PreMiEr Industry and Advisory Summit 2026

Road to Deployment | Building the Future of Healthy Indoor Microbiomes

November 4–5, 2026 | NC Biotechnology Center | RTP, NC

Day 1 Sense and Decide

Wednesday November 4 | Morning

TIME	PROGRAM
8:00 AM – 9:00 AM	**Registration, Breakfast and Demo Commons**
9:00 AM – 9:10 AM	**Welcome** **Jerome P. Lynch** — Vinik Dean, Duke Pratt School of Engineering
9:10 AM – 9:30 AM	**Center Update and Summit Framing** **Claudia Gunsch** — PreMiEr Center Director, Duke University Center progress and summit goals.
9:30 AM – 11:30 AM	**Session 1 Sensing the Built Environment** Theme: Rapid microbial detection and field sensing. Lightning talks, demonstrations and an applied example explore validation and deployment needs. **Session lead:** Lindsay Saber, PhD candidate, UNC–Chapel Hill **Setting the Stage (20 min)** *Frontiers in microbial sensing: A vision for MoBEStat* **Lindsay Saber** — PhD candidate, UNC–Chapel Hill **Research Lightning Talks (3 min each)** **Denene Blackwood** — Research staff, UNC–Chapel Hill *MOBESense Rapid Environmental Intelligence for the Built Environment* **Belinda Mativenga** — PhD candidate, NC State University *Portable LAMP and environmental sensors* **Evelyn Liu** — PhD candidate, Duke University *Scensory: From Chemical Sensing to Spatial and Temporal Olfactory Intelligence* **Patrick Hoover** — MS student, UNC–Chapel Hill: *Quantitative Microbial Measurements for Built Environment Air Sampling* **Keynote (20 min)** **Jesse Miller** — Senior Director of Innovation, Neogen *The Heat Is Off - Modern Isothermal Amplification from Concept to Standardized Detection* **Panel:** From microbial signals to real-world decisions **Eric Agdeppa** — Vice President, Innovation, Neogen **Boyuan Chen** — Assistant Professor, Duke University **Travis Bray** — CEO, Mycira Moderator: Rachel Noble, Professor, UNC–Chapel Hill
11:30 AM – 12:45 PM	**Networking Lunch**

Day 1 Sense and Decide

Wednesday November 4 | Afternoon and Evening

TIME	PROGRAM
12:45 PM – 2:45 PM	**Session 2 Assessing and Modeling the Built Environment** Theme: How models inform microbial risk assessment and decisions. Research talks, applied perspectives, and a stakeholder panel on current challenges in modeling the built environment. **Session lead:** Clara Eichler, Postdoctoral Researcher, UNC–Chapel Hill **Setting the Stage (20 min)** *Use-cases and interface for a MobeStat prototype* **Anthony Fodor** — Professor of Bioinformatics, UNC Charlotte **Research lightning talks (8 min each)** **Qing Dai** — PhD candidate, Duke University *Beyond Taxonomy: DNA Language Models for Sample-Level Metagenomic Prediction* **Shan Sun** — Research staff, UNC Charlotte *Winnow-tax: sensitive and precise taxonomic profiling of low-abundance microorganisms in shotgun metagenomics* **Clara Eichler** — Postdoctoral Researcher, UNC–Chapel Hill *Capturing (bio)aerosol movement in a single-family residence* **Keynote (20 min)** **Bobby Warren** — Director, DiRTE Lab, Duke University *From Detection to Action: A Framework for Interpreting Environmental Surveillance Findings* **Panel:** Current Challenges in Modelling the built environment **Bobby Warren** — Director, DiRTE Lab, Duke University **Thomas Sharpton** — Professor, Oregon State University **Megan Lott** — Research Assistant Professor, UNC–Chapel Hill **Jordan Zambrana** — Biologist, U.S. Environmental Protection Agency (EPA) Moderator: Clara Eichler, Postdoctoral Researcher, UNC–Chapel Hill
2:45 PM – 3:20 PM	**Networking Break and Demo Commons**
3:20 PM – 5:00 PM	**Forum: Defining a Healthy Indoor Microbiome** Cross-sector panel on how to define a healthy indoor microbiome, as recently proposed by **Joe Brown**, UNC–Chapel Hill, and **Claudia Gunsch**, Duke University. **Dev Anderson** — Professor of Medicine, Duke University **Rob Donofrio** — CEO, BioScope Innovations **John Rawls** — Professor of Molecular Genetics and Microbiology, Duke University **Rosa Krajmalnik-Brown** — Professor of Civil and Environmental Engineering, Arizona State U
5:00 PM – 6:30 PM	**Industry Partnership Reception and Demo Showcase**

Day 2 Modify and Deploy

Thursday November 5 | Morning

TIME	PROGRAM
8:00 AM – 8:50 AM	**Breakfast and Demo Commons**
8:50 AM – 9:00 AM	**Day 1 Recap and Day 2 Charge**
9:00 AM – 11:00 AM	**Session 3: Modifying the Built Environment** Theme: Engineered microbial communities, synthetic biology, phage and plumbing interventions. Explore safety, field validation, manufacturing and adoption. **Session lead:** Qiaochu Li, PhD candidate, NC State University **Setting the Stage (20 min)** *Discovering principles for engineering built environment microbial inoculants to reduce indoor pathogens* **Nathan Crook** — Associate Professor of Chemical and Biomolecular Engineering, NCSU **Ophelia Venturelli** — Associate Professor of Biomedical Engineering, Duke University **Research Lightning Talks (3 min each)** **Qiaochu Li** — PhD candidate NC State University *H_2S-induced kill switch* **Aaron Yip** — Postdoctoral Researcher, Duke University *How to assemble the microbial dream team* **Will Stiffler** — PhD candidate, Duke University *Pathogen Exclusion in an Engineered P-trap consortium* **Rapheal Akinwunmi** — PhD candidate, NC A&T State University *Construction of Designer Synthetic Phage Genomes to Combat Hospital Associated Infections* **Keynote (20 min)** **Whitney Austin Gray** — Senior Vice President, Research, International WELL Building Institute *From Science to Practice: Translating Microbiome Research into Healthier Buildings* **Panel:** Engineering Indoor Microbiomes: From Intervention to Responsible Deployment **Leah Blasiak** — Director, Microbe Research, Novonesis **Whitney Austin Gray** — Senior Vice President, Research, International WELL Building Institute **Jennifer Kuzma** — Professor, NC State University **Frank Paretti** — Director of Mechanical Engineering, PS&S **Ophelia Venturelli** — Associate Professor of Biomedical Engineering, Duke University Moderator: Nathan Crook, NC State University
11:00 AM – 12:30 PM	**Networking Lunch**

Technology Demonstrations

- Evelyn Liu- Duke: VOC based Fungal Sensor
- Belinda Mativenga: Portable Lamp for Detection of Plant Pathogens
- Denene Blackwood: LAMP Assay for *A. fumigatus* in Built Environment
- Sarah Cao- UNC–Chapel Hill: P-trap to Patient Exposure Model and Risk Assessment Dashboard
- Qiaochu Li- NC State: Hydrogen Sulfide Sensing and Kill-Switch Video
- Conrad Moss- Duke: Design-Test-Learn Workflow and P-trap Testbed Demonstration
- Nathan Bossa- Duke: Hydrogel Encapsulants for Biotic Inoculants
- Erik Malmstrom- Safetraces: Autonomous Biosensing and Building Control Platform for Airborne Pathogens
- Ivory Blakley- UNC Charlotte: MoBEStat prototype
- Will Brennan- Illumina: Microbial Solutions for Built Environment
- Yao Li- UNC Charlotte: McTwain: A Digital Twin for Human Movement and Airborne Exposure Simulation

Day 2 Modify and Deploy

Thursday November 5 | Afternoon

TIME	PROGRAM
12:30 PM – 2:30 PM	**Session 4 From End-User Need to Deployment** **Session leads:** Rob Donofrio, CEO, BioScope Innovations; Will Stiffler, PhD candidate, Duke **Setting the Stage (10 min)** **Rob Donofrio** — BioScope Innovations PreMiEr Regulatory Subcommittee: what it is, who is involved, progress and milestones ahead. **Keynote (15 min)** **Jordan Zambrana and colleagues** — U.S. EPA *Indoor Microbiome Related Research and Products* **Technology overviews (5 min each)** **Rachel Noble** — UNC–Chapel Hill: *Petrifilm RYM environmental monitoring* **Boyuan Chen** — Duke University: *Automated VOC sensing* **Claudia Gunsch** — Duke University: *Biotic inoculants* **Workshop using NSF I-Corps customer-discovery methods (70 min)** Participants work at assigned tables, three per technology, using NSF I-Corps customer-discovery methods to define who each technology is for, how that person solves the problem today, and who the team should interview next. Value proposition — 22 minutes Status quo and competition — 20 minutes Stakeholders and interview questions — 28 minutes **Report-out and next steps (10 min)** Each technology's stakeholder list and interview questions, and the ask: ten discovery interviews per team before February 2027.
2:30 PM – 2:40 PM	**Closing and Next Steps**
2:40 PM – 3:40 PM	**Private Session - Invitation Only** Private session with industry partners and the scientific advisory board.

