



WELCOME TO EARTH



ENVIRONMENTALLY APPLIED REFRIGERANT TECHNOLOGY HUB

stay *fresh* on upcoming events, surveys, publications, and more!

OUR PILLARS



CONVERGENT RESEARCH



ENGINEERING WORKFORCE DEVELOPMENT



INNOVATION ECOSYSTEM



IMPACT & BELONGING

OUR DIRECTORS



Mark B. Shiflett
Center Director
U. Kansas



Jennifer L. Schaefer
Deputy Director
U. Notre Dame

NEWS AT A GLANCE

Introducing Our Leadership

Publications and Surveys

Webinars, Announcements, and More!

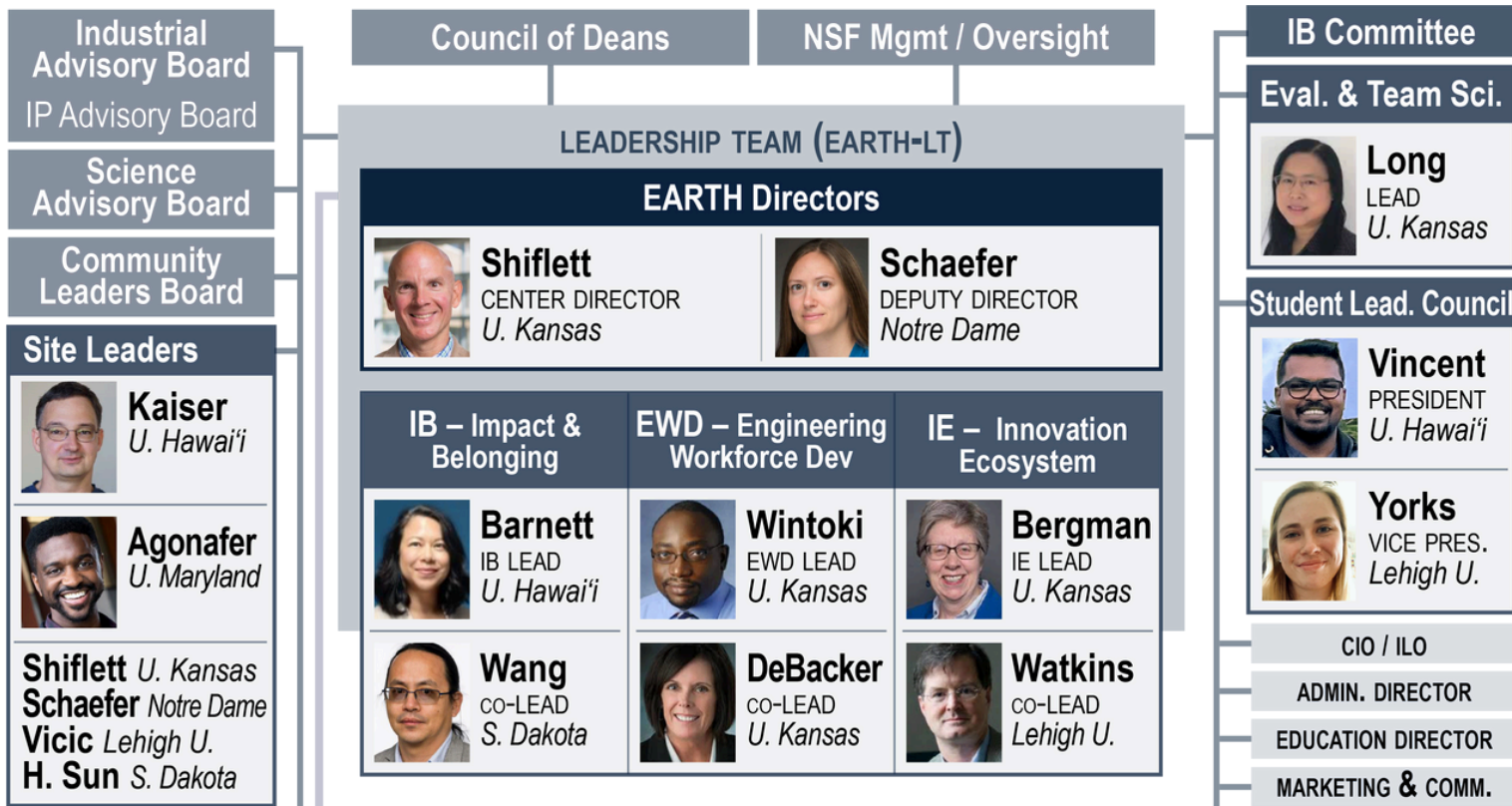
NSF Site Visit
March 13-14

REU and RET Programs










>>> READ MORE!

INTRODUCING OUR LEADERSHIP

Please welcome our NSF ERC team! These leaders will support our ERC pillars and ensure that we reach our goals.



RESEARCH THRUSTS

THRUST 1 Reclamation/Repurp.	THRUST 2 Novel Refrigerants	THRUST 3 Energy Efficient Sys.
 Vicic LEAD Lehigh U.	 Takeuchi LEAD U. Maryland	 Phillip LEAD Notre Dame
 Morais CO-LEAD U. Kansas	 Karamperidou CO-LEAD U. Hawaii	 Liu CO-LEAD U. Delaware
 Goldfarb CO-LEAD U. Maryland	 Colón CO-LEAD Notre Dame	 Onyango CO-LEAD Notre Dame

CROSSCUTS

Synthesis & Char.	 H. Sun LEAD S. Dakota	 Young CO-LEAD Lehigh U.
Behavior & Policy	 Earnhart LEAD U. Kansas	 Marsh CO-LEAD Lehigh U.
Mod. & Analysis	 Maginn LEAD Notre Dame	 Vlaisavljevich CO-LEAD U. Iowa

NSF SITE VISIT MARCH 13-14

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➤➤➤ REGISTER TODAY!

All events will be held at the Burge Union on campus at KU. We hope that you can attend in-person, but virtual meeting options will be available!

Burge Union
1565 Irving Hill Rd.
Lawrence, KS 66045



➤➤➤ HOTEL ACCOMMODATIONS

Hotel accommodations can be made at the StoneHill Hotel Trademark Collection by Wyndham. Transportation will be provided from the hotel to the Burge Union.

StoneHill Hotel Trademark Collection by Wyndham Information:

Name of room block: ERC EARTH

Booking link: StoneHill Trademark Lawrence, KS for ERC Earth

Cutoff date for hotel booking within the block: February 21st, 2025. Reservations made after the Cutoff Date will be accepted based on room and rate availability.

Address: Stone Hill Trademark Collection by Wyndham 6101 Rock Chalk Dr, Lawrence, KS 66049

Hotel policies:

Check-In Time: 3:00 PM.

Check Out Time: 11:00AM; No late check out available.

Minimum Age to Check-in: 21.

Individual Cancellation: 72 hours prior to 3PM Day Prior to arrival.



**ALL HANDS
ON DECK!**

Simulating atmospheric freezing of single aqueous droplets to ice in a cryogenically cooled ultrasonic levitator

Souvick Biswas, Dababrata Paul, Koushik Mondal, and Ralf I. Kaiser*

Proc. Natl. Acad. Sci. U.S.A. 122 (6) e2425543122, <https://doi.org/10.1073/pnas.2425543122> (2025).

Self-driving laboratories, advanced immunotherapies and five more technologies to watch in 2025

The University of Maryland was featured in Nature! Read the [article](#) and see the news story [here](#).
Nature 637, 1008-1011, <https://doi.org/10.1038/d41586-025-00075-6> (2025).

El Niño Enhances Exposure to Humid Heat Extremes With Regionally Varying Impacts During Eastern Versus Central Pacific Events

Zachary M. Menzo, Qinqin Kong, Matthew Huber, and Christina Karamperidou*

Geophys. Res. Lett. 52, e2024GL112387, <https://doi.org/10.1029/2024GL112387> (2025).

Rate-Based Model Simulation with Experimental Mixture Properties for R-410A Separation Using 1-Ethyl-3-methylimidazolium Bis(trifluoromethylsulfonyl)imide [C₂C₁im][Tf₂N]

Abdulrhman M. Arishi, Michael D. Lundin, Julia E. Espinoza Mejia, and Mark B. Shiflett*

Ind. Eng. Chem. Res. Article ASAP, <https://doi.org/10.1021/acs.iecr.4c04368> (2025).



HO'OMAIKA'I
(CONGRATULATIONS)
TO ALL RESEARCHERS!



REU AND RET PROGRAMS

RESEARCH EXPERIENCE FOR UNDERGRADUATES
RESEARCH EXPERIENCE FOR TEACHERS



FROST: Fostering Research Opportunities in Sustainable Technologies

Calling all rising juniors, rising seniors, 2-4-year college students without a graduate program, 4-year college students with a graduate program, students with prior research experience, students with no prior research experience, US Citizens or Permanent Residents, and DACA students!

Apply for this 10-week summer program (May 27 - August 1, 2025) designed to immerse undergraduate students in the field of HVACR systems with a focus on sustainable refrigerants.

Meet industry scientists, use state of the art equipment, gain research experience in sustainable refrigerants, earn a \$6,000 stipend, free room and board, and \$500 for travel expenses!

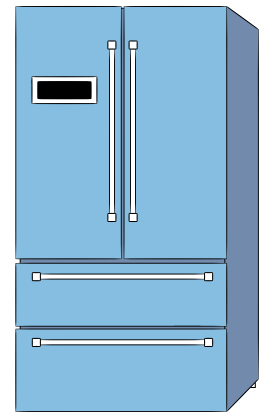
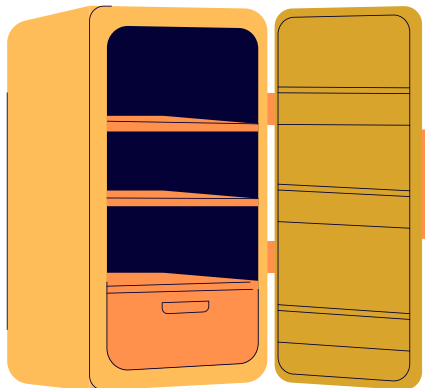


HEART: HARNESSING EDUCATORS FOR ADVANCING REFRIGERANT TECHNOLOGIES

Are you a K-14 or community college educators in physics, Earth sciences, environmental science, chemistry, welding, HVACR, or trade teaching? This opportunity is for you!

Apply for HEART, a 4-week summer program (June 16 - July 15, 2025) designed to immerse educators in the field of HVACR systems with a focus on sustainable refrigerants

Gain industry contacts, utilize state of the art equipment, attain research experience in sustainable refrigerants, earn a \$7,500 stipend, free room and board, and \$500 for travel expenses!





COOL WEBINARS ARE IN YOUR FUTURE



ERC EARTH is launching a webinar series this May!
We aim to host speakers in industry, academia, and beyond, to talk science.

Our first speaker will be **Professor John Bischof** from the University of Minnesota on May 6th from 2-3 pm CST! John is the Center Director of the NSF ERC for Advanced Technologies for the Preservation of Biological Systems (NSF ATP-Bio).

Please join us in person at KU or virtually on Zoom!

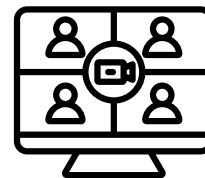
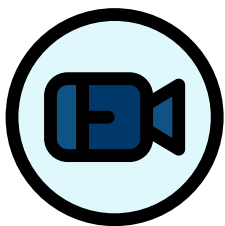
More details to come.



Want to be involved in planning webinars?

Email our Research Project Manager, Jessica Tami, at jltami@ku.edu!

We would like participation from all ERC EARTH universities.



RESEARCH OPPORTUNITIES AT OAK RIDGE NATIONAL LAB (ORNL)

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Research Student Internships (RSI)

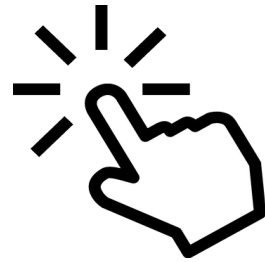
Technical and Professional Internships

Graduate Research at ORNL (GRO)

The University of Maine and ORNL SM²ART REU Program

Student Mentoring and Research Training (SMaRT) Internship

High School Level Opportunities



SURVEY ON CLIMATE AND COLLABORATION

for faculty, undergrad and grad students, post-docs, and staff!

This is a valuable opportunity for you to make your voice heard. Your feedback is crucial in helping us understand the impact of EARTH and identify areas for improvement, contributing to the future success of the EARTH.



Haiying Long
Evaluation & Team
Science Lead
U. Kansas

Please complete survey [here](#) by Feb 23!



IRB approved
ID: STUDY00151691



all responses
are confidential



WE WILL IMPACT THE ENGINEERING AND SCIENTIFIC COMMUNITIES, THE HVACR INDUSTRY, AND SOCIETY



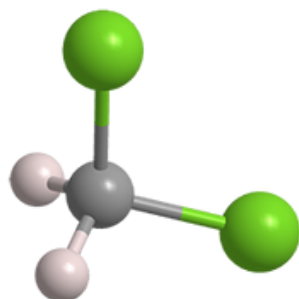
SAFETY MOMENT



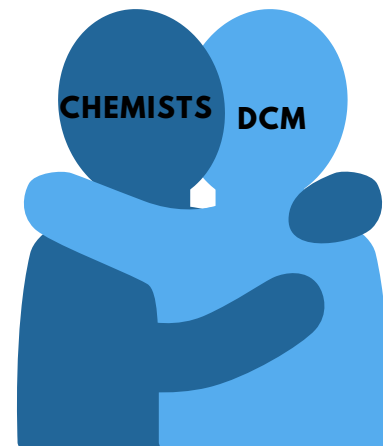
The US EPA has banned most uses of methylene chloride, also referred to as dichloromethane (DCM).

[Click here for more info from the EPA](#)

[Click here for more info from OSHA](#)



adieu!



ANNOUNCEMENTS

EARTH is hosting a symposium at the Green Chemistry & Engineering Conference in June! Submit an abstract by **February 17**.

Please use the following statement in your publication acknowledgements if your research was funded by EARTH.

“This research is based upon work (partially?) supported by the National Science Foundation under award number ERC-2330175 for the Engineering Research Center EARTH.”

**Do you have something you would like to feature in our monthly newsletter?
Contact our Research Project Manager Jessica Tami (jltami@ku.edu)!**



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