

Featured Webinar

A Shared Goal: Building a Safety Culture That Protects People and the Environment



Join us on December 9 at 2:00 p.m. CT for a webinar featuring **Chandra Man Karki, M.S., Chemical Safety Officer in the Office of Research Safety at the University of Chicago**. Chandra will introduce the RAMP framework (Recognize Hazards, Assess Risks, Minimize Risks, and Prepare for Emergencies) and discuss how research teams can incorporate safety into experimental design while advancing environmental sustainability goals.

Register Here

Can't attend live? Our webinars are recorded and available on demand.

Upcoming Sessions

- *January 9*: Eric Bloch, Indiana University

Publications

Explore ERC EARTH's new Google Scholar page!

Google Scholar

Catalytic Borylation of the High-Global-Warming-Potential Refrigerant HFC-143a

Chemical Science

Luc A. Mauro, Anthony T. Paolo, Cristabella R. Fortna, Josie B. Rojo, Agustin P. Bravo, Eric Sanchez Josa, Elizabeth R. Young, Lisa A. Fredin, and David A. Vicic


Luc Mauro


Anthony Paolo


Cristabella Fortna


Josie Rojo


Agustin Bravo


Elizabeth Young


Lisa Fredin


David Vicic

Read Article

Randomness Is All You Need – Studying the Effect of Molecular Conformation on Sigma Profiles as Machine Learning Features

Molecular Systems Design & Engineering

Fathya Y. M. Salih, Dinis O. Abranches, Edward J. Maginn, and Yamil J. Colón


Fathya Salih


Ed Maginn


Yamil Colón

Read Article


Josie Rojo


David Vicic

Synthesis and Structural Analysis of [Ni_7] and [Ni_6] *O,O*-Ni Clusters

Inorganica Chimica Acta

Josie B. Rojo, Beth R. Hooks, and David A. Vicic

Read Article

Member Achievements



Congratulations to **Rui Sun**, Thomas J. Barton Chair Professor in the Department of Chemistry at Iowa State University, on his recent medallion ceremony recognizing his endowed chair appointment. During his remarks, Dr. Sun highlighted ERC EARTH research, showcasing the Center's impact and helping raise visibility for our work within the broader scientific community. Click *here* to watch a recording of his remarks.



Congratulations to **Claire Sabolay** of the University of Kansas for earning an award in the Separations Division at the 2026 AIChE Annual Meeting. Claire, a third-year Ph.D. student in chemical engineering under the guidance of Prof. Mark Shiflett, presented her award-winning poster, Gas Chromatographic Screening of Ionic Liquids for Refrigerant Separation.



Congratulations to **Leah Pal** of the University of Kansas for earning 3rd Place in the Separations III Division Undergraduate Poster Competition. Leah's award-winning poster, *Effect of Ionic Liquid Incorporation on Polydimethylsiloxane Membrane Performance for Refrigerant Separation*, was completed under the mentorship of graduate student Yuniva Mendoza-Apodaca and research guidance from Prof. Mark Shiflett.



Congratulations to **John McCarthy** of the University of Tulsa for earning third Place in the Materials Engineering and Sciences (Group 15) Undergraduate Poster Competition at the 2026 AIChE Annual Meeting. John participated in ERC EARTH as a FROST REU student at the University of Kansas during Summer 2026 and presented his award-winning poster, *Experimental Interfacial Tension of Refrigerants HFC-32, HFC-125, and HFC-134a in a Mixture with Ionic Liquid [Emim][Tf_2N]*, under the mentorship of graduate students Julia Espinoza Mejia and Diego Trevisan Melfi.





In October, **Mark Shiflett**, Director of EARTH, and **John Bischof**, Director of ATP-Bio, presented the joint webinar *Improved Refrigeration for Next-Generation Cryopreservation*. The seminar highlighted how sustainable refrigeration technologies developed by EARTH can support ATP-Bio's work in preserving cells, tissues, and organs for medical, agricultural, and biopharmaceutical applications. The collaboration demonstrates how advances in refrigeration can accelerate next-generation biopreservation technologies and

Mark Shiflett John Bischof

cryogenic supply chains. If you missed the webinar, the recording is available on ATP-Bio's YouTube channel.

Watch the Webinar

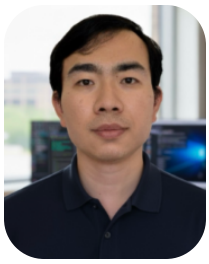
Upcoming Events

Join NSF ERC EARTH at the **2027 ASHRAE Winter Conference** in Chicago for the seminar **"Advancing Sustainable HVAC&R: Refrigerant Circularity, New Dehumidification Materials, Atmospheric Modeling, and Molecular Design"** on **Sunday, January 24, from 1:30-3:00 p.m. CT**. EARTH researchers will present advances in refrigerant reclamation, membrane dehumidification, atmospheric modeling, and computational refrigerant design, highlighting integrated approaches to improve efficiency, reduce environmental impacts, and advance a circular refrigerant economy.


Jennifer Schaefer


Mark Shiflett


William (Bill) Phillip


Rui Sun


Edward (Ed) Maginn

Education and Workforce Development

The Adventures of EARTH Man



Follow EARTH Man as he navigates real-world safety and refrigeration challenges in a monthly comic series.

Read the latest issue and explore previous comics!

Announcements and Reminders

Please use the following statement in your publication acknowledgments:

“This research is based upon work supported by the National Science Foundation under award number **EEC-2330175** for the Engineering Research Center EARTH.”

Did you know that an NSF ERC EARTH Convergent Research (CR) Meeting Calendar is maintained in the shared Google folder? View the 2026 calendar.

Upcoming Meetings
Note: Thrust meetings have been moved to 4:15 p.m. ET this semester due to the EARTH course schedule.

November 19: Thrust 3 Meeting (4:15 p.m. ET)
December 3: Thrust 1 Meeting (4:15 p.m. ET); Crosscut 2 Meeting (3:15 p.m. ET)
December 10: Thrust 2 Meeting (4:15 p.m. ET)
December 17: Thrust 3 Meeting (4:15 p.m. ET)

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The NSF ERC Environmentally Applied Refrigerant Technology Hub (EARTH) is working to create sustainable, accessible refrigeration and air conditioning innovations that will improve the quality of life for all Americans and secure U.S. leadership in workforce development and manufacturing.

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