

10th APT User Meeting 2024

Max-Planck Institute for Sustainable Material, Max-Planck-Straße 1, 40237, Düsseldorf

Agenda: Day 1 (19th November 2024)

12:00 – 13:00	Arrival and Light Lunch
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	12:55 – 13:00	<i>Welcome</i>
Advancement in Instrumentation	13:00 – 13:40	Invited Talk Benjamin Klaes , Gérald Da Costa, Frédéric Danoix, Fabien Delaroche, Rodrigue Lardé, François Vurpillot “Advancements in 3D Field Ion Microscopy for Atomic-Scale Material Characterization”
	13:40 – 14:00	Regular Talk Aidar Zakirov , Gerald Da Costa, François Vurpillot, Celia Castro, Antoine Normand, Charly Vaudolon, Juan Macchi, Mohammed Ilhami, Kaveh Edalati, Williams Lefebvre “Project SATMET: Combining Atom Probe Tomography and Transmission Electron Microscopy in a single tool”
	14:00 – 14:20	Regular Talk Rene Chemnitzer (Cameca) “Technology and Applications of the LEAP 6000XR and Invizo 6000 atom probes”

14:20 – 14:40	Coffee Break
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Advancement in FIB Preparation	14:40 – 15:00	Regular Talk James Douglas , Zachary Kloenne “How Cold is Cold Enough? Exploring the effects of cryogenic temperature on FIB sample preparation for APT samples”
	15:00 – 15:20	Regular Talk Min Wu , Fang Zhang (Thermo Fisher) “The advance analysis of liquid containing materials using cryogenic FIB”
	15:20 – 15:40	Regular Talk L. Abdellaoui, M. Heller , S. Krauss (Zeiss) “Workflows and Capabilities enabled with Zeiss crossbeam laser”

Agenda: Day 2 (20th November 2024)

Advancement in Theory of Field Evaporation	09:00 – 09:40	Invited Talk Shyam Katnagallu , Shalini Bhatt, Christoph Freysoldt, Baptiste Gault, SeHo Kim, Huan Zhao “ Theoretical Insights into Electric Field Effects on Metal Surfaces: Implications for Atomic-Scale Characterization ”
	09:40 – 10:00	Regular Talk Christoph Freysoldt “ Local contrast in FIM - opportunities and limits of interpretation by comparison to theory ”
	10:00 – 10:20	Regular Talk Richard G. Forbes “ Comparing and integrating alternative theories of field ion imaging, and assessing what more needs to be done ”

10:20 – 10:40	Coffee Break
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Advancement in Data Processing	10:40 – 11:00	Regular Talk Navyanth Kusampudi “ Machine Learning and Data Science Applications for Atom Probe Tomography Data Analysis ”
	11:00 – 11:20	Regular Talk Xinren Chen , Frédéric De Geuser, Alisson Kwiatkowski da Silva, Chuanlai Liu, Eric Woods, Dirk Ponge, Baptiste Gault, Dierk Raabe “ Quantifying Vacancy Supersaturation via Diffusivity Measurements by APT ”
	11:20 – 11:40	Regular Talk Yue Li , Baptiste Gault “ Artificial intelligence-enhanced atom probe microscopy: Local chemical ordering analysis ”
	11:40 – 12:00	Regular Talk Yuan Yu , Oana Cojocaru-Mirédin, Matthias Wuttig “ Atom probe tomography: a local probe for chemical bonds in solids ”

12:00 – 13:30	Lunch Break
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Applied Material: Oxides	13:30 – 13:50	Regular Talk Nadya Spettel , Jeroen E. Scheerder, Tsung-Wei Chou, Yuan Tu, Shreya Garg, Jorden De Bolle, Bo Zhao, Christophe Detavernier, Claudia Fleischmann, André Vantomme “Switching preferential evaporation for core/shell field emitters”
	13:50 – 14:10	Regular Talk Jan Erik Rybak , Jonas Arlt, Baptiste Gault, Qian Ma, Tobias Meyer, Cynthia Volkert “Advancing Atom Probe Tomography of SrTiO ₃ : Measurement Methodology, Impurity Detection Limits and Grain Boundary Analysis”
	14:10 – 14:30	Regular Talk Sumayya Sumayya , Yuan Yu “Atomic-Scale Analysis of Bismuth-Based Layered Oxy-chalcogenides Using Atom Probe Tomography”

14:30 – 14:50	Coffee Break
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Applied Functional Materials	14:50 – 15:10	Regular Talk Mathias Krämer , I. Dudko, A.D. Lamirand, C. Botella, P. Regreny, A. Danescu, M. Bugnet, S. Walia, J. Penuelas, N. Chauvin and B. Gault “Atom probe analysis of hexagonal Ge grown on GaAs nanowires”
	15:10 – 15:30	Regular Talk Varatharaja Nallathambi , Philipp Gabriel, Ziyuan Rao, Konstantin Skokov, Oliver Gutfleisch, Stephan Barcikowski, Anna Rosa Ziefuss, Baptiste Gault “Effect of Ag nanoadditivation on microstructure formation in Nd-Fe-B magnets built by laser powder bed fusion”
	15:30 – 15:50	Regular Talk Shelly Conroy, Baptiste Gault, Freya Johnson, Geri Topore “Correlative STEM/APT analysis of antiferromagnetic thin films”
	15:50 – 16:10	Coffee Break
	16:10 – 16:30	Regular Talk

		Beste Payam, Aparna Saksena, Baptiste Gault “Catalytic Efficiency of RuTi Thin Films and its Dependence on Microstructure and Chemistry”
	16:30 – 16:50	Regular Talk Xin Geng, Baptiste Gault “Advancing Grain Boundary Research with Atom Probe Tomography: Unveiling Atomic-Scale Mechanisms in Ultrafine Nanomaterials”
	16:50 – 17:10	Regular Talk Ezgi Hatipoglu, Aparna Saksena, Ayman El-Zoka, Baptiste Gault “Probing Dealloying Mechanisms in Thin-Film Nanoporous Metals Using Atom Probe Tomography”

18:30 Onwards

Workshop Dinner

Agenda: Day 3 (21st November 2024)

Applied Structural Materials	09:00 – 09:20	Regular Talk Maximilian Schiester , Marcus Hans, Katherine P. Rice, Nina Schalk, Michael Tkadletz “High-precision elemental analysis in atom probe tomography: The benefits of short laser wavelengths”
	09:20 – 09:40	Regular Talk Raymond Kwesi Nutor , Baptiste Gault, Ramin Jannat, Martina Ruffino, Eric Woods, “Understanding the role of impurities in recycled Cu from EV batteries”
	09:40 – 10:00	Regular Talk William MOTTAY , Jérémy Landes, Carine Perrin-Pellegrino, Philippe Maugis, François Roch, Khalid Hoummada, “Difficulties in the detection of interstitial atom segregation on dislocations in steels using atom probe tomography”
	10:00 – 10:20	Regular Talk Selase Torkornoo , Ingrid E. McCarroll, Jiri Kubásek, Jaroslav Čapek, Baptiste Gault “Nucleation and growth of metastable phases in Zn-Mg-(Ag) materials for medical implant”

10:20 – 10:40	Coffee Break
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Applied Structural Materials continued...	10:40 – 11:00	Regular Talk Eric Woods , Leonardo S. Aota, Ayman El-Zoka, Baptiste Gault, Yongqiang Kang, Se-Ho Kim, J. Manoj Prabhakar, Tim M. Schwarz, Mahander P. Singh, Alisson K. da Silva, Özge Özgun “Vacuum Dealloyed Brass: A Tale of Materials Development with an Electrifying Second Act”
	11:00 – 11:20	Regular Talk Johannes Wild , Fabian Andorfer, Torben Boll, Jules Dake, Svetlana Korneychuk, Carl E. Krill III, Astrid Pundt, Dorothée Vinga Szabo, Stefan Wagner

		“Nano-scale investigation of fractal abnormal grains and grain boundaries in Pd-Au”
	11:20 – 12:00	Invited Talk <i>Claudia Fleischmann</i> “Microscopy of atom probe needles and how this might inform data reconstruction protocols”

12:00 – 13:30	<i>Lunch Break</i> <i>Departure</i>
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