

# 九州大学 超顕微解析研究センター50周年記念シンポジウム

1日目:3月5日(木)

13:00 - 13:05	開会の挨拶	村上 恭和	九州大学 超顕微解析研究センター長
13:05 - 13:10	来賓挨拶	石橋 達朗	九州大学 総長
13:10 - 13:30	超顕微解析研究センター50年の歩み	松村 晶	九州大学 名誉教授/特任教授
13:30 - 13:50	九州大学における超高压電子顕微鏡研究: これまでの進展と将来の展望	安田 和弘	九州大学 教授
13:50 - 14:20	材料界面の原子構造とそのダイナミクス	幾原 雄一	東京大学 特別教授
14:20 - 14:50	3D characterisation of complex metallic nanoparticles using advanced electron microscopy	Sara Bals	ベルギー・アントワープ大学 教授
14:50 - 15:00	記念撮影		

15:00 - 15:15 Coffee Break

15:15 - 15:45	高エネルギーEELSシステムを有する収差補正STEMでの マルチモーダルデータ測定環境の開発	渡辺 万三志	東北大学/米国・リーハイ大学 教授
15:45 - 16:05	TEM/STEMイメージングにおける3Dの標準化を目指して	波多 聡	九州大学 教授
16:05 - 16:25	九州大学が拓く顕微解析:触媒から磁性材料まで	村上 恭和	九州大学 教授

16:30 - 17:30 超顕微解析研究センター 見学

18:00 - 20:00 懇親会(グローバルホテル糸島)

Day 1: Thursday, March 5

13:00 - 13:05	Opening Remarks	Yasukazu Murakami	Director, the Ultramicroscopy Research Center, Kyushu University
13:05 - 13:10	Welcome Address	Tatsuro Ishibashi	President, Kyushu University
13:10 - 13:30	50Years of the Ultramicroscopy Research Center, Kyushu University	Syo Matsumura	Professor Emeritus/ Research Professor, Kyushu University
13:30 - 13:50	High-Voltage Electron Microscopy Research at Kyushu University: Its Progress and Future Prospects	Kazuhiro Yasuda	Professor, Kyushu University
13:50 - 14:20	Atomic Structures at Interfaces and Their Dynamics	Yuichi Ikuhara	Distinguished Professor, The University of Tokyo
14:20 - 14:50	3D Characterisation of Complex Metallic Nanoparticles using Advanced Electron Microscopy	Sara Bals	Professor, University of Antwerp, Belgium
14:50 - 15:00	Group Photo		

15:00 - 15:15 Coffee Break

15:15 - 15:45	Development of a Multimodal Data Acquisition Platform in an Aberration-corrected STEM with a High-energy EELS System	Masashi Watanabe	Professor, Tohoku University / Lehigh University, USA
15:45 - 16:05	Toward 3D as a Standard Dimension in TEM/STEM Imaging	Satoshi Hata	Professor, Kyushu University
16:05 - 16:25	Advanced Electron Microscopy at Kyushu University: From Catalysts to Magnetic Materials	Yasukazu Murakami	Professor, Kyushu University

16:30 - 17:30 Lab Tour of the Ultramicroscopy Research Center

18:00 - 20:00 Banquet

## 2日目:3月6日(金)

9:30 - 10:00	3D Physical Property Mapping of Nanoparticles by Electron Energy-Loss Spectroscopy	Miyoung Kim	韓国・ソウル大学 教授
10:00 - 10:30	現代の錬金術:多元素ナノ物質の開発と社会実装に向けて	北川 宏	京都大学 教授
10:30 - 11:00	超高圧透過型電子顕微鏡によるその場観察 - 商用電子接合に関する知見の提供	野北 和宏	オーストラリア・クイーンズランド大学 教授

### 11:00 - 11:15 Coffee Break

11:15 - 11:45	福島第一原発原子力災害に貢献する科学: 高濃度放射性セシウム含有微粒子の精密分析から見えたメルトダウン現象の真実	宇都宮 聡	台湾・国立台湾大学 教授
11:45 - 12:05	深層学習を活用した電子顕微鏡画像解析とその自動化~ 超顕微解析研究センターでの計測インフォマティクスの高度化とDX推進~	山本 知一	九州大学 准教授

### 12:05 - 12:55 昼食

### 12:55 - 13:35 ポスター発表

13:35 - 13:55	グリーンファルマ構造解析センターにおけるクライオ電子顕微鏡解析	眞柳 浩太	九州大学 講師
13:55 - 14:40	若手講演セッション I		
13:55~	窒素添加オステナイトにおけるN-Crクラスタリングとその転位組織に及ぼす影響	河原 康仁	九州大学 助教
14:10~	電子線照射下その場加熱観察による規則合金の組織変化解析	嶋田 雄介	九州大学 准教授
14:25~	電子線照射によるペロブスカイトナノ光源の自在配置	斉藤 光	九州大学 准教授
14:40 - 14:55	マテリアル先端リサーチインフラ事業におけるデータ収集と利活用	藤ヶ谷 剛彦	九州大学 教授

### 14:55 - 15:10 Coffee Break

15:10 - 15:55	若手講演セッション II		
15:10~	透過電子顕微鏡を用いたPt/酸化物界面の微構造・電子状態解析	北條 元	九州大学 准教授
15:25~	表面合金ナノキューブの電子顕微鏡観察と電気化学的CO <sub>2</sub> 還元特性□	小林 浩和	九州大学 准教授
15:40~	電子線ホログラフィーを用いた担持金属ナノ粒子の電荷状態解析	麻生 亮太郎	九州大学 准教授
15:55 - 16:00	閉会挨拶	波多 聡	九州大学 超顕微解析研究センター 副センター長

## Day 2: Friday, March 6

9:30 - 10:00	3D Physical Property Mapping of Nanoparticles by Electron Energy-Loss Spectroscopy	Miyoung Kim	Professor, Seoul National University, Korea
10:00 - 10:30	Modern Alchemy: Binary to High-Entropy Nano-alloys and Oxides	Hiroshi Kitagawa	Professor, Kyoto University
10:30 - 11:00	In-situ high voltage transmission electron microscopy - Providing insights into commercial electronic interconnections	Kazuhiro Nogita	Professor, University of Queensland, Australia
11:00 - 11:15	Coffee Break		
11:15 - 11:45	Science behind Fukushima Daiichi: Cesium-rich microparticles as a window into the reactor	Satoshi Utsunomiya	Professor, National Taiwan University, Taiwan
11:45 - 12:05	Deep Learning-Driven Electron Microscopy Image Analysis and Beyond: Advancing Microscopy Informatics DX at the URC	Tomokazu Yamamoto	Associate Professor, Kyushu University
12:05 - 12:55	Lunch		
12:55 - 13:35	Poster Session		
13:35 - 13:55	High-End Cryo-Electron Microscopy at Structural Drug Discovery Center via Green-Pharma	Kota Mayanagi	Lecturer, Kyushu University
13:55 - 14:40	Young Scientists Session: I		
13:55~	N-Cr clustering and its influence on dislocation structures in nitrogen-added austenites	Yasuhito Kawahara	Assistant Professor, Kyushu University
14:10~	<i>In-situ</i> heating observation of electron-irradiation-induced nano-structural evolution in ordered metallic alloys	Yusuke Shimada	Associate Professor, Kyushu University
14:25~	Precisely Controlled Arrangement of Perovskite Nano-Light Sources by Electron Beam Irradiation	Hikaru Saito	Associate Professor, Kyushu University
14:40 - 14:55	Activities of Advanced Research Infrastructure for Materials and Nanotechnology (ARIM) Project in Kyushu University	Tsuyohiko Fujigaya	Professor, Kyushu University
14:55 - 15:10	Coffee Break		
15:10 - 15:55	Young Scientists Session: II		
15:10~	Microstructural and Electronic Structure Characterization of Pt/Oxide Interfaces Using Transmission Electron Microscopy	Hajime Hojo	Associate Professor, Kyushu University
15:25~	Electron Microscopy Observation and Electrochemical CO <sub>2</sub> Reduction Properties of Surface-Alloyed Nanocubes	Hirokazu Kobayashi	Associate Professor, Kyushu University
15:40~	Analysis of the Charge States of Supported Metal Nanoparticles Using Electron Holography	Ryotaro Aso	Associate Professor, Kyushu University
15:55 - 16:00	Closing Remarks	Satoshi Hata	Deputy Director, the Ultramicroscopy Research Center, Kyushu University

## POSTER SESSION

- 1 **In-situ Observation of Tensile Deformation Behavior in Nanocomposite Polymer Materials Using Transmission Electron Microscopy**  
Pangpang Wang    Materials Open Lab, Institute of Systems, Information Technologies and Nanotechnologies
- 2 **Nanoscale Crystal Phase Mapping of LiCoO<sub>2</sub> Cathodes by 4D-STEM Cepstrum Matching Analysis**  
Kohei Aso    Japan Advanced Institute of Science and Technology
- 3 **Point Defect Production and Kinetics in Ceramics Using Cathodoluminescence in a High-Voltage Electron Microscope**  
Rintaro Takita    Department of Applied Quantum Physics and Nuclear Engineering, Kyushu University
- 4 ***In Situ* Investigation of Radiation Damage in Ceramics and Semiconductors by High-Voltage Electron Microscopy**  
Yoji Katai    Department of Applied Quantum Physics and Nuclear Engineering, Kyushu University
- 5 **The O-GlcNAcylation of  $\beta$ -Actin Ser199 Controls Nuclear Speckle Localization**  
Yoshihiro Akimoto    Kyorin University School of Medicine
- 6 **HAADF-STEM Observation of Electrocatalyst Structure in PEM Water Electrolysis**  
Yoshitsune Sugano    Corporate Laboratory, Toshiba Corporation
- 7 **Microstructure and Solidification of Amorphous GeTe Formed under Laser-Induced High Temperature Gradients**  
Hiroshi Nakajima    Research Center for Ultra-High Voltage Electron Microscopy, The University of Osaka
- 8 **In-situ observation of reaction processes of water-splitting catalysts by liquid cell STEM**  
Masaki Takeguch    National Institute for Materials Science
- 9 **Noise reduction of low-dose electron holograms using the wavelet hidden Markov model**  
Yuto Tomita    Department of Applied Quantum Physics and Nuclear Engineering, Kyushu University
- 10 **Precise Flow Synthesis of Platinum-Group-Metal High-Entropy Alloy Nanoparticles and Analysis Using Machine Learning**  
Daiki Takahashi    Graduate School of Science, Kyoto University
- 11 **High-Entropy Oxide Nanoparticles Composed of All Ten 3d Transition Metal Elements**  
Ryohei Kanda    Graduate School of Science, Kyoto University
- 12 **Machine learning aided nanoscale visualization of grain boundaries using electron diffraction mapping**  
Shiro Ihara    Institute for Materials Chemistry and Engineering, Kyushu University
- 13 **Atomic-resolution observation of SMSI-induced structural transformations in Pt/TiO<sub>2</sub> under a gas atmosphere**  
Makoto Ebihara    Department of Applied Quantum Physics and Nuclear Engineering, Kyushu University
- 14 **Structural Restoration of Perovskites from Low-Dose Electron Microscopy Using WGAN-GP Based Deep Learning**  
Naomu Sekiguchi    Department of Advanced Materials Science and Engineering, Faculty of Engineering Sciences, Kyushu University
- 15 **Crystallographic Orientation Analysis of Polycrystalline Co-doped BaFe<sub>2</sub>As<sub>2</sub> using In-situ 4D-STEM**  
Yiming MA    Interdisciplinary Graduate School of Engineering Sciences, Kyushu University
- 16 **Scanning Precession Electron Diffraction Analysis of early-DR- and HDDR-processed anisotropic Nd-Fe-B Magnet Powders**  
Shota Kawanabe    Interdisciplinary Graduate School of Engineering Sciences, Kyushu University
- 17 **Sharpening XEDS Mapping Using Post-Processing Drift Correction**  
Masaki Kudo    Institute for Integrated Innovations, Hokkaido University