

# 2024 Frontiers of APT Physics, Data Processing, Analysis and Reconstruction

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Basic Research Innovation Collaboration Center (BRICC)  
4100 N Fairfax Drive, Suite 450 | Arlington, VA 22203

## Day 1 | August 1, 2024

Session	Time	Activity
Check-in	8:00-8:30	<b>Registration and check-in</b>
Overview of goals and objectives	8:30-8:45	<b>Welcome</b>
I. Physics of evaporation	8:45 – 9:30	<b>Richard Forbes</b> (U Surrey) - <i>On the scientific status of the theory of field desorption and field evaporation</i>
	9:30 – 10:15	<b>Yuwen Qi</b> (Ohio State U) <i>Advancing Understanding of Field Evaporation Mechanisms Through In-Field Molecular Dynamics Simulations</i>
	10:15 – 10:35	<b>Break</b>
	10:35 – 11:05	<b>Jean-Baptiste Maillet</b> (U Rouen) <i>Effect of Implanted Hydrogen on the Evaporation Field at Nanoscale</i>
	11:05 – 11:50	<b>Francois Vurpillot</b> (U Rouen) <i>Field Evaporation Energy Loss Spectroscopy: Beyond Atom Mapping in Atom Probe Tomography</i>
	11:50 – 12:30	<b>Discussion</b>
	12:30 – 1:45	<b>Lunch</b>
II. Challenges for materials applications	1:45 – 2:15	<b>Baishakhi Mazumder</b> (U Buffalo) <i>APT for oxides and nitrides: Potential applications and existing challenges</i>
	2:15– 2:45	<b>Daniel Schreiber</b> (PNNL) (by zoom) <i>Challenges in the application and quantification of APT data from metals and oxides</i>
III. Analysis Workflows and standardization	2:45 – 3:30	<b>Alaukik Saxena</b> (MPIE) <i>Machine learning-based workflows to quantify microstructural features in atom probe tomography data</i>
	3:30 – 4:00	<b>Break</b>
	4:00 – 4:30	<b>Iman Ghamarian</b> (U Oklahoma) <i>Cluster analysis and uncertainty: Transitioning from deterministic to probabilistic methods</i>
	4:30– 5:00	<b>Paul Styman</b> (UK NNL) <i>Overview of the OECD/NEA activity on determining best practices for Atom Probe Tomography of nuclear materials</i>
	5:00 – 5:30	<b>Discussion</b>
Dinner TBD		

Day 2   August 2, 2024		
Session	Time	Activity
Check-in	8:00 – 8:30	<b>Check-in</b>
III. Standardization (Cont.)	8:30 – 9:10	<b>Markus Kuehback</b> (U Berlin) (by zoom) <i>Standardization of workflows in atom probe in light of FAIR principles of research data management software</i>
	9:10 – 9:40	<b>Arun Devaraj</b> (PNNL) (by zoom) <i>Establishing globally accepted terminologies and standards for APT: the IFES standards committee perspective</i>
	9:40 – 10:10	<b>Frederick Meisenkothen</b> (NIST) <i>Some Challenges to Accurate and Repeatable Chemical Analysis in the Atom Probe</i>
	10:10 – 10:45	<b>Discussion</b>
	10:45 – 11:00	Break – <b>End of workshop</b>
IV. (for speakers) Article preparation	11:00 – 12:00	<b>For speakers only</b> Discussion – manuscript drafting
	12:00 – 12:30	<b>Closing</b> and next steps