



Featured Upcoming Webinar

El Agente - Science Unbound



Join EARTH on **October 30 at 3:00 p.m. ET** for a virtual webinar featuring **Dr. Varinia Bernales, Assistant Professor of Computer Science and Chemistry at the University of Toronto and Research Director of the Matter Lab**. Dr. Bernales will discuss how El Agente, a multi-agent AI platform powered by large language models, is transforming chemistry and materials research through natural-language interaction with advanced computational tools. This work demonstrates how AI can accelerate discovery, streamline computational workflows, and expand access to advanced research tools. Join via Zoom and bring your questions for the live Q&A session.

[Register Here](#)

Can't attend live? Our [webinars](#) are recorded and available on demand.

Upcoming Sessions at a Glance

- *November 3:* **Steve Kujak**, Trane Technologies
- *December 9:* **Chandra Karki**, University of Chicago

Publications

The Case for Integrated Assessment to Design Data Centers of the Future

Cell Reports Sustainability

Joule Bergerson, Alexander Dowling, Debra Javeline, Xu Han, Yong Suk Lee, Hannah Legatzke, Susan L. Ostermann, Jennifer L. Schaefer, Rafia Zaman, and Arun Agrawal

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From Publication to Presentation

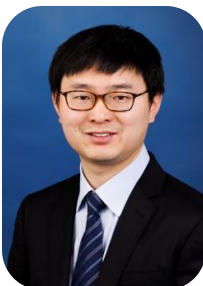
Building on their recent publication, the team has also been selected to present “Toward an Integrated Assessment of U.S. Data Center Buildout: Evidence Needs for Effects, Effectiveness, and Equity” at the **2027 ASHRAE Data Center & AI Integration Conference**, taking place **March 3–5, 2027, in Dallas, Texas**. This marks the first conference presentation affiliated with both a University of Notre Dame initiative and ERC EARTH. Congratulations to the team on this exciting milestone and recognition.



Prof. Joule
Bergerson



Prof. Alexander
Dowling



Prof. Xu
Han



Prof. Jennifer
Schaefer

Radical Chemistry in Atmospheric Ice Analogs Forms Persistent Trifluoroacetic Acid

Chemical Science

Mason McAnally, Koushik Mondal, Yuheng Luo, Nils W. Melbourne, Pooja Chahal, Xilin Bai, Jinghui Lu, Baoyu Song, Xinxuan Wang, Andrew M. Turner, Alexandre Bergantini, Souvick Biswas, Rui Sun, Tao Yang, and Ralf I. Kaiser

[Read Article](#)



Dr. Koushik
Mondal



Dr. Yuheng
Luo



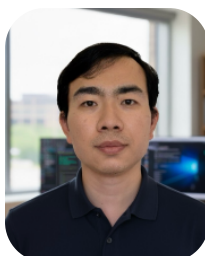
Nils
Melbourne



Dr. Pooja
Chahal



Dr. Souvick
Biswas



Prof. Rui
Sun



Prof. Ralf
Kaiser

Member Achievements



University of Iowa Associate Professor [Bess Vlasisavljevic](#) was selected as a recipient of the **2027 ACS Women Chemists Committee (WCC) Rising Star Award**, a national honor recognizing outstanding women scientists who are approaching mid-career and showing exceptional promise in their fields. The award highlights her excellence and growing impact within the scientific enterprise. She is one of nine scientists selected across academia, industry, and government sectors. Vlasisavljevic will be formally recognized at the 2027 American Chemical Society Spring Meeting in New Orleans.



University of Notre Dame [Professor Jennifer \(Jen\) Schaefer](#) was recognized as a **University of Notre Dame 2026 All-Faculty Team member**, an honor celebrating faculty who have made significant contributions to research, scholarship, and academic leadership. The recognition was highlighted during the **September 19 Notre Dame football game**, where Schaefer was featured on the **stadium Jumbotron**. As Deputy Director of EARTH and Sheehan Family Collegiate Professor of Engineering, she leads research addressing critical energy and environmental challenges, including next-generation batteries, cooling technologies, and critical mineral recovery.



University of Notre Dame Professor **Ruilan Guo** was selected as the recipient of the [2026 AIChE Institute Award for Excellence in Industrial Gases Technology](#), a national honor recognizing sustained excellence in advancing technologies for the production, distribution, and application of industrial gases. The award highlights her outstanding contributions to industrial gases technology through innovative research and technological development. Guo is internationally recognized for her work on functional polymer membranes for gas and chemical separations in energy and environmental applications. She will be formally recognized at the Honors Ceremony of the AIChE Annual Meeting.



Congratulations to Damena Agonafer and collaborators on receiving the Best Paper Award at the Open Compute Project conference for the second consecutive year. This year's award recognized research on waste heat recovery for two-phase cooling, highlighting innovative approaches to improving efficiency and sustainability in high-performance computing thermal management. The achievement reflects continued leadership in advancing next-generation cooling technologies and energy-efficient data center solutions.

Funding Opportunities

The [Department of Defense Multidisciplinary University Research Initiative \(MURI\)](#) is now accepting proposals for FY 2027. MURI supports high-risk, transformative basic research led by multidisciplinary university teams, with awards averaging up to **\$1.5 million per year for five years**. The DoD anticipates approximately **\$170 million** in total FY 2027 funding.

Several topics may be of particular interest to EARTH researchers:

- **Tunable Goniopolar Semiconductors (Topic 2)**, with potential applications in solid-state cooling, thermoelectrics, energy harvesting, and advanced materials.
- **Robustness to Novel Queries in AI for Scientific Discovery (Topic 3)**, focused on next-generation AI methods for scientific reasoning and discovery, with potential relevance to data-driven refrigerant, materials, and solvent research.
- **Design of Superomniphobic Materials (Topic 8)**, emphasizing advanced materials, surface engineering, durability, and alternatives to fluorinated chemistries.
- **High-Entropy Electrochemical Materials (Topic 15)**, which aligns with expertise in materials discovery, computational design, and structure-property relationships for energy applications.

Questions regarding technical requirements are due **November 6, 2026**; optional white papers are due **November 20, 2026**; and full proposals are due **April 9, 2027**. While optional, white papers are strongly encouraged. Faculty interested in exploring potential MURI concepts or forming interdisciplinary teams are encouraged to contact EARTH leadership.

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 catch up on past [comics](#)!

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 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.

October 19–21: NSF Site Visit at University of Maryland

October 29: Convergent Research Leadership Meeting (4:15 p.m. ET)

November 5: Thrust 1 Meeting (4:15 p.m. ET); Crosscut 2 Meeting (4:30 p.m. ET)
November 12: Thrust 2 Meeting (4:15 p.m. ET)
November 19: 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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