

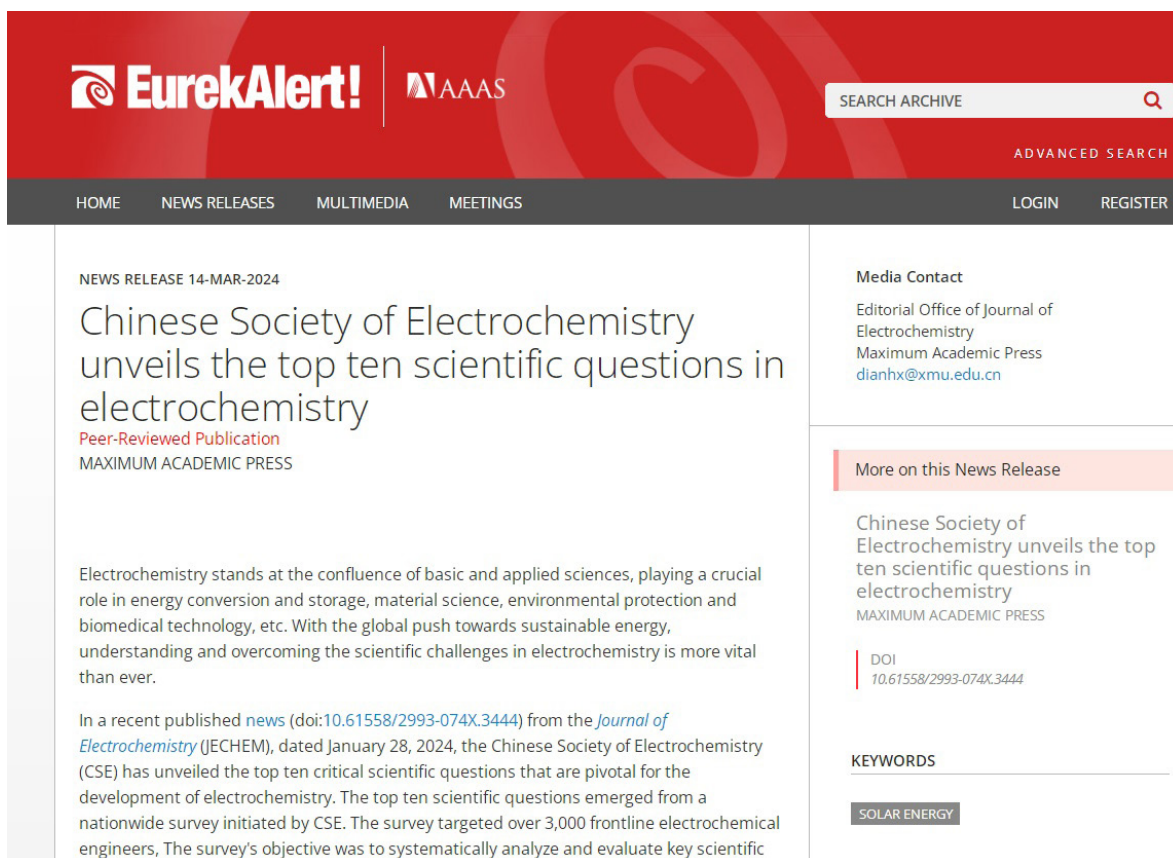
# 多家国内外科技新闻媒体报道“电化学十大科学问题”

近日，全球科技新闻服务平台 EurekAlert!（美国科学促进会（AAAS）主办），知名新闻网站 AP News（美联社）、英国科学新闻中心 AlphaGalileo 以及 Newswise、Sciencenewsnet、EIN Presswire、Mirage News、China Science & Technology、Hydrogen Fuel News 等多家国际新闻媒体争相报道中国化学会电化学专业委员会（Chinese Society of Electrochemistry, CSE）在《电化学（中英文）》上发布的“电化学十大科学问题”（Journal of Electrochemistry, 2024, 30(1): 2024121.）。国内的科技日报、科学网、科学网博客、新浪科技、知网阅读 APP、百度、哔哩哔哩等 20 余个微信公众号也报道或转载了“电化学十大科学问题”相关内容。

今年 3 月，十四届全国人大二次会议的政府工作报告中提到的两个数字引人注目：2023 年，新能源汽车产销量占全球比重超过 60%，电动汽车、锂电池、光伏产品“新三样”出口增长近

30%。“新三样”代表着产业发展的新方向，需要各界不断地进行创新以加速更多新产业的崛起，其中也需要加强制造业研发特别是基础研究的投入。此外，近年来，高端电子化学品和电子电镀相关技术也得到科技工作者的关注，其基础研究要从经济社会发展和国家安全面临的实际问题中凝练科学问题，突破瓶颈，弄通“卡脖子”技术的基础理论和技术原理。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战。

“电化学十大科学问题”旨在对电化学学科和电化学工业发展中的关键科学问题和技术瓶颈进行了全面梳理和分析研判。本次电化学重大问题发布活动，是中国化学会电化学专业委员会发挥在学术上的引领作用的重要举措，也是对电化学科学研究和技术攻关方向的深度思考和指引。



The screenshot shows the EurekAlert! website interface. At the top, there are logos for EurekAlert! and AAAS, along with a search bar and navigation links like HOME, NEWS RELEASES, MULTIMEDIA, MEETINGS, LOGIN, and REGISTER. The main content area features a news release titled "Chinese Society of Electrochemistry unveils the top ten scientific questions in electrochemistry". The release is dated 14-MAR-2024 and is a peer-reviewed publication from Maximum Academic Press. The text of the release discusses the role of electrochemistry in energy conversion and storage, and mentions a survey of 3,000 frontline electrochemical engineers. On the right side, there is a "Media Contact" section with the editorial office of the Journal of Electrochemistry, and a "More on this News Release" section with a link to the full article and its DOI (10.61558/2993-074X.3444). A "KEYWORDS" section at the bottom right lists "SOLAR ENERGY".

(EurekAlert!)

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# Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

Published 8:30 PM GMT+8, March 13, 2024

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USA, March 13, 2024 / EINPresswire.com / -- Electrochemistry stands at the confluence of basic and applied sciences, playing a crucial role in energy conversion and storage, material science, environmental protection and biomedical technology, etc. With the global push towards sustainable energy, understanding and overcoming the scientific challenges in electrochemistry is more vital than ever.

In a recent published news (doi:10.61558/2993-074X.3444) from the Journal of Electrochemistry (JECEM), dated January 28, 2024, the Chinese Society of Electrochemistry (CSE) has unveiled the top ten critical scientific questions that are pivotal for the development of electrochemistry. The top ten scientific questions emerged from a nationwide survey initiated by CSE. The survey targeted over 3,000 frontline electrochemical engineers. The survey's objective was to systematically analyze and evaluate key scientific challenges in electrochemistry, including technological bottlenecks in the electrochemical industry. These surveys span across an extensive range of 18 electrochemical research areas, encompassing fundamental electrochemical theories, characterization techniques and methods in electrochemistry, nanomaterials and nanoscience in electrochemistry, lithium-ion batteries, sodium/potassium ion batteries, organic and multivalent metal ion batteries, lithium-sulfur batteries, solid-state

(AP News)



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## Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

13/03/2024 TransSpread

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The top 10 scientific questions in electrochemistry include:

1. How to Detect or Simulate the Dynamic Structural Changes of Complex Electrochemical Interfaces under In-Situ/Operando Conditions at the Microscale, and Establish Their Relationships with Macroscopic Electrochemical Performance?
2. How to Understand and Regulate the Nucleation and Growth of Metal Lithium at the Anode, and Develop Strategies for Suppressing Dendrite Formation ?
3. How to Obtain High-Performance Alkali-Metal Ion Solid-State Electrolytes for Solid State Batteries?

(AlphaGalileo)

# Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

13-Mar-2024 9:00 AM EDT, by Chinese Academy of Sciences

Newswise — In a recent published news (doi:10.61558/2993-074X.3444) from the *Journal of Electrochemistry* (JECHEM), dated January 28, 2024, the Chinese Society of Electrochemistry (CSE) has unveiled the top ten critical scientific questions that are pivotal for the development of electrochemistry. The top ten scientific questions emerged from a nationwide survey initiated by CSE. The survey targeted over 3,000 frontline electrochemical engineers. The survey's objective was to systematically analyze and evaluate key scientific challenges in electrochemistry, including technological bottlenecks in the electrochemical industry. These surveys span across an extensive range of 18 electrochemical research areas, encompassing fundamental electrochemical theories, characterization techniques and methods in electrochemistry, nanomaterials and nanoscience in electrochemistry, lithium-ion batteries, sodium/potassium ion batteries, organic and multivalent metal ion batteries, lithium-sulfur batteries, solid-state batteries, metal-air batteries, supercapacitors, flow batteries, aqueous secondary batteries, fuel cells, electrocatalysis, bioelectroanalysis, solar cells and photoelectrochemistry, as well as organic and industrial electrochemistry, corrosion, and electroplating. This initiative underscores the society's commitment to driving forward the field of electrochemistry by highlighting specific challenges and fostering community-wide engagement for innovative solutions.

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- (Newswise)

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Home > Research Results > Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

## Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

March 13, 2024 sarah Jonas Research Results

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(Sciencenewsnet)

# Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

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March 13, 2024, 12:19 GMT

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USA, March 13, 2024 /EINPresswire.com/ -- [Electrochemistry](#) stands at the confluence of basic and applied sciences, playing a crucial role in energy conversion and storage, material science, environmental protection and biomedical technology, etc. With the global push towards sustainable energy, understanding and overcoming the scientific challenges in electrochemistry is more vital than ever.

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(EIN Presswire)

## Contact

Lucy Wang  
BioDesign Research  
[email us here](#)

## Company/Organization

BioDesign Research  
5 Tongwei Road, Xuanwu District

Science 15 MAR 2024 1:32 AM AEDT

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## Top Ten Electrochemistry Questions Revealed by Chinese Society



Maximum Academic Press

Electrochemistry stands at the confluence of basic and applied sciences, playing a crucial role in energy conversion and storage, material science, environmental protection and biomedical technology, etc. With the global push towards sustainable energy, understanding and overcoming the scientific



(Mirage News)

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(China Science & Technology)



## Chinese Society of Electrochemistry Unveils the Top Ten Scientific Questions in Electrochemistry

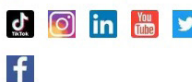
March 25, 2024 By PRESS RELEASE

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(Hydrogen Fuel News)

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The screenshot shows the English version of the article on the Science and Technology Daily website. The article title is "Top 10 Scientific Questions in Electrochemistry Unveiled" by Li Linxu, dated 2024-04-11. It features a photo of a worker in a factory setting. The article text states that the Chinese Society of Electrochemistry (CSE) has released a list of 10 key scientific challenges in electrochemistry, derived from a nationwide survey.

(科技日报 - 网页版和 APP)

The screenshot shows the Chinese version of the article on the ScienceNet.cn website. The article title is "电化学10大科学问题首次发布" (Top 10 Scientific Questions in Electrochemistry Released for the First Time). The author is Gan Xiao, published on 2024/3/7 at 16:40:40. The article discusses the release of 10 key scientific questions in electrochemistry by the Chinese Society of Electrochemistry (CSE). It highlights the importance of electrochemistry in energy, materials, and environmental fields, and mentions that the questions cover 18 research directions, including lithium-ion batteries, fuel cells, and supercapacitors.

(科学网)



博文

### 重磅！电化学十大科学问题首次发布

已有 608 次阅读 2024-3-21 11:11 | 个人分类: 电化学 | 系统分类: 科研笔记

电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学，并已逐渐发展成为跨越基础科学（理论）和应用科学（工程、技术）两大领域的重要学科，呈现出不同领域专家通力协作、研究开创新的多领域、跨学科交叉的独特态势。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战。

在这样的大背景下，中国化学会电化学专业委员会（Chinese Society of Electrochemistry, CSE）向全国一线的电化学及其相关学科的科技工作者发起征集电化学领域重大科学问题的活动。重点围绕电化学基础理论、电化学测试技术与方法、纳米与材料电化学、锂离子电池、钠钾离子电池、有机和多价金属离子电池、锂硫电池、固态电池、金属空气电池、超级电容器、液流电池、水系二次电池、燃料电池、电催化、生物电分析、太阳能电池及光电化学、有机与工业电化学、腐蚀与电镀等18个研究方向，共收到来自3000余名一线科技工作者汇总的89个相关的问题和难题。经多轮讨论和甄选，于近期首次发布“**电化学10大科学问题**”，旨在对电化学学科和电化学工业发展中的关键科学问题和技术瓶颈进行了全面梳理和分析研判。本次电化学重大问题发布活动，是中国化学会电化学专业委员会发挥在学术上的引领作用的重要举措，也是对电化学科学研究和技术攻关方向的深度思考和指引。电化学10大科学问题分别是：

（科学网博客）



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## 电化学十大科学问题首次发布

2024年03月13日 07:00 中国科学报

新浪财经APP A A ☆

本报讯（记者甘晓）近日，中国化学会电化学专业委员会首次发布“**电化学十大科学问题**”，并邀请多位领域内知名专家学者对“**电化学十大科学问题**”进行中英文解读。相关成果在《**电化学（中英文）**》上刊发。

电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学。当前，国家“双碳”目标持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展期，遇到了前所未有的发展机遇，同时也面临着巨大挑战。

为对电化学学科和电化学工业发展中的关键科学问题和技术瓶颈进行全面梳理与分析研判，中国化学会电化学专业委员会向全国一线的电化学及其相关学科科技工作者发起征集电化学领域重大科学问题的活动。



本次活动重点围绕电化学基础理论、电化学测试技术与方法、纳米与材料电化学等18个研究方向，共收到3000余名一线科技工作者

（新浪科技）

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### 电化学十大科学问题

中国化学会电化学专业委员会 |

2024年1月电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学，并已逐渐发展成为跨越基础科学（理论）和应用科学（工程、技术）两大领域的重要学科，呈现出不同领域专家通力协作、研究开创的多领域、跨学科交叉的独特态势。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战

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关键词：电化学 科学问题

来源期刊：电化学(中英文) 2024年01期

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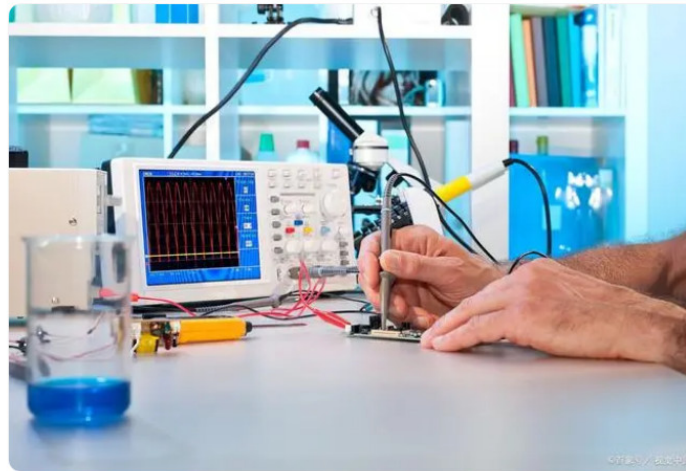


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新能源时代XNY 2024-03-09 09:00 广东

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电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学，并已逐渐发展成为跨越基础科学（理论）和应用科学（工程、技术）两大领域的重要学科，呈现出不同领域专家通力协作、研究开创的多领域、跨学科交叉的独特态势。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战。

中国化学会电化学专业委员会重点围绕**电化学基础理论、电化学测试技术与方法、纳米与材料电化学、锂离子电池、钠钾离子电池、有机和多价金属离子电池、锂硫电池、固**

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专栏 / “电化学十大科学问题”发布！

## “电化学十大科学问题”发布！

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电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学，并已逐渐发展成为跨越基础科学（理论）和应用科学（工程、技术）两大领域的重要学科，呈现出不同领域专家通力协作、研究开创的多领域、跨学科交叉的独特态势。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战。

在这样的大背景下，2023年初，中国化学会电化学专业委员会（Chinese Society of Electrochemistry, CSE）委托其会刊《电化学（中英文）》（*Journal of Electrochemistry*）向全国一线的电化学及其相关学科的科技工作者发起征集电化学领域重大科学问题的活动。重点围绕**电化学基础理论、电化学测试技术与方法、纳米与材料电化学、锂离子电池、钠钾离子电池、有机和多价金属离子电池、锂硫电池、固态电池、金属空气电池、超级电容器、液流电池、水系二次电池、燃料电池、电催化、生物电**（哔哩哔哩）

## “电化学十大科学问题”发布！

原创 CSE 电化学期刊 2024-03-01 15:04 福建



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171篇原创内容

公众号

电化学是研究电能与化学能以及电能与物质之间相互转换及其规律的科学，并已逐渐发展成为跨越基础科学（理论）和应用科学（工程、技术）两大领域的重要学科，呈现出不同领域专家通力协作、研究开创的多领域、跨学科交叉的独特态势。当前，国家“双碳目标”持续强力推进能源、材料、环境、生命健康、信息等领域快速发展，电化学进入了新的黄金发展时期，遇到了前所未有的发展机遇，同时也面临着巨大的挑战。

在这样的大背景下，2023年初，中国化学会电化学专业委员会（Chinese Society of Electrochemistry, CSE）委托其会刊《电化学（中英文）》（*Journal of Electrochemistry*）向全国一线的电化学及其相关学科的科技工作者发起征集电化学领域重大科学问题的活动。重点围绕**电化学基础理论、电化学测试技术与方法、纳米与材料电化学、锂离子电池、钠钾离子电池、有机和多价金属离子电池、锂硫电池、固态电池、金属空气电池、超级电容器、液流电池、水系二次电池、燃料电池、电催化、生物电分析、太阳能电池及光电化学、有机与工业电化学、腐蚀与电镀等电化学18个研究方向**，共收到来自3000余名一线科技工作者汇总的89个相关的问题和难题。经过中国化学会电化学专业委员会委员

（微信公众号）

## “电化学十大科学问题”简介：

“电化学十大科学问题”是中国化学会电化学专业委员会（Chinese Society of Electrochemistry, CSE）向全国一线的电化学及其相关学科的科技工作者发起征集电化学领域重大科学问题的活动。重点围绕电化学基础理论、电化学测试技术与方法、纳米与材料电化学、锂离子电池、钠钾离子电池、有机和多价金属离子电池、锂硫电池、固态电池、金属空气电池、超级电容器、液流电池、水系二次电池、燃料电池、电催化、生物电分析、太阳能电池及光电化学、有机与工业电化学、腐蚀与电镀等 18 个研究方向，共收到来自 3000 余名一线科技工作者汇总的 89 个相关的问题和难题。经多轮讨论和甄选，于近期首次发布“电化学 10 大科学问题”，旨在对电化学学科和电化学工业发展中的关键科学问题和技术瓶颈进行了全面梳理和分析研判。

## 电化学 10 大科学问题分别是：

1、如何在微观层次探测或模拟原位 / 工况条件下复杂电化学界面的动态结构变化，并建立其与宏观电化学性能的关系？

2、如何理解和调控金属 Li 负极成核 / 生长及枝晶抑制策略？

3、如何获得满足固态电池应用需求的高性能碱金属离子固体电解质？

4、如何发展高能量密度多电子转移反应体系的水系电池？

5、如何理性设计低 / 非铂的高效长寿命电催化剂并宏量制备？

6、如何构筑高效气体扩散电极三相界面、理解传质传荷机制及其过程强化？

7、如何破解生命过程中电子传递、能量 / 物质转化及其与人类疾病的关系和电化学调控原理？

8、如何突破太阳能电池能量转换效率的肖克利-奎伊瑟极限？

9、如何深入揭示腐蚀过程中多步骤电极反应动力学机制，精准调控复杂阳极过程和阴极过程？

10、如何高效、高选择性电化学精准合成高附加值有机化学品？

CSE 邀请程俊、蔡文斌、郭玉国、邓以诚、唐果、艾新平、李先锋、魏子栋、相艳、邢巍、李玥琪、鞠焜先、李景虹、石钰鑫、范楼珍、林昌健、林海波等作者对电化学十大科学问题的中英文解读请见：<https://jelectrochem.xmu.edu.cn/journal/vol30/iss1/1>