



**3rd Miami Workshop on Aerosol Science and Technology
Summer School in Winter
January 8 to 10, 2025
University of Miami
Program Agenda**

Time	Title	Speaker/Moderator
1/8/2025, Wednesday		
Rosenstiel School of Marine, Atmospheric, and Earth Science, Auditorium 4600, Rickenbacker Cswy, Virginia Key, FL 33149		
8:30 to 9:00	Breakfast	
Session I: Malvern Panalytical and Netzsch Special Session on Advanced Materials Characterizations		Samiul Amin
9:00 to 9:45	Introduction to particle size, concentration, and zeta potential	Ragy Ragheb
9:45 to 10:15	Targeted delivery: designing sprays to go where you want – and avoid where you don't	Daniel Mangel
10:15 to 10:30	Question/answer and discussion	
10:30 to 11:15	Fundamentals of rheology and some applications in food, pharmaceutical and personal care	Philip Rolfe
11:15 to 11:45	Netzsch grinding and dispersing solutions (TBC)	Rebecca Herman
11:45 to 12:00	Question and answer	
12:00 to 13:00	Lunch at Salt Waterfront Cafeteria	
Session II: Tutorials on Aerosol Science and Technology		
13:00 to 13:50	Tutorial I: Advanced light scattering for particle characterization	Frank Scheffold
14:00 to 14:50	Tutorial II: Machine learning for aerosol science and nanotechnology	Kevin Padron
15:00 to 15:50	Tutorial III: Fundamentals of aerosol science and technology	Pratim Biswas
16:00 to 16:50	Tutorial IV: Air quality sensors and data analysis	Wilton Mui
17:00	Happy hour at Salt Waterfront Cafeteria	
1/9/2025, Thursday		
Frost Institute of Chemistry and Molecular Science 1201 Memorial Dr, Coral Gables, FL 33146		
8:30 to 8:50	Breakfast	
8:50 to 9:00	Opening Remarks	
Session III: Nanoparticle Technology: Synthesis, Characterization and Applications		Samiul Amin Dibyendu Mukherjee
9:00 to 9:30	Optical characterization of nanoparticles	Frank Scheffold
9:30 to 10:00	Aerosol synthesis of functional nanoparticles	Pratim Biswas
10:00 to 10:15	Microplastic detection and analysis	Sungyoon Jung
10:15 to 10:30	Composite and metastable metal/ceramic nanoparticles synthesized as advanced energetic materials via Laser Ablation Synthesis in Solution (LASiS)	Dibyendu Mukherjee



10:30 to 10:45	Chemical characterization of aerosols with laser-induced breakdown spectroscopy (LIBS)	Daniel Diaz
10:45 to 11:30	Panel Discussion moderated by Samiul Amin and Dibyendu Mukherjee	
11:30 to 14:00	Lunch and Poster Session (In-person Only)	
Session IV: Particle Instrument Hands-on Demonstration		Chang-Yu Wu Yang Wang
14:00 to 14:30	Flash Talks from Aerosol Instrument Industrial Attendees	
14:30 to 16:30	Hands-on Demonstration Malvern Panalytical: Ragy Ragheb, Daniel Mangel Netzsch Group: Philip Rolfe, Rebecca Herman Aerodyne Research: Anandi Williams TSI Inc.: Sherrie Elzey, Todd Gac Handix LLC: Amin Shirkhani, Sudheer Salana, and Mohammad Washeem	
16:30 to 17:00	Group Picture	
1/10/2025, Friday		
Frost Institute of Chemistry and Molecular Science 1201 Memorial Dr, Coral Gables, FL 33146		
8:30 to 9:00	Breakfast	
Session V: Biomass Burning Aerosols		Cassandra Gaston Yang Wang
9:00 to 9:30	What can aerosol composition and optical properties tell us about atmospheric aging of biomass burning plumes?	Rebecca Sheesley
9:30 to 10:00	Linking smoke to fire: the effect of combustion conditions on aerosol production and physicochemical properties	Rawad Saleh
10:00 to 10:15	Biomass-burning aerosol and climate, from a southeast Atlantic-southern Africa perspective	Paquita Zuidema
10:15 to 10:30	Biomass burning aerosol physicochemical characterizations	Marwa El-Sayed
10:30 to 11:30	Panel Discussion moderated by Cassandra Gaston and Yang Wang	
11:30 to 14:00	Lunch and Poster Session (In-person Only)	
Session VI: Indoor Air Quality and Advanced Control Methods		Chang-Yu Wu Jiayu Li
14:00 to 14:30	Indoor nanocluster aerosol dynamics: measurement and modeling approaches	Brandon Boor
14:30 to 15:00	Measuring and modeling volatile chemical emissions and human exposures in buildings	Nusrat Jung
15:00 to 15:15	The persistence of SARS-COV-2 on the aerobiological pathway	Shanna Ratnesar-Shumate
15:15 to 15:30	Energy efficient strategies to reduce the concentration of infectious aerosols	Jon Douglas
15:30 to 15:45	Indoor bioaerosol aerosols and health impacts	Bhavarth Shukla
15:45 to 16:30	Panel Discussion moderated by Chang-Yu Wu and Jiayu Li	
16:30	Closing	



Speakers and Workshop Convenors:

Samiul Amin, Professor of Practice of the Department of Chemical, Environmental and Materials Engineering, University of Miami

Pratim Biswas, Dean of the College of Engineering, Professor of the Department of Chemical, Environmental and Materials Engineering & Department of Atmospheric Science, Member of the National Academy of Engineering, University of Miami

Brandon Boor, Associate Professor of Civil Engineering, Purdue University

Daniel Diaz, Assistant Research Professor of Aerospace and Mechanical Engineering, University of Arizona

Jon Douglas, Director Healthy Buildings Services and Solutions, Johnson Controls

Sherrie Elzey, Regional Sales Specialist, TSI Inc.

Marwa El-Sayed, Assistant professor of the Department of Civil Engineering at Embry-Riddle Aeronautical University

Todd Gac, Southeast Regional Manager-Particle Instruments, TSI Inc.

Cassandra Gaston, Associate Professor of the Department of Atmospheric Sciences, University of Miami

Rebecca Herman, Netzsch Group

Nusrat Jung, Assistant Professor of Civil Engineering, Purdue University

Sungyoon Jung, Assistant Professor of Engineering School of Sustainable Infrastructure & Environment, University of Florida

Jiayu Li, Assistant Professor of the Department of Mechanical and Aerospace Engineering, University of Miami

Daniel Mangel, Malvern Panalytical Inc.

Wilton Mui, Program Supervisor in the Monitoring & Analysis Division of South Coast South Coast Air Quality Management District

Dibyendu Mukherjee, Associate Professor of Practice of the Department of Chemical, Environmental and Materials Engineering, University of Miami

Kevin Padron, Chief AI/ML Engineer at Fastformulator Inc.

Ragy Ragheb, Malvern Panalytical Inc.

Shanna Ratnesar-Shumate, Director of the U.S. Environmental Protection Agency (EPA) Consequence Management Advisory Division and Voluntary Affiliated Faculty of the Department of Chemical, Environmental and Materials Engineering, University of Miami

Philip Rolfe, Product Manager & Sales at Netzsch Group

Rawad Saleh, Associate Professor of the School of Civil, Environmental, Agricultural, and Mechanical Engineering at the University of Georgia



Frank Scheffold, Professor of Physics, University of Fribourg, Switzerland

Rebecca Sheesley, Associate Professor of Environmental Science, Baylor University

Bhavarth Shukla, Associate Professor, UHealth Medical Director for Infection Control,
Division of Infectious Diseases, University of Miami

Yang Wang, Assistant Professor of the Department of Chemical, Environmental and Materials
Engineering, University of Miami

Anandi Williams, Instrument Scientist at Aerodyne Research, Inc.

Chang-Yu Wu, Professor and Chair of the Department of Chemical, Environmental and
Materials Engineering, University of Miami

Paquita Zuidema, Professor and Chair of the Department of Atmospheric Sciences, University
of Miami