July 17, 2025 (Day – 1)			
09:00 – 09:10	Rooms 202ABC Tennessee Rooms Conference Center Building: 5200	**Paul Langan** Associate Laboratory Director, Biological and Environmental Systems Science Directorate ALD	Welcome Remarks
09:10 – 09:20	Rooms 202ABC	**Parul Raghuvanshi** and **Rongge/Nikki Zou**	Research Symposium Announcements
09:30 – 10:15	Rooms 202ABC	**Troy Carter** Division Director, Fusion Energy Division	*Keynote 1:* Overview of a career in plasma and fusion science
10:15 – 10:30	Break		
	Oral Session 1 (Materials Science - 1 **Room 202A**	**Oral Session 2 (Building & Transportation)** **Room 202B**	**Oral Session 3 (Chemistry - 1)** **Room 202C**
10:30 – 10:45	**Bogdan Dryzhakov** *Direct-write ferroelectricity in AlN*	**Ajibola Lawal** *Catalytic Conversion of Captured Monoterpenes to Sustainable Aviation Fuel*	**Charini Maladeniya** *Light-induced crosslinking of ultrathin polyzwitterionic coatings for anti-fouling performance*
10:45 – 11:00	**Shaofei Wang** *Investigation of Phonon Density of States in ZrN via DFT and Inelastic Neutron Scattering*	**Md Masudur Rahman** *Impact of H2 and alcohol on N2O formation on commercial emissions control catalysts*	**Surya Mitra Ayalasomayajula** *Physics-based modeling of current imbalance and aging in lithium-ion battery modules*
11:00 – 11:15	**Simon Kim** *Measuring Depth Scaled Magnetism in Helium-Implanted PdCoO2 using Muon Spin Resonance Spectroscopy.*	**Deepika Patel** *State-of-the-art microgrid protection: An imbalance squared factor based fault detection, classification and relay coordination scheme*	**Hunter Jacobs** *Role of binder selection during formulation of dealuminated beta zeolite extruded catalysts for ethanol upgrading to olefins*
11:15 – 11:30	**Parul Raghuvanshi** *Stability, magnetism, and vibrations in MnTexSbyBi1-x-y alloys*		**Abishek Kasturi** *CO2 Capture from Flue Gas Using Aqueous Amino Acid Salts and Mineralization into Cementitious Materials*

11:30 – 11:45			**Yifan Liu** *Data-Driven Discovery of Non-Aqueous Proton Conductors for Polymer Electrolytes with Small Dataset*
11:45 – 12:05	Rooms 202ABC	Hicham Ghossein, CEO, Endeavor Composites	
12:05 – 12:30	Rooms 202ABC	**Working lunch:** **ORPA Board Introduction and Outlook** Speaker: Spenser Cox ORPEX25 Communications Chair	

	Oral Session 4 (Biology Science -1) Room 202A	**Oral Session 5 (AI / ML - 1) Room 202B**	**Oral Session 6 (Nuclear Science - 1) Room 202C**
12:30 - 12:45	**He Liyuan** *Applying a genomics-informed carbon cycling model to long-term soil warming*	**Sahil Tyagi** *Enabling Large-Batch AI Training via Learned Gradient Mapping*	**Harisree Krishnamoorthy** *Results from LEGEND-200 experiment in search for neutrinoless double beta decay*
12:45 – 13:00	**Elise Phillips** *Multilayered regulation by RNA thermometers enables precise control of Cas9 expression*	**Debvrat Varshney** *Generative AI for Landcover Forecasting*	**Yuchen Jiang** *Integrated modeling of MHD flow, heat transfer, and solid mechanics for fusion reactor applications*
13:00 – 13:15	**Andrew Deas** *An Agent-Based Approach for Modeling Air Pollution Exposure at the Individual Level*	**Luis Caicedo Torres** *On Synthetic Data Generation for AI Video Instance Segmentation*	**Jordan Stanberry** *Advanced Applications of MicroExtraction - Single Particle - Inductively Coupled Plasma - Mass Spectrometry*
13:15 – 13:30	**Jinping Xue** *Mercury removal from aqueous solutions by novel sorbents: Influencing factors and potential implications*	**Anna Vlot** *The MENTOR interpretation agent: From network embeddings to mechanistic narratives via retrieval-augmented LLMs*	**Jayasai Rajagopal** *Time-resolved dosimetry for alpha- and beta-emitters in radiopharmaceutical therapy: an in silico comparison*
13:30 – 13:45	**Celestin Bourgery** *Discovery, characterization and engineering of substrate- and product-selective nylon hydrolases for nylon recycling*	**Chao Lu** *Practical Scalability of LuGo: Benchmarking the HHL Algorithm Using an Enhanced QPE Algorithm*	**Samuel Fagbemi** *Pore-resolved Simulations of Electro-Thermal Processes for Alkane Dehydrogenation in Graphite Reactors*

13:45 – 14:00			**Daniel Suarez** *A natural circulation breeding blanket*

14:00 – 16:00	Lobby	Poster Session - 1	
16:00 – 16:15	Break		
16:15 – 17:00	Rooms 202 ABC	**Eric Pierce** Division Director, Environmental Sciences Division	*Keynote 2:* Navigating a Career in Environmental Science: A Path to Leadership at ORNL
17:00	Closing Remarks/ADJOURN **Moody Altamimi,** Director, Office of Research Education		

July 18, 2025 (Day – 2)			
09:00 – 09:10	Rooms 202ABC	**Peter Thornton,** Corporate Fellow, Earth Systems Science Section Head, and Postdoctoral Engagement Committee co-chair	Welcome Remarks
09:10 – 09:20	Rooms 202ABC	**Parul Raghuvanshi** and **Rongge/Nikki Zou**	Research Symposium Announcements
09:30 – 10:15	Rooms 202ABC	**Prasanna Balaprakash** Director of AI Programs and Data and AI Systems Section Head	*Keynote 3*: AI for Science: A Tectonic Shift Underway—Are We Ready for What's Next?
10:15 – 10:30	Break		

	Oral Session 7 (Chemistry - 2) **Room 202A**	**Oral Session 8 (Material Sciences - 2)** **Room 202B**	**Oral Session 9 (Biology Sciences - 2)** **Room 202C**
10:30 – 10:45	**Jane Agwara** *Functionalized porous polymer-based catalysts for CO2 conversion to formic acid*	**Ryan (Jeongkeun) Song** *Strain-engineering in correlated oxide quantum heterostructures*	**Stephen Zambrzycki** *Enhancing Single-Cell Mass Spectrometry: Comparing Liquid Vortex Capture and the Rapid Droplet Sampling Interface*

10:45 – 11:00	**Arvind Ganesan** *Aqueous Porous Liquids for Gas Separations, Transport and Conversion*	**Deb Mallick** *Focused Si++ ion irradiated nanometer sculpting and vortex pinning in a topological superconductor heterostructure FeTe0.75Se0.25/Bi2Te3*	**Shane Franklin** *Controlling Matric Potential In Microfluidics To Examine Microbial Dynamics In Unsaturated Porous Media*
11:00 – 11:15	**Nicholas Gregorich** *Utilizing Mining and Battery Recycling Waste for Marine Carbon Dioxide Capture via Ocean Alkalinity Enhancement*	**Ciril Samuel Prasad** *Nanofabrication and integration of Quantum Spin Liquid materials into test structures and devices.*	**Dileep Kishore** *Improving the prediction and interpretability of microbial nutrient utilization phenotypes*
11:15 – 11:30	**Noor Md Shahriar Khan** *Catalytic Role of Methanol in Anodic Coupling Reactions Involving Alcohol Trapping of Cation Radicals*	**Gyan Shankar NLN** *Effect of precipitates formation and oxide particle on the grain boundary mobility assisted recrystallization in SS 316H alloy processed by L-PBF*	**John Vant** *Predicting membrane permeability using realistic mammalian bilayers and LipidLure: a steered molecular dynamics pipeline*
11:30 – 11:45	**Xin Wang** *Uncovering the phase transition mechanism in upcycling of spent NMC cathodes with in-situ neutron diffraction*		**Yu Ma** *Cost efficiency of US hydropower plants: A Stochastic Frontier Analysis*
11:45 – 12:00	**Alexander Wiechert** *Biphasic Solvents for Energy Efficient CO2 Capture from Natural Gas and Coal Flue Gas Streams*		

12:00 – 12:30	Rooms 202ABC	**Working lunch:** **Academic Career Path** Speaker: William Jenks, Core University Student Programs Lead, Office of Research Education	
12:30 – 13:15	Rooms 202ABC	**Kelly Chipps** Nuclear physicist, Physics Division	*Keynote 4:* Nuclear Astrophysics in the Next Decade

	Oral Session 10 (AI / ML - 2) Room 202A	Oral Session 11 (Manufacturing) Room 202B	Oral Session 12 (Nuclear Science - 2) Room 202C
13:15 - 13:30	**Viktoriia Baibakova** *Optimization of rare earth elements recovery with large language models*	**Pavan Ajjarapu** *Macro- and Micro-scale Evolution of SS 316L Powders Hot Isostatically Pressed (HIPed) at Intermittent Temperatures and Pressures*	**Soyoung Kang** *Characterization of irradiated Inconel 718 using in-situ SEM-EBSD analysis*
13:30 – 13:45	**Emily Herron** *HARMONY: Evolutionary Design of Efficient Hybrid Transformer-Mamba-MoE Language Models Through Large-Scale Architecture Search*	**Subhabrata Saha** *Development of vinyl ester resin for unsupported direct-ink-write horizontal printing*	**Shaileyee Bhattacharya** *Understanding hydrogen retention behavior through revealing local phase fraction variations in YH2*
13:45 - 14:00	**Nasik Muhammad Nafi** *Generalizing Time-series Modeling of Stably Stratified Turbulence using Parameterized Neural ODE*	**Geeta Kumari** *Microscale Mechanical Insights into AM 316 Stainless Steel Using Nanoindentation*	**Jopaul Mathew** *Maximizing Uranium recovery using monoamide extractants*
14:00 - 14:15	**Ankit Shrivastava** *DIALED into Discovery: Autonomous Active Learning for Nanoscale-Ordered Materials Diffractometer Experiments*	**Ajay Jayswal** *Finite element analysis of additively manufactured textile-inspired braided metamaterials for high specific energy absorption and shape recovery*	**Daniel Felton** *Processing Signatures of Uranium Ore Concentrates*
14:15 - 14:30	**Qixing Wang** *Credit-Based Coordination for Resolving the Tragedy of the Commons in Autonomous Agent Networks*	**Abdul Sayeed Khan** *Additive Manufacturing of Functionally Graded Materials*	**Ryan Chesser** *Molten Salt Thermophysical Properties Measurements and Database*

14:30 – 16:30	Lobby	Poster Session- 2
16:30 – 16:55	Rooms 202 ABC	**Closing Ceremony** Parul Raghuvanshi and Rongge/Nikki Zou
16:55 – 17:00	Rooms 202 ABC	**Closing Remarks** **Moody Altamimi,** Director, Office of Research Education
17:00	ADJOURN	

POSTER PRESENTATION LISTS

Sl. No.	Presenter	Poster Title
Day 1		
1	Kristyn Ardrey	Examining EBC coating systems on SiC substrates in varying high temperature steam oxidizing environments
2	Delaney Ryan	Investigating size limitations of single particle inductively coupled plasma mass spectrometry in nano and microparticle research
3	Chathurika Kosgallana	Structural Characterization of Chitosan-Immobilized Carbonic Anhydrase with Contrast Variation SANS
4	Christine Cummings	Using process monitoring to identify voids and heat accumulation in laser powder bed fusion additive manufacturing
5	Louis Dagobert	Flow through a U-Bend: Comparing four Turbulence Models with Experimental Results
6	Chandra Sekhar Somayajula	Systems analysis for the development of cost competitive technologies
7	Preeti Sar	A machine learning model for predicting nonlinear 1D saturated potentials from linear gyrokinetic simulation data
8	Pyeongjae Park	Leveraging thermal fluctuations to investigate the spin dynamics of quantum magnets
9	Komal Sharma	One-pot bioconversion of PET plastic using a thermophilic microbe
10	Sarah Szakas	Ablate and Illuminate: High-Resolution Bioimaging with LA-ICP-TOFMS

Sl. No.	Presenter	Poster Title
Day 2		
11	Wenqi Li	Understanding Wetting Behavior of Graphite by Water Contact Angle Measurement
12	Wenbo Wang	Discrepant impact of CNTs as Additive on Lubricant Tribological Performance
13	Ajay Jayswal	Factors governing thermal transport in carbon fibers reinforced nylon 6 composites for thermal management applications
14	Emily Kurfman	Liquid extraction surface sampling mass spectrometry for detection of adsorbed microbial metabolites across polymer-modified surfaces
15	Matthias Maiterth	Extending ExaDigiT's Resource Allocator and Power Simulator (RAPS) for Scheduling and Synthetic Workload generation
16	Bharath Raghavan	Leveraging Exascale Computing for Scalable Drug Discovery: Integrating Multiscale Simulations and AI-Driven Molecular Design
17	Zachary Windom	Hybrid quantum/classical algorithms for exotic quantum chemistry
18	Mohit Chandra	Temperature-dependent Neutron Diffraction Study of a New Piezoelectric
19	Mallory Morgan	Constitutive and Inducible Oleoresin Defenses Share Genetic Architectures and Mechanisms in Pinus taeda
20	Nabarupa Bhattacharjee	Extraction and stimuli-driven release of superhydrophilic oxyanions using amphiphilic iminoguanidine ligand
21	Latif Patwary	Travel Patterns and Characteristics of Millennial Population in New York State