

**ERC  EARTH SPRING SUMMIT**  
**Wednesday – Friday | March 11 – 13, 2026**  
**McKenna Hall Conference Center | University of Notre Dame**

## AGENDA

Wednesday, March 11		CLOSED SESSION	McKenna Hall Conference Center
7:30 – 9:30 PM	ERC EARTH Spring Summit Welcome Reception		215/216
Thursday, March 12		CLOSED SESSION	McKenna Hall Conference Center
Emcee: Alexander Dowling, Tony and Sarah Earley Collegiate Associate Professor of Energy and the Environment, Chemical and Biomolecular Engineering, University of Notre Dame			
7:30 – 8:15 AM	Breakfast		Pre-Function 215/216
8:15 – 8:25 AM	Notre Dame Welcome – Mark McCready, Professor and Senior Associate Dean for Research and Faculty Affairs, College of Engineering, University of Notre Dame		215/216
8:25 – 8:30 AM	EARTH Welcome – Jennifer Schaefer, Sheehan Family Collegiate Professor of Chemical and Biomolecular Engineering, University of Notre Dame; Center Deputy Director		215/216
8:30 – 9:00 AM	Perfect Pitch Final Competition – Tony von Sadovszky, Innovation Officer, University of Kansas		215/216
9:00 – 9:15 AM	Break		Pre-Function 215/216
9:15 – 9:30 AM	HFC Circularity Presentations and Panel		215/216
	<ul style="list-style-type: none"> <li>• <i>“Hierarchically Functional Polymer Membranes for HFC Separations”</i> – Ruilan Guo, Professor of Chemical and Biomolecular Engineering, University of Notre Dame</li> </ul>		
9:30 – 9:45 AM	<ul style="list-style-type: none"> <li>• <i>“Zeolites for Separating Refrigerant R-410A”</i> – Andrew Yancey-Jardon, Postdoctoral Associate (Shiflett Group), University of Kansas</li> </ul>		
9:45 – 10:00 AM	<ul style="list-style-type: none"> <li>• <i>“Catalyst Development for Repurposing Legacy HFCs”</i> – Luc Mauro, Graduate Student (Vicic Group), Lehigh University</li> </ul>		
10:00 – 10:25 AM	Moderated Q&A – Ana Morias, Assistant Professor of Chemical and Petroleum Engineering, University of Kansas		
9:15 – 10:25 AM	Concurrent Working Session for Crosscut 2 Researchers <i>Role of Socio-Economic Behavior across Circular Refrigerant Economy</i>		204
10:25 – 10:40 AM	Break		Pre-Function 215/216
10:40 – 10:55 AM	Metal-Organic Supercontainers (MOSCs) Presentations and Panel		215/216
	<ul style="list-style-type: none"> <li>• <i>“Metal-Organic Supercontainers for Refrigerant Separation and Dehumidification”</i> – Kriti Chitrakar, Graduate Student (Wang Group), University of South Dakota</li> </ul>		
10:55 – 11:10 AM	<ul style="list-style-type: none"> <li>• <i>“Understanding Water and HFC Binding in Metal-Organic Supercontainers (MOSCs) with Density Functional Theory”</i> – Bess Vlasisavljevich, Associate Professor of Chemistry, University of Iowa</li> </ul>		
11:10 – 11:25 AM	<ul style="list-style-type: none"> <li>• <i>“Incorporating Metal-Organic Supercontainers in Porous Polymer Substrates”</i> – Redemption Edegbe (Phillip Group), University of Notre Dame</li> </ul>		
11:25 – 11:50 AM	Moderated Q&A – Zhenqiang (Rick) Wang, Professor of Chemistry, University of South Dakota		

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10:40 – 11:50 AM	<b>Concurrent Working Session for Crosscut 2 Researchers</b> <i>Role of Socio-Economic Behavior across Circular Refrigerant Economy</i>	204
11:50 – 12:50 PM	<b>Lunch and Speaker (12:10) Kashif Nawaz</b> , Section Head - Building Technologies Research, Oak Ridge National Laboratory	<b>Pre-Function</b> 215/216
12:50 – 1:05 PM	<b>Alternative Cooling and Manufacturing Presentations and Panel</b> <ul style="list-style-type: none"> <li>• <b>"High-Performance and Low-Cost Printed Thermoelectrics for Solid-State Cooling"</b> – Yanliang Zhang, Advanced Materials and Manufacturing Collegiate Professor of Aerospace and Mechanical Engineering, University of Notre Dame</li> </ul>	215/216
1:05 – 1:20 PM	<ul style="list-style-type: none"> <li>• <b>"Elastocaloric Cooling for Sustainable Refrigeration"</b> – Boyang Liu, Graduate Student (Takeuchi Group), University of Maryland</li> </ul>	
1:20 – 1:35 PM	<ul style="list-style-type: none"> <li>• <b>"Advanced Manufacturing of Elastocaloric Materials"</b> – Gianna Valentino, Assistant Professor of Materials Science and Engineering, University of Maryland</li> </ul>	
1:35 – 2:00 PM	<b>Moderated Q&amp;A – Ichiro Takeuchi</b> , Professor and Chair of Materials Science and Engineering, University of Maryland	
12:50 – 2:00 PM	<b>Concurrent Working Session for Crosscut 2 Researchers</b> <i>Role of Socio-Economic Behavior across Circular Refrigerant Economy</i>	204
2:00 – 2:15 PM	Break	<b>Pre-Function</b> 206/207
2:15 – 3:00 PM	Poster Session 1	206/207
3:00 – 3:45 PM	Poster Session 2	206/207
3:45 – 5:45 PM	<b>Concurrent Sessions</b> <ul style="list-style-type: none"> <li>• Career Tools Open House</li> <li>• Project Meetings and Other Collaborative Discussions</li> <li>• Industry Advisory Board (IAB) Meeting (<i>Closed for Board Members Only</i>)</li> <li>• Science Advisory Board (SAB) Meeting (<i>Closed for Board Members Only</i>)</li> </ul>	205/206 215/216 204 202

**Thursday, March 12**

**OPEN SESSION**

Emcee: Jennifer Schaefer, Sheehan Family Collegiate Professor,  
 Chemical and Biomolecular Engineering, University of Notre Dame, and Center Deputy Director

6:00 – 7:00 PM	<b>Reception and Networking</b>	<b>Foley's,</b>
7:00 – 8:30 PM	<b>Dinner and Speaker (7:30) "Navigating the Refrigerant Transition: Regulatory Impacts and Industry Response"</b> – Jennifer Butsch, Director of Regulatory Affairs, Copeland	<b>O'Neill Hall</b>
8:30 – 10:00 PM	<b>SLC Game Night! (<i>Closed for Council of Students Only</i>)</b>	<b>512 Duncan Student Center</b>

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Friday, March 13		OPEN SESSION	McKenna Hall Conference Center
Emcee: Jennifer Schaefer, Sheehan Family Collegiate Professor, Chemical and Biomolecular Engineering, University of Notre Dame, and Center Deputy Director			
<b>7:00 – 7:55 AM</b>	<b>Breakfast</b>		<b>Pre-Function 215/216</b>
<b>7:30 – 7:55 AM</b>	<b>EARTH Overview for Prospective Industry Consortium Members – Tony von Sadvovsky</b> , Innovation Officer, University of Kansas, and <b>Casey Williams</b> , Industry Liaison Officer, University of Kansas		<b>204</b>
<b>7:55 – 8:00 AM</b>	<b>Notre Dame Welcome – Edward Maginn</b> , Keough-Hesburgh Professor of Engineering and Associate Vice President for Research, University of Notre Dame		<b>215/216</b>
<b>8:00 – 8:15 AM</b>	<b>“Introduction to the Circular Refrigerant Economy” – Mark Shiflett</b> , Foundation Distinguished Professor, J.L. Constant Distinguished Professor, Chemical and Petroleum Engineering, University of Kansas; Center Director		<b>215/216</b>
<b>8:15 – 8:55</b>	<b>Panel Discussion – Moderated by Casey Williams</b> , Industry Liaison Officer, University of Kansas <ul style="list-style-type: none"> <li>• <b>Kalin Baca</b>, CEO &amp; Co-Founder, Icorium Engineering Company</li> <li>• <b>Steve Harrill</b>, CEO/Owner, Chiller Services Refrigerant Recovery &amp; Reclamation, LLC</li> <li>• <b>Chris Mussey</b>, General Manager, American Refrigerants, Inc.</li> <li>• <b>Mark Shiflett</b>, Foundation Distinguished Professor, J.L. Constant Distinguished Professor, Chemical and Petroleum Engineering, University of Kansas; Center Director</li> <li>• <b>Dave Watson</b>, Director of Quality, Hudson Technologies</li> </ul>		<b>215/216</b>
<b>8:55 – 9:05 AM</b>	<b>Break</b>		<b>Pre-Function 215/216</b>
<b>9:05 – 9:35 AM</b>	<b>“Regulatory Landscape: U.S. Refrigerant Transition” – Samantha Slater</b> , Vice President of Government Affairs, Air-Conditioning, Heating, and Refrigeration Institute (AHRI)		<b>215/216</b>
<b>9:35 – 10:05 AM</b>	<b>“Update on Refrigerant Transitions in the HVACR Sector” – Doug Reindl</b> , Professor of Mechanical Engineering, University of Wisconsin-Madison; ASHRAE Technology Council Member		
<b>10:05 – 10:50 AM</b>	<b>Panel Discussion – Moderated by Kieko Matteson</b> , Associate Professor and Department Chair of History, University of Hawai‘i Mānoa <ul style="list-style-type: none"> <li>• <b>Jennifer Butsch</b>, Director of Regulatory Affairs, Copeland</li> <li>• <b>Doug Reindl</b>, Professor of Mechanical Engineering, University of Wisconsin-Madison; ASHRAE Technology Council Member</li> <li>• <b>Elizabeth Scheehle</b>, Chief of Research Division, California Air Resources Board (CARB)</li> <li>• <b>Samantha Slater</b>, Vice President of Government Affairs, AHRI</li> </ul>		
<b>10:50 – 11:00 AM</b>	<b>Break</b>		<b>Pre-Function 215/216</b>



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	<b>Atmospheric Chemistry and Modeling Presentations and Panel</b>	<b>215/216</b>
<b>11:00 – 11:15 AM</b>	<ul style="list-style-type: none"> <li>• <b>"Hidden Energy Burdens: How Neglecting Refrigeration Efficiency Distorts Cooling Degree Day Estimates"</b> – Jake Casselman, Postdoctoral Associate (Karamperidou Group), University of Hawai'i Mānoa</li> </ul>	
<b>11:15 – 11:30 AM</b>	<ul style="list-style-type: none"> <li>• <b>"Experimental Analysis of the Atmospheric Degradation of New Refrigerants"</b> – Christian Salvador, Aerosol Science and Technology Research Staff, Oak Ridge National Laboratory</li> </ul>	
<b>11:30 – 11:45 AM</b>	<ul style="list-style-type: none"> <li>• <b>"Tracing the Toxins: The Fate of Atmospheric Refrigerants"</b> – Allen Vincent, Graduate Student (Sun Group), University of Hawai'i Mānoa</li> </ul>	
<b>11:45 – 12:00 PM</b>	<b>Moderated Q&amp;A – Casey Williams, Industry Liaison Officer, University of Kansas</b>	
<b>12:00 – 1:00 PM</b>	<b>Group Photo, Lunch and Networking</b>	<b>Pre-Function 215/216</b>
<b>1:00 – 1:45 PM</b>	<b>HVACR Workforce Development Panel Discussion – Moderated by Jennifer Sprague, Education and Outreach Director, University of Kansas</b> <ul style="list-style-type: none"> <li>• <b>Paul Downing</b>, HVACR Faculty Fellow, Ivy Tech Community College-South Bend</li> <li>• <b>Cynthia Keeling</b>, Dean, School of Advanced Manufacturing, Engineering, &amp; Applied Sciences, and Assistant Professor, Ivy Tech Community College-South Bend/Elkhart</li> <li>• <b>Ellyn Lester</b>, Assistant Dean of Construction and Architectural Technologies, Pennsylvania College of Technology</li> <li>• <b>Patrick Rouse</b>, Vice President of Advanced Manufacturing, Engineering and Applied Sciences from Systems Administration, Ivy Tech Community College</li> </ul>	<b>215/216</b>
<b>1:45 – 2:00 PM</b>	<b>Gather for Campus Tours</b>	<b>Pre-Function 215/216</b>
<b>2:00 – 3:30 PM</b>	<b>Curated Campus and Laboratory Tours</b> – Campus Highlights, McCourtney Hall East (MCH-E) and McCourtney Hall West (MCH-W)	
<b>2:00 – 3:30 PM</b>	<b>Raclin Murphy Museum of Art Tour</b> – St. André Way	
<b>2:15 – 3:15 PM</b>	<b>Curriculum Committee Meeting (Closed for Committee Members Only)</b>	<b>204</b>
<b>3:30 – 4:00 PM</b>	<b>Summit Recap and Closing Remarks</b> <ul style="list-style-type: none"> <li>• <b>Jennifer Schaefer</b>, Sheehan Family Collegiate Professor of Chemical and Biomolecular Engineering, University of Notre Dame; Center Deputy Director</li> <li>• <b>Mark Shiflett</b>, Foundation Distinguished Professor, J.L. Constant Distinguished Professor, Chemical and Petroleum Engineering, University of Kansas; Center Director</li> </ul>	<b>215/216</b>

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**CLOSED POSTER SESSIONS**  
**Thursday, March 12 | 2:15-3:45 PM**

### SCHEDULE

POSTER SESSION 1 2:15 – 3:00 PM		205/206/207 McKenna Hall		
#	Name	Poster Title	Advisor	Institution
1	Julia Emilia Espinoza Mejia	Associated Project: Experimental Solubility and Interfacial Tension of Hydrofluorocarbons in Ionic Liquid [C <sub>2</sub> C <sub>1</sub> im][Tf <sub>2</sub> N]	Mark Shiflett	University of Kansas
3	Clarice Sabolay	Deep Eutectic Solvents and Ionic Liquids for the Separation of Azeotropic Refrigerant Mixtures	Mark Shiflett	University of Kansas
5	Emmanuel Ababio	MFI Zeolites for Separating Refrigerant R-410A	Mark Shiflett	University of Kansas
7	Saufishan Akbar	Deep Eutectic Solvents as Sustainable Absorbents for the Separation of Near Azeotropic Refrigerant Blends	Ana Morais and Aaron Scurto	University of Kansas
9	Daniel Hardesty	Carboxylating Polymer of Intrinsic Microporosity (PIM-1) for Effective Separation of Refrigerant Mixture R410A	Ruilan Guo	University of Notre Dame
11	Montana Carlozo	Leveraging Targeted Data for Machine Learning Optimization of Transferable Solvent Force Fields	Ed Maginn	University of Notre Dame
13	Mary Tran	Covert and Multiplexed SERS QR Codes via Inkjet Printing	Chaoyang Jiang	University of South Dakota
15	Luc Mauro	Catalytic C-H Borylation of Legacy HFCs	David Vivic	Lehigh University
17	Jake Casselman	Hidden Energy Burdens: How Neglecting Refrigeration Efficiency Distorts Cooling Degree Day Estimates	Christina Karamperidou	University of Hawaii, Manoa
19	Allen Vincent	Trifluoroacetyl Fluoride Formation from HFO-1234yf under Atmospheric Conditions	Rui Sun	University of Hawaii, Manoa
21	Fathya Salih	Predicting the Global Warming Potential of Refrigerants using Gaussian Process Models and Sigma Profiles	Yamil Colón	University of Notre Dame
23	Boyang Liu	Compression-based Elastocaloric Cooling	Ichiro Takeuchi	University of Maryland
25	Maximilian Ziesel	Development of a High Throughput Testing System Toward Refrigerant Leak Detection	Bryan Paulsen	University of Notre Dame
27	Lillie Chudacoff	Assessing Water Adsorption in Metal-Organic Supercontainers Using Density Functional Theory	Bess Vlaisavljevich	University of Iowa
29	Emmanuel Bonsu Afreh	Understanding Environment-Dependent Structural Behavior of Metal Organic Super Containers (MOSCs) Across Solvent and Matrix Systems for Refrigerant Separation and Dehumidification Applications	Jen Schaefer	University of Notre Dame
31	Hyunjik Kevin Kim	Electrochemical Cooling Using Copper-Ammonia Redox Chemistry	Dongxia Liu	University of Delaware
33	Alexander Lyons	Novel MOSC-based Hierarchical Microstructures for Enhanced Two-Phase Cooling in Data Centers	Damena Agonafer	University of Maryland
35	Andoniaina Mariah Randriambololona	Prognostics-Based Machine Learning (ML) for Improved Reliability of Two-Phase Immersion-Based Data Center Cooling	Damena Agonafer	University of Maryland



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**SCHEDULE**

POSTER SESSION 2				
3:00 – 3:45 PM				
				205/206/207 McKenna Hall
#	Name	Poster Title	Advisor	Institution
2	Athrry Yaddehige	Quantum Chemical Modeling of Refrigerant Adsorption in Metal-Organic Supercontainers	Bess Vlasisavljevich	University of Iowa
4	Yiling Nan	MD Simulations to Understand Separation Mechanisms of Difluoromethane (HFC-32) and Pentafluoroethane (HFC-125) from Refrigerants Mixture Using Zeolites	Assistant Professor	University of Kansas
6	Yuniva Mendoza-Apodaca	Associated Project: Polymeric Membranes for Refrigerant Separation	Mark Shiflett	University of Kansas
8	Kevin Turner	Associated Project: Improving Flammability Testing of Refrigerant Mixtures	Mark Shiflett	University of Kansas
10	Bamaiyi Benjamin Kamji	Fluorinated Ladder Polymer Membranes for Targeted Separation of High-GWP Refrigerants	Ruilan Guo	University of Notre Dame
12	Precious Okolo	Rapid Screening of HFC solubility in Deep Eutectic Solvents with Pre-sampled Solvent Trajectories	Yamil Colón and Ed Maginn	University of Notre Dame
14	Gopala Krishna Murthy Kalapala	Engineering Upconversion Nanoparticles with Visible and Near-infrared Emissions for Multi-layered Security Applications	Chaoyang Jiang	University of South Dakota
16	Kathan Desai	Modeling and optimization of the U.S HFC Supply Chain and Reclamation Infrastructure	Alex Dowling	University of Notre Dame
18	Koushik Mondal	A Novel Atmospheric Formation Pathway of Trifluoroacetic Acid (CF <sub>3</sub> COOH) via Trifluoromethyl (CF <sub>3</sub> ) and hydroxy carbonyl (HOCO) Radical Coupling	Ralf Kaiser	University of Hawaii, Manoa
20	Shilpa Narasimhan	Design and Optimization of Cascaded Refrigeration Systems Digital Vapor Compression Testbed Seed Project	Alex Dowling	University of Notre Dame
22	Zhuorui Li	System Design and Optimization of Cascaded Refrigeration Systems: Digital Vapor Compression Testbed – Load Side Modeling	Xu Han	University of Notre Dame
24	Qiang Jiang	High-performance and Low-cost Thermoelectric Cooling Systems via High-throughput Printing	Yanliang Zhang	University of Notre Dame
26	Robyn Cook	Hydrofluorocarbon (HFC) Adsorption via Chemical Modification of Metal-Organic Supercontainers (MOSCs)	Rick Wang	University of South Dakota
28	Redemption Edegbe	Quantifying Metal-Organic Supercontainer Incorporation and Functional Accessibility in Porous Polymer Substrates	Bill Phillip	University of Notre Dame
30	Kriti Chitrakar	(Non)porous Metal-Organic Supercontainers for Dehumidification	Rick Wang	University of South Dakota
32	Anthony DeFilippo	Multiscale Refrigerant System Validation and Modeling	Faculty	University of Kansas
34	Kagan Sears	Data Center Thermal Management: Two-Phase Flow Network Modeling and Experimental Validation for Data Center CDUs	Lingnan Lin and Damena Agonafer	University of Maryland
36	James Magas	Development of a High Throughput Testing System Toward Refrigerant Leak Detection	Nosang Myung	University of Notre Dame