

M&M 2022 - Full Schedule -On-Demand Platform Presentations

*as of July 25, 2022

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| A01 | 9 | Contrast Mechanisms in Transmission Microscopy Using keV Helium Ions | Santhana Eswara |
| A01 | 10 | Addressing Neon Gas Field Ion Source Instability Through Online Beam Current Estimation | Sheila Seidel |
| A01 | 21 | Plasma FIB-SEM-based Kintsugi Imaging of Battery Electrodes | Bartlomiej Winiarski |
| A02 | 34 | Molecular Mechanism of Copper-based Catalytic Reaction of Water Oxidation. In-situ Electrochemical Liquid Phase Transmission Electron Microscopy Study. | Alla Sologubenko |
| A02 | 38 | In-situ atomic-scale Observations of Disconnection Dynamics at the Metal/Oxide Interfaces | Zhilu Liang |
| A02 | 46 | Navigating the Nanoworld: Automatic Feature Recognition | Stephen Pennycook |
| A02 | 51 | In-situ Environmental TEM Observations of Structural Evolution of Oxygenated Cu(110) in CO | Xianhu Sun |
| A03 | 62 | X-ray Tomoscopy: Time-resolved Microtomography for Materials Science | Francisco García-Moreno |
| A03 | 72 | Synergistic Imaging of Battery Materials using Laboratory and Synchrotron X-ray Microscopy | Paul Shearing |
| A03 | 73 | X-ray Computed Tomography for Pores Evolutions under Thermo-mechanical Loading : In situ Characterization at Nano and Micro Scale | Pierre Lhuissier |
| A03 | 74 | Cryogenic Electron Microscopy Combined with Energy-Dispersive X-ray Spectroscopy Tomography for Materials Science | Lin Jiang |
| A03 | 75 | From 2D and Single Particle to 3D and Batch Analysis as a Routine Quality Check Procedure for the Morphological Characterization of Core-Shell Microparticles | Deniz Hülögü |
| A04 | 95 | Mapping Polar Distortions with Nanobeam Electron Diffraction with a Cepstral Approach | Megan Holtz |
| A05 | 129 | A Multi-Technique Database for Spectrum Identification in Luminescence and X-Ray Maps | Aaron Torpy |
| A05 | 130 | An EBSD – EPMA Investigation of Synthetically Produced Sulfide Ores | Alexander Glenn |
| A05 | 131 | Elemental Analysis of Fish Scale Derived Bio Hydroxyapatite/Collagen using SEM/EDS | Mathew Ackah |
| A05 | 132 | Elemental Analysis of Spent Coffee Ground Derived Biochar using SEM/EDS | Ahmed Alhelal |
| A05 | 133 | High-Speed Micro-XRF Analysis of Rock Samples and Drill Cores | Andrew Menzies |
| A05 | 134 | Large Area Quantitative EDS Mapping and Visualisation for Automated Mineralogy using ZEISS Mineralogic | Richard Taylor |
| A05 | 135 | Microscopic Characterisation of the Effect of Low Temperature Oxygen Plasma Treatment on Recycled Polyethylene Terephthalate (PET) | Gautam Chandrasekhar |
| A05 | 137 | The Impact and Implications of Aragonite-to-Calcite Transformation Onspeleothem Trace Element Composition | Mei He |
| A05 | 138 | The Origin of 2.98eV Cathodoluminescence Emission in Quartz and its Relation to Structural Defects and Ti Content | Colin MacRae |
| A06 | 154 | Are Vacancies in Field Ion Microscopy Artefacts? A DFT Study | Shyam Katnagallu |
| A06 | 155 | Expanding the Limits of Atom Probe Crystallographic Analysis | Andrew Breen |
| A06 | 156 | Quantifying Lithium in Lithium-ion battery solid electrolyte by atom probe tomography correlated with high-resolution scanning electron microscopy | Oana Cojocaru-Miredin |
| A07 | 166 | Semiconductor Technology Challenges in High Volume Manufacturing of Semiconductor (A07) | Younghoon Sohn |
| A07 | 167 | The Role of Electron Microscopy in the Development of Monodisperse Cubic Iron Oxide Nanoparticles as Certified Reference Material for Size and Shape | Paul Mrkwitschka |
| A08 | 170 | Water Condensation / Evaporation Experiments in ETEM using a Thermoelectric Microcooler | Thierry Epicier |
| A08 | 183 | Degradation of Al Current Collector in Lithium-Ion Batteries Using Liquid Phase Electron Microscopy | Morgan Binggeli |
| A09 | 193 | Wavelength Influence on Precision Femtosecond Laser Processing | Mario Garcia-Lechuga |
| A10 | 218 | Energy Dispersive X-ray Spectrum Simulation with NIST DTSA-II: Comparing Simulated and Measured Electron-Excited Spectra | Dale Newbury |
| A10 | 219 | Influence of Sterilization on the Surface of Nanoparticles Studied with XPS / HAXPES in Comparison to SEM / EDS | Xenia Knigge |
| A10 | 220 | Latest Applications of ToF-SIMS Characterization for Next-generation Electronic Materials | Tanguy Terlier |
| A10 | 221 | Mass Spectrometry Imaging of Organic Biomarkers in Geological Samples | Luke Hanley |
| A10 | 222 | Multimodal Imaging of the Evolving Interface of the Irradiated Cladding | Xiao-Ying Yu |
| A10 | 223 | Probing Structure-Property Relations in Garnet-Type Solid Electrolytes for Next-Generation Electrical Energy Storage with Multimode Analytical Scanning and Transmission Electron Microscopy | Vladimir Oleshko |
| A10 | 224 | Tribological Study and Surface Characterization of a Boron Coating Applied to an AISI L6 Steel Used in the Agricultural Area | Daniel Sanchez Huerta |
| A10 | 225 | Analysis of Industrial Graphene-based Flakes – First Results on Morphological Characterization, Sample Preparation and Chemical Composition | Giovanni Chemello |
| B03 | 282 | Visualizing Single Molecule Identity and Sample Integrity in situ | Bronwyn Lucas |
| B04 | 298 | Capturing the Evolution of the Oil-in-Water Emulsion Interface by Correlative Imaging | Xiao-Ying Yu |

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| B05 | 310 | Can Mitochondrial Crowding within Thymic Epithelial Cells Trigger Thymocyte Maturation in Fish? | Subrata De |
| B05 | 311 | Chemical Characterization of the particulate PM2.5 in the Human Respiratory System from people who lived in Mexico City. Study by Scanning Electron Microscopy and EDS-X ray | Guillermina González-Mancera |
| B05 | 312 | Wiring Specificity and Plasticity of Developing Rod and Cone Pathways | Chi Zhang |
| B06 | 318 | Biofilm Formation of Staphylococcus Epidermidis with and without Collagen Imaged using Atmospheric Scanning Electron Microscopy and Antibacterial Effect of Ag-Decorated Polymeric Particles Imaged by Transmission Electron Microscopy | Chisato Takahashi |
| B07 | 341 | Three-dimensional Structural Analysis of Ant Hair Sensors by X-ray and Serial Block-Face Scanning Electron Microscope Imaging | Lei Gao |
| C01 | 375 | Fast Automatic Focusing of the Scanning Electron Microscope using a GPU-accelerated PC | David Holburn |
| C01 | 380 | Exploring Local Physics and Structural Behaviors with Automated Experiment in 4D-STEM | Kevin Roccapriore |
| C04 | 411 | A Machine Learning Powered Software for Reproducible Electron Microscopy Analysis | Xiaoting Zhong |
| C04 | 412 | Autonomous Electron Microscopy Enabling Physics Discovery: Applications in Plasmonics of 2D systems | Kevin Roccapriore |
| C04 | 413 | Bayesian Optimization for Multi-dimensional Alignment: Tuning Aberration Correctors and Ptychographic Reconstructions | Chenyu Zhang |
| C04 | 414 | Biotherapeutics Evaluation using Artificial Intelligence Assisted Image Analysis | Charudharshini Srinivasan |
| C04 | 415 | Comparison Between Deep Learning and Iterative Bayesian Statistics Deconvolution Methods in Energy Electron Loss Spectroscopy | S. Shayan Mousavi M. |
| C04 | 416 | Diagnostic and Correction of Phase Aberrations in Scanning Transmission Microscopy by Artificial Neural Networks | Giovanni Bertoni |
| C04 | 417 | Machine Learning of in-situ Temperature Reconstruction from Metal-nanoparticle Thermometry on Transmission Electron Microscopy | Yucheng Lan |
| C04 | 418 | NanoMi: An Open Source Electron Microscope Component Integration. | Marek Malac |
| C04 | 419 | Neural Architecture Search for Transmission Electron Microscopy: Rapid Automation of Phase and Orientation Determination in TEM images | Lies Hadjadj |
| C04 | 420 | Spatial Order of Latent Variables to Characterize Multi-Range Symmetry Lowering Distortions in a Pd3Bi2Se2 Superconductor | Christopher Nelson |
| C05 | 424 | Improving Data from Electron Backscatter Diffraction Experiments using Pattern Matching Techniques | Pat Trimby |
| P01 | 431 | Imaging and Quantification of Hydrogen in Materials: SIMS Based Correlative Microscopy | Santhana Eswara |
| P01 | 446 | Hydrogen Trapping and Embrittlement in High-strength Al-alloys | Huan Zhao |
| P01 | 447 | Hydrogen/ Deuterium Detection in Ferrite-Austenite Dual Phase Steels | Aparna Saksena |
| P01 | 448 | Hydrogen/Deuterium Charging Methods for the Investigation of Site-specific Microstructural Features by Atom Probe Tomography | Heena Khanchandani |
| P01 | 449 | Quantification of Hydrogen in Metals Applying Neutron Imaging Techniques | Nikolay Kardjilov |
| P01 | 450 | Visualization of Hydrogen Permeated through Stainles Steel Membrane using Electron Stimulated Desorption | Akiko Itakura |
| P02 | 488 | Mapping Valence Electron Distribution and Magnetic Field by 4D-STEM | Lijun Wu |
| P03 | 495 | Liquid Chemistry Dynamics with Electron Microscopy (EM): Nano-catalysis Mechanisms by Processing EM Images and Videos with Machine Intelligence | Valentine Ananikov |
| P04 | | Plastic Deformation Mechanisms of Crystal-amorphous Ceramics Nanocomposites | Jian Wang |
| P05 | 523 | Submillisecond Electron Microscopic Video Imaging for Cinematic Molecular Science | Koji Harano |
| P05 | 525 | Dynamic Observation of Nanovoid Formation in Lithium- Manganese-Rich Cathode Materials with Solid Electrolyte | Sooyeon Hwang |
| P05 | 526 | In-situ Atomic-Scale Visualization of Ordering Transformations in Pt-Fe Nanoalloys | Xiaobo Chen |
| P05 | 527 | Is Dielectrophoresis Effective for Increasing Local Concentration of Particles in Liquid-cell Transmission Electron Microscopy? | Tomoya Yamazaki |
| P05 | 528 | Local Temperature Measurement of Joule Heating During In-situ TEM Electroplasticity Test of Ti-6Al | Xiaoqing Li |
| P06 | 548 | Evolution of Superstructure Demarcated with Heterointerface and Polymorphic Transformation in BiMnO3 Compounds | Satyam Choudhury |
| P06 | 549 | In-situ Calibration for Angle-Resolved Valence EELS. | Marek Malac |
| P07 | 579 | A Novel Pathway for Multi-Scale High-Resolution Time-Resolved Residual Stress Evaluation of Laser-Welded Eurofer97 | Tan Sui |
| P08 | 600 | 3D Atom Dynamics in Pt-NiO Nanocrystals | Fu-Rong Chen |
| P08 | 601 | A Readily-automated Scheme for Estimating the Critical Dose of Beam-sensitive Materials | Robert Colby |
| P08 | 602 | Crystalline Arrangement of Organic Molecules in Ammonium Urates as Determined by Electron Microscopy | Héctor Calderón Benavides |
| P08 | 603 | Enhancing Electron Computational Ghost Imaging Using Artificial Neural Networks | Lorenzo Viani |
| P08 | 604 | High-Resolution Electron Diffraction of Protein Crystals in Their Liquid Environment at Room Temperature Using a Direct Electron Detection Camera | Sergi Plana-Ruiz |
| P08 | 605 | Structural Biology in the Liquid State: shedding light on Protein Dynamics | Lorena Ruiz-Perez |

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| P08 | 606 | The Electron Microscopy of Heterostructures Made of Perovskite phases in Light emitting Crystals | Héctor Calderón Benavides |
| P08 | 607 | Tracking Structural Changes Due to Dopant Uptake in Organic Electrochemical Transistor Materials Using Four-dimensional (4D) Scanning Transmission Electron Microscopy | Andrew Herzing |
| P09 | 638 | Electron Irradiation Tolerance of Molybdenum Disulfide Two-dimensional Nanolayers Investigated from Electron Diffraction | Kit Sze |
| P09 | 639 | Structural Characterization: Al ₂ Cu Nanoprecipitates from TEM to DFT | Ana Leyva-Aizpuru |
| P10 | 665 | Differential Phase Contrast Imaging by Magnetic-field-free Atomic Resolution Scanning Transmission Electron Microscope | Naoya Shibata |
| P10 | 691 | Critical Role of Atomic-scale Defects in Modulating Multiferroicity in Rare-Earth Ferrite Multiferroics | Shiqing Deng |
| P10 | 692 | Spectroscopy at Ultra-low Energy Losses at Atomic Resolution | Jan Ruzs |
| P11 | 705 | Combining SEM-EDS and Micro-XRF-EDS Analysis: In-situ Search for Trace Mineral Phases in Meteorites | Roald Tagle |
| P11 | 706 | Magnetic Domain Structure of Magnetite Particles in the Return Sample from Asteroid Ryugu by the Hayabusa2 Mission | Yuki Kimura |
| P11 | 707 | Mineralogy and Space Weathering found in the Fine-grained Samples Returned from the C-type Asteroid Ryugu | Takaaki Noguchi |
| P11 | 708 | The Importance of Correlative Microscopy for Planetary Sample Return Missions | Kimberly Tait |
| P11 | 709 | The Winchcombe CM2 Meteorite Fall: Curation and Preliminary Analysis | Sara Russell |
| P12 | 723 | Probing Intertwined Interactions in Strongly Correlated Material Systems using Transmission Electron Microscopy | Jing Tao |