



Upcoming Webinar

Manipulating Phase Transitions and Free Volume: From Solid Refrigerants to Microporous Water



On **April 28**, EARTH will host a webinar featuring **Dr. Jarad A. Mason**, Professor of Chemistry and Chemical Biology at Harvard University. The talk will highlight how controlling phase behavior, porosity, and free volume in solid materials can support advances in solid-state refrigerants and other energy-relevant technologies, including barocaloric cooling and porous nanomaterials. The webinar takes place at **2:00 PM CT / 3:00 PM ET** and will be available **both in person at KU and via Zoom**.

[Register](#)

Don't have time to attend? Our [webinars](#) are recorded and available on demand.

Convergent Research

New Publications

Scalable, Low-Cost Ink-Based Processing of High-Performance Silver Selenide Thermoelectrics
Materials Horizons

Md Omarsany Bappy, Guoyue Xu, Kaidong Song, Qiang Jiang, Paribesh Acharyya, Berardo Matalucci, Allen Gray, Mercuri G. Kanatzidis, Tengfei Luo, and Yanliang Zhang



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PCM-Enhanced Envelopes Combined with Natural Ventilation for Energy-Efficient and Thermally Resilient Residential Buildings
Science and Technology for the Built Environment

Youmin Xu and Xu Han



[Read More](#)

[View all EARTH *peer-reviewed publications.*](#)

EARTH Affirms Our Commitment to Responsible Refrigerant Use and Holistic HVACR Solutions

EARTH supports [ASHRAE's position](#) on the responsible use of refrigerants, and our Center agrees that refrigerant selection must balance safety, environmental impact, efficiency, cost, performance, and long-term availability. We emphasize that no single metric or refrigerant meets all HVACR needs, and our work supports minimizing refrigerant charge and proactively managing emissions. Through our focus on convergent research, workforce development, and innovation, EARTH aligns with ASHRAE's holistic approach to guiding refrigerant decisions across diverse applications and regulatory contexts.

[Read More](#)

Funding Opportunities

Coming Soon: 2026 Seed Funding Opportunity

Faculty researchers: EARTH will be launching our next annual seed proposal competition in early May. As in past years, we will incorporate fresh input from our industry members, highlighting priority research topics to spark new ideas and collaborations across the Center. Additional details and the full solicitation will be shared soon. Stay tuned!

TechAccess: AI-Ready America is an NSF program that funds **State/Territory Coordination Hubs** to connect partners, expand workforce AI skills, and accelerate practical AI adoption tailored to local priorities. A **letter of intent is due June 16, 2026**, with **full proposals due July 16, 2026 (round 1), January 15, 2027 (round 2), or July 1, 2027 (round 3)**, by 5:00 p.m. local time.

Major Research Instrumentation (MRI) is an NSF program supporting the acquisition or development of shared, multi-user research instruments that enable advanced science, engineering research, and research training across academic and nonprofit institutions nationwide. Awards of up to \$4 million support cutting-edge instrumentation and capacity building. **Full proposals are due October 15–November 16, 2026, by 5:00 p.m. submitting organization's local time nationwide annually.**

Mid-Career Advancement (MCA) is an NSF program supporting associate-level faculty to strengthen and advance their research programs through protected time, resources, and synergistic partnerships. The program enables mid-career researchers to acquire new skills, pursue interdisciplinary collaboration, and substantially enhance career trajectories. **Full proposals are due February 1–March 1, 2027, by 5:00 p.m. submitting organization's local time annually across NSF research directorates.**

The **ACS Green Chemistry Institute** offers competitive research funding programs designed to empower scientists, catalyze innovation, and advance sustainable chemistry and engineering across pharmaceuticals and materials science. Through the **Pharmaceutical Roundtable** and **Natural Polymers Consortium**, these opportunities support both targeted research in defined priority areas and bold, early-stage ideas with high potential impact. Awards range from **\$40,000–\$80,000** for **6- to 12-month research commitments**, enabling investigators to develop greener methodologies, scalable technologies, and sustainable materials grounded in green chemistry and engineering principles. **Submissions for all programs close May 1, 2026.**

Education and Outreach

Building Big Ideas: Preschoolers Explore the Science of Strong Structures

In March, **Dr. Elizabeth Young and her team of graduate students at Lehigh University** visited a local daycare center to introduce **30 preschoolers** to visual topics in structural engineering. Experiments involved **building and testing different structures including bridges and 3D shapes constructed out of gumdrops and sticks**. How different materials impact a structure's strength was explored as well. The children left with an understanding of what shapes make a strong structure. Dr. Young and her group design the outreach experiments with different science themes in mind and continuously are engaging in science outreach since the Young Group has been at Lehigh. This semester, graduate students on Dr. Young's team supported by NSF ERC EARTH are **currently designing refrigeration-based experiments to introduce children to the science behind keeping us cool**. The EARTH-inspired experiments will be implemented later this year.

The Adventures of EARTH Man

Explore this month's [comic](#) and catch up on past adventures that bring sustainability and engineering to life!

Announcements and Reminders

Please use the following statement in your publication acknowledgements:

"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 EARTH Convergent Research (CR) Meeting Calendar is maintained in the shared Google folder? View the [2026 calendar](#).

Upcoming Meetings

April 9: Thrust 2 Meeting (3 p.m. ET)
April 16: Thrust 3 Meeting (3 p.m. ET)
April 23: Convergent Research Leadership Meeting (3 p.m. ET)
April 30: Thrust 1 Meeting (3 p.m. ET); Crosscut 2 Meeting (4:30 p.m. ET)
May 7: Thrust 2 Meeting (3 p.m. ET)
May 14: Thrust 3 Meeting (3 p.m. ET)

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The 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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