。
- 未来计划:我们计划在2024年再增加15,000个数据点



Chen, T., Jin, Y., Lv, H. et al. Applications of Lithium-Ion Batteries in Grid-Scale Energy Storage Systems. *Trans. Tianjin Univ.* 26, 208–217 (2020). <https://doi.org/10.1007/s12209-020-00236-w>




Battery Materials
电池材料



Ionic Liquid
离子液体



Perovskite
钙钛矿



**Thermoelectric
Materials**
热电材料

谢谢!

孙红涛 Arthur Sun
Springer Nature 大中华区客户发展经理

arthur.sun@springernature.com

SPRINGER NATURE

有奖问答 (5名优秀奖)

最快给出正确答案的前5名老师:



Springer Nature 纪念公仔