

## Symposia G05

### Advanced Characterization Technology for Materials

October 14, 2023 (Saturday)

Conference Room: 5301, #3 floor

13:30-15:30 Session I

Chair: Yandong Wang

13:30-13:55 (G05-01) (keynote)

Four kinds of stresses and their characterizations by neutron and synchrotron X-ray diffraction methods

Yandong Wang, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, China

13:55-14:20 (G05-02) (keynote)

上海光源超硬多功能线站介绍  
杨科, 上海光源, 中国

14:20-14:45 (G05-03) (keynote)

GPPD 在材料科学中的应用  
何伦华, 中国散裂中子源, 中国

14:45-15:10 (G05-04) (keynote)

CSNS 工程材料中子衍射谱仪建设进展及其应用  
胡春明, 中国科学院高能物理研究所东莞研究部/散裂中子源科学中心, 中国

15:10-15:30 (G05-05) (Invited)

同步辐射超高时空分辨 X 射线探测技术在金属增材制造和动态冲击领域中的应用  
张兵兵, 高能同步辐射光源, 中国

15:30-15:45 Coffee break

15:45-18:00 Session II

Chair: Yandong Wang

15:45-16:10 (G05-06) (keynote)

材料检测 X 射线成像新方法  
肖体乔, 上海光源, 中国

16:10-16:35 (G05-07) (keynote)

ERNI 先进中子成像技术及其应用进展  
陈洁, 中国散裂中子源, 中国

16:35-17:00 (G05-08) (keynote)

HEPS 及其 HXI 线站进展和应用  
黎刚, 中科院高能物理研究所, 中国

17:00-17:20 (G05-09) (Invited)

HEPS 工程材料线站简介及其在材料先进表征中的应用  
杨一鸣, 高能同步辐射光源, 中国

17:20-17:40 (G05-10) (Invited)

单晶高温合金回复机理与再结晶抑制  
陈凯, 西安交通大学, 中国

17:40-18:00 (G05-11) (Invited)

基于高分辨中子成像与电镜表征的锆合金氢扩散-析出研究  
公维佳, 西北工业大学, 中国  
Symposia G05

Advanced Characterization Technology for Materials

## Symposia G05

### Advanced Characterization Technology for Materials

October 15, 2023 (Sunday)

8:30-10:15 Session III

Chair: Dongbai Sun

8:30-8:35 孙冬柏校长致欢迎词

8:35-9:00 (G05-12) (keynote)

重大工程材料服役安全研究评价设施  
(Materials Service Safety Assessment Facilities)  
张卫冬, 北京科技大学, 中国

9:00-9:25 (G05-13) (keynote)

题目待定

车仁超, 复旦大学

9:25-9:50 (G05-14) (keynote)

Atomic and electronic structures of crystal defects in AlN  
Chunlin Chen, Institute of Metal Research Chinese Academy of Sciences, China

9:50-10:15 (G05-15) (keynote)

题目待定  
余倩, 浙江大学

10:15-10:30 Coffee Break

**10:30-12:00 Session IV**

**Chair: Yandong Wang**

**10:30-10:55 (G05-16) (keynote)**  
**氧化物薄膜中动力学行为的原位观测**  
田鹤, 浙江大学

**10:55-11:20 (G05-17) (keynote)**  
**Study on SCC evaluation of 7N01 aluminum alloy with materials calculation**  
Chaofang Dong, Institute for Advanced Materials and Technology, University of Science and Technology Beijing, China

**11:20-11:40 (G05-18) (Invited)**  
**The development of a multifunctional X-ray characterization platform in IASF**  
Zhou Zhou, Institute of Advanced Science Facilities, China

**11:40-12:00 (G05-19) (Invited)**  
**Promoting the X-ray Scattering Data Analysis with Two-dimensional Correlation Spectroscopy**  
Peng Zhang, Sun Yat-Sen University, China

**13:30-15:35 Session V**  
**Chair: Xiaodong Han**

**13:30-13:55 (G05-20) (keynote)**  
**还原论下的材料科学**  
谷林, 清华大学

**13:55-14:20 (G05-21) (keynote)**  
**题目待定**  
刘开辉, 北京大学

**14:20-14:45 (G05-22) (keynote)**  
**小尺寸金属变形机制原位原子尺度研究**  
王立华, 北京工业大学

**14:45-15:10 (G05-23) (keynote)**  
**L12 纳米相强化中熵合金的动态变形行为及机制表征**  
刘彬, 中南大学, 中国

**15:10-15:35 (G05-24) (keynote)**  
**低维钛酸锶中的界面效应**  
高鹏, 北京大学

**15:35-15:50 Coffee break**

**15:50-18:10 Session VI**  
**Chair: Yunhai Jia**

**15:50-16:15 (G05-25) (keynote)**  
**Atomic-scale in situ dynamic characterization of crystal nucleation, growth and structural evolution**  
Rongming Wang, University of Science and Technology Beijing, China

**16:15-16:40 (G05-26) (keynote)**  
**High-throughput experimental methods for research and development of multicomponent alloys**  
Lilong Zhu, Yantai University, China

**16:40-17:00 (G05-27) (Invited)**  
**Atomic tuning effect of TiB<sub>2</sub> particles on the liquid phase separation behavior of an Al-Bi immiscible alloy**  
Wenquan Lu, Shanghai Jiao Tong University, China

**17:00-17:20 (G05-28) (Invited)**  
**Structure evolution of NCM cathode materials at high voltage in Li-ion battery by using time-resolved XRD**  
Chunzhen Yang, Institute of Advanced Scientific Facilities, China

**17:20-17:40 (G05-29) (Invited)**  
**Nanostructural evolution in stainless steels studied by small-angle scattering**  
Xin Xu, Sun Yat-Sen University, China

**17:40-17:55 (G05-30)**  
**Texture characterization software for atomic configurations**  
Gaofeng Zhang, Shagang School of Iron and Steel, Soochow University, China

**17:55-18:10 (G05-31)**  
**国产粉末衍射晶体结构分析及精修软件的开发进展**  
冯振杰, 上海大学材料基因组工程研究院, 中国

## Symposia G05

### Advanced Characterization Technology for Materials

**October 16, 2023 (Monday)**

---

**8:30-10:10 Session VII**  
**Chair: Xiaodong Han**

**8:30-8:55 (G05-32) (keynote)**

**Full-scale characterization of inclusions in oversized metal material samples**  
Yunhai Jia, NCS Testing Technology Co., Ltd., China

**8:55-9:20 (G05-33) (keynote)**  
**材料基因工程的三个前沿科学问题**  
项晓东, 南方科技大学, 中国

**9:20-9:45 (G05-34) (keynote)**  
**题目待定**  
周仕明, 同济大学

**9:45-10:10 (G05-35) (keynote)**  
**先进能源材料的电镜表征**  
苏东, 中科院物理所

**10:10-10:25 Coffee Break**

**10:25-11:30 Session VIII**  
**Chair: Weidong Zhang**

**10:25-10:50 (G05-36) (keynote)**  
**A novel evaluation method for crack arrest toughness of shipbuilding steel using dovetail specimens with temperature gradient**  
Xuechong Ren, National Center for Materials Service Safety, University of Science and Technology Beijing, China

**10:50-11:10 (G05-37) (Invited)**  
**Synchrotron X-ray imaging study on the effect of magnetic field on solidification microstructure of metals**  
Sansan Shuai, Shanghai University, China

**11:10-11:25 (G05-38)**  
**A study on the microstructure and oxidation behavior of nuclear graphite using X-ray scattering and imaging methods**  
Xu Qiao, Sun Yat-Sen University, China

**11:25-11:40 (G05-39)**  
**High corrosion resistance Ti-6Al-4V coating with metallurgical bonding by laser cladding**  
Kangkai Hu, Sun Yat-Sen University, China

**11:40-11:55 (G05-40)**  
**Delineation of Potential Composite Hole Transport Layers in Flexible Photovoltaics**  
Joseph Asare, Francis Ako Marley, Department of Physics, School of Physical and Mathematical Sciences, University of Ghana, Legon-Accra, Ghana

**13:30-14:55 Session IX**

**Chair: Dongbai Sun**

**13:30-13:55 (G05-41) (keynote)**  
**High-throughput research on Co-base superalloys using multi-component diffusion multiple (MCDM) approach**  
Jingjing Ruan, Yantai University, China

**13:55-14:10 (G05-42)**  
**In-situ characterization of specimen failure in**

**high-temperature and high-pressure water**  
Tingguang Liu, National Center for Materials Service Safety, University of Science and Technology Beijing, China

**14:10-14:25 (G05-43)**  
**Porous Nanocages with Excellent Electromagnetic Wave Absorption**  
Shanxin Li, Sun Yat-Sen University, China

**14:25-14:40 (G05-44)**  
**Detection Methods and Bearing Failure Characteristics Analysis Related to Grinding Burns**  
Xueqin Hou, AECC Beijing Institute of Aeronautical Materials, China;

**14:40-15:00 Coffee Break**

**15:00-16:40 Session X**  
**Chair: Changkui Liu**

**15:10-15:25 (G05-45)**  
**新材料的未来在于从原子尺度进行探索**  
Florian Vogel, Hainan University, China  
Miki NGAL, South China University of Technology, China

**15:25-15:40 (G05-46)**  
**High-throughput Characterization of the Microstructural Degradation Behavior of Alloys for Power Plant**  
Yinsheng He, University of Science and Technology Beijing, China

**15:40-15:45 (G05-47)**  
**Synchrotron radiation WAXS measurements of hot-rolled titanium/steel composite plate interfacial phase**  
Shuo Wang, Sun Yat-Sen University, China

**15:45-16:00 (G05-48)**  
**Development and application of Spark Mapping Analysis for Large Sample**  
Liang Sheng, NCS Testing Technology Co., Ltd., China