

2024 丝绸之路绿色冶金与新材料国际产学研用 合作会议第一轮通知

2024 Silk Road International Conference on the Cooperation and
Integration of Industry, Education, Research and Application of
Green Metallurgy and New Materials

2024.09.19-09.21

一、会议简介/ Conference Introduction

为了促进稀土新材料、绿色冶金、资源开采、硅基材料以及工业机器人制造等领域技术的发展与融合创新，加强国内外同行之间的交流与合作，兹定于2024年9月19日至21日在内蒙古包头市举办2024丝绸之路绿色冶金与新材料国际产学研用合作会议。2024丝绸之路国际产学研用合作会议以“绿色冶金与新材料”为主题，聚焦产业需求、社会经济发展和科技创新开展深度合作，邀请国内外知名院士、专家、学者做特邀报告和主旨报告，并进行主题交流研讨，搭建中外产学研用国际学术交流及合作对接平台。热忱欢迎各位领导、专家、学者、科研人员以及产业界人士出席，共绘“一带一路”材料、冶金产学研用新蓝图。

In order to promote the development and integrated innovation of technologies in the fields of rare earth new materials, green metallurgy, resource mining, silicon-based materials and industrial robot manufacturing, and strengthen exchanges and cooperation between domestic and foreign counterparts, the 2024 Silk Road International Conference on the Cooperation and Integration of

Industry, Education, Research and Application of Green Metallurgy and New Materials is scheduled to be held in Baotou, Inner Mongolia from September 19th to 21st, 2024. The 2024 Silk Road International Conference on the Cooperation and Integration of Industry, Education, Research and Application, with the theme of "Green Metallurgy and New materials", will focus on industrial demand, social and economic development and scientific and technological innovation to carry out in-depth cooperation, invite well-known academicians, experts and scholars at home and abroad to deliver reports, and conduct academic exchanges and discussions so as to build a platform for international academic exchanges and cooperation between domestic and foreign industry, university and research. Warmly welcome leaders, experts, scholars, researchers and industry members in this field to attend and draw a new blueprint for the "Belt and Road" materials and metallurgy industry and research.

二、会议时间/ Conference Date

会议时间：2024年9月19日-21日

Conference Date: September 19th-21st, 2024

三、会议地点/ Conference Location

内蒙古包头市，内蒙古科技大学

Inner Mongolia University of Science & Technology, Baotou,
Inner Mongolia

四、会议主题/ Conference Topics

主题：绿色冶金与新材料

Theme: Green Metallurgy and New Materials

分议题一：稀土绿色冶金技术创新与可持续发展

介绍：稀土在分离提取过程中存在能耗高、三废排放量大、智能化水平低等问题。开展稀土提取过程新技术新工艺研讨，对稀土行业可持续发展具有重要意义。本分论坛主要涉及方向为：

（1）稀土冶金绿色化理论与新技术；（2）稀土提取过程三废资源化利用新技术；（3）稀土材料制备过程物理化学原理与绿色技术；（4）稀土产业形势与资源安全。通过本论坛加强稀土在提取和应用过程前沿技术的国内外交流合作，为推动“两个稀土基地”建设贡献智慧和力量。

Session 1: Rare earth green metallurgical technology innovation and sustainable development

Introduction: There are problems in the separation and extraction process of rare earths, such as high energy consumption, large emissions of three wastes, and low level of intelligence. Conducting discussions on new technologies and processes for rare earth extraction is of great significance for the sustainable development of the rare earth industry. The main directions of this sub-forum are: (1) Greenization theory and new technologies in rare earth metallurgy; (2) New technology for resource utilization of three wastes in rare earth extraction process; (3) Physical and chemical principles and green technologies in the preparation process of rare earth materials; (4) The situation and resource security of the rare earth industry. Through this forum, we will strengthen the exchange

and cooperation of frontier technologies in rare earth extraction and application at home and abroad, and contribute wisdom and strength to the construction of "two rare earth bases".

分议题二：战略资源高效利用前沿技术

介绍：战略资源在国民经济、国防军工和战略新兴产业领域起到至关重要的作用，开展战略资源高效利用前沿技术研讨具有重要意义。本分论坛主要涉及方向为：（1）战略性矿产资源富集成矿机理与勘探新技术；（2）战略性矿产资源智能绿色精准开采新技术与理论；（3）战略性矿产资源绿色高效分离提取新技术与理论。通过本论坛加强战略资源高效利用前沿技术的国内外交交流合作，为推动国家重要能源和战略资源基地建设贡献智慧和力量。

Session 2: Efficient utilization of strategic resources and frontier technologies

Introduction: Strategic resources play a crucial role in the national economy, national defense and military industry, and strategic emerging industries. Conducting research on frontier technologies for efficient utilization of strategic resources is of great significance. The main directions of this sub-forum are: (1) the enrichment and mineralization mechanisms of strategic mineral resources and new exploration technologies; (2) New technologies and theories for intelligent, green, and precise mining of strategic mineral resources; (3) New technologies and theories for green and efficient separation and extraction of strategic mineral resources.

Through this forum, we will strengthen domestic and international exchanges and cooperation on the efficient utilization of frontier technologies in strategic resources, and contribute wisdom and strength to the construction of important national energy and strategic resource bases.

分议题三：优势资源先进材料绿色研发与高值化应用

介绍：基于包头地区资源优势与产业优势，凝聚国际共识、深化融合发展，对于优势资源先进材料绿色研发与高值化应用具有重要意义。本论坛内容包括但不限于：（1）材料设计融合基因组学与集成计算工程；（2）材料绿色制备加工新技术与理论；（3）材料智能化制备加工新技术与理论；（4）材料表征新技术与理论；（5）材料高通量制备新技术与理论；（6）跨领域交叉学科协同材料科技创新理论。通过本论坛的交流，梳理产业发展新趋势，加强战略对接，拓展合作途径，构建集约高效、产业共生的协同创新发展体系，促进学术界与工业界的深度融合，共同解决材料科学领域的关键问题。

Session 3: Green development and high-value applications of advantageous resources and advanced materials

Introduction: Based on the resource and industrial advantages of Baotou region, it is of great significance to gather international consensus and deepen integrated development for the green research and high-value application of advanced materials with advantageous resources. The content of this sub-forum includes but is not limited to: (1) Materials design, integration of genomics and integrated

computing engineering; (2) New technologies and theories for green material preparation and processing; (3) New technologies and theories for intelligent material preparation and processing; (4) New technologies and theories for material characterization; (5) New technologies and theories for high-throughput material preparation; (6) Cross disciplinary and interdisciplinary collaborative material technology innovation theory. Through the exchange of this forum, we will sort out new trends in industrial development, strengthen strategic docking, expand cooperation channels, build an intensive, efficient, and symbiotic collaborative innovation development system, promote deep integration between academia and industry, and jointly solve key problems in the field of material science.

分议题四：硅基前沿材料与技术

介绍：硅基新材料在半导体、光伏、锂电池、特种陶瓷等先进制造行业中已成为支撑国防航空、新能源、5G 通讯等战略性新兴产业的关键材料，开展硅基前沿材料与技术研讨具有重要意义。本分论坛主要涉及方向为：（1）金属硅、多晶硅、单晶硅等半导体及光伏领域硅基新材料与加工技术；（2）硅碳负极材料等电化学储能领域硅基新材料与加工技术；（3）碳化硅、氮化硅等特种陶瓷领域硅基新材料与加工技术。本论坛旨在就硅基新材料先进制造深化领域内的沟通与协作，推动国家和区域新材料产业持续健康发展。

Session 4: Silicon based frontier materials and technologies

Introduction: Silicon based new materials have become a key

material supporting strategic industries such as national defense, aviation, new energy, and 5G communication in advanced manufacturing industries such as semiconductors, photovoltaic, lithium batteries, and special ceramics. Conducting research on frontier silicon-based materials and technologies is of great significance. The main focus of this sub-forum is: (1) Silicon based new materials and processing technologies in the semiconductor and photovoltaic fields, such as metallic silicon, poly-crystalline silicon, and mono-crystalline silicon; (2) Silicon based new materials and processing technologies in the field of electro-chemical energy storage, such as silicon carbon negative electrode materials; (3) Silicon based new materials and processing technologies in the field of special ceramics such as silicon carbide and silicon nitride. This forum aims to deepen communication and collaboration in the field of advanced manufacturing of silicon-based new materials, and promote the sustainable and healthy development of the national and regional new material industry.

分议题五：工业机器人与智能制造系统

介绍：智能制造是制造业的未来发展方向之一，而工业机器人是实现智能制造的核心。本分论坛主要涉及方向为：（1）工业机器人辅助高能束智能化焊接与增材制造新技术；（2）工业机器人辅助原位智能检测新技术；（3）大数据人工智能分析技术；（4）定制化智能制造系统集成技术。通过本论坛加强机器人与智能制造系统前沿技术的国内外交流合作，为推动自治

区能源、冶金、煤炭、化工、装备制造等领域中的智能制造贡献智慧和力量。

Session 5: Industrial robots and intelligent manufacturing system

Introduction: Intelligent manufacturing is one of the future development directions of the manufacturing industry, and industrial robots are the core of achieving intelligent manufacturing. The main topics covered in this sub-forum are: (1) Industrial robots assisted high-energy beam intelligent welding and new technologies for additive manufacturing; (2) New technology for industrial robot assisted in-situ intelligent detection; (3) Big data and artificial intelligence analysis technology; (4) Customized intelligent manufacturing system integration technology. Through this forum, we will strengthen domestic and international exchanges and cooperation on frontier technologies of industrial robots and intelligent manufacturing systems, and contribute wisdom and strength to promoting intelligent manufacturing in the fields of energy, metallurgy, coal, chemical industry, equipment manufacturing, and other fields in the autonomous region.

五、参会范围/ Scope of Participation

国内外高校、科研院所和企业相关领域的领导、专家、学者、科研人员以及产业界人士等。

Leaders, experts, scholars, researchers, and industry professionals from universities, research institutes and enterprises at

home and abroad.

六、会议语言/ Conference Languages

中文、英语；会议提供翻译服务

Chinese, English; Translation services are provided.

七、主办及承办单位/ Conference Organizer

指导单位：中华人民共和国教育部

Initiator: The Ministry of Education of the People's Republic of China;

主办单位：教育部学校规划建设发展中心；内蒙古自治区教育厅

Sponsors: School Planning, Construction and Development Center, Ministry of Education of the People's Republic of China; Inner Mongolia Autonomous Region Department of Education

承办单位：内蒙古科技大学

Organizer: Inner Mongolia University of Science & Technology

八、组委会联系方式/ Contact Us

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内蒙古科技大学

2024年5月21日

Inner Mongolia University of Science & Technology

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