



# Happy Earth Day!



Although every day is EARTH day for us, let's take a moment to think about our planet. Our Earth is our home. She provides for us. The work that we are doing in this Center will make the Earth healthier and keep us safe.

**Remember to do your part: Reduce, Reuse, Recycle, and Research!**



## The News, Distilled

**Celebrating  
EARTH Day**

**Upcoming  
Webinar in May**

**Our First Comic:  
EARTH Man**

**Meet the  
EARTH Staff**

**Announcements  
and Reminders**



**Read More!**



**We will impact the engineering and scientific communities, the HVACR industry, and society!**

# How to Celebrate Earth Day

shop with reusable bags

join an outdoor cleanup

engage in local politics

use public transportation

support local businesses

plant a tree

take shorter showers

eat less meat

recycle and compost

educate your friends

## Check Out These Resources!

[EPA in Your State](#)

[How to Celebrate Earth Day](#)

[How You Can Help Pollinators](#)

[The History of Earth Day \(kids edition\)](#)

[How to Get Involved with Environmental Work](#)

[Protecting Our Planet Starts with You](#)

Together



**ERC EARTH PRESENTS**

2025 Webinar Series

# John Bischof

University of Minnesota



## Cryogenically Suspending and Rewarming Living Biological Systems

This talk will explore several breakthrough technologies from the Gen-4 NSF Engineering Research Center ATP-Bio (Advanced Technologies for the Preservation of Biological Systems). The goal of ATP-Bio is to achieve cryogenic suspension of cell, tissue, organ and whole organism “testbed” systems for societal benefits in healthcare, food and sustainability and biodiversity. Engineering approaches to achieve this based on manipulation of temperature, pressure and concentration including supercooling, partial freezing, isochoric (isovolumetric) and vitrification (glass forming) approaches will be introduced. We will also discuss rapid and uniform rewarming of materials from these states so that they are both viable and functional for specific applications. Highlights include the first robust drosophila embryo and zebrafish embryo cryopreservation, the first scalable pancreatic islet cryopreservation, and the first cryopreservation of a whole rat kidney for up to 100 days.



**Tuesday, May 6**



**2-3 pm  
Central Time**



**Virtually on Zoom**  
**Passcode: 2025**



SCAN ME



# Introducing “The Adventures of EARTH Man” – A Comic Series for Future Engineers and Sustainability Pioneers!

We’re excited to share the first issue of The Adventures of EARTH Man, a comic series created to help K–12 students explore big ideas like sustainability, HVACR (Heating, Ventilation, Air Conditioning, and Refrigeration), and engineering. This isn’t just a comic, it’s a way to get students talking, thinking, and asking questions about the world around them. At EARTH, we believe that learning about sustainable technologies should start early and feel approachable. Using comics as an engagement tool makes complex topics more relatable and fun, while opening the door for teachers to introduce engineering concepts into everyday classroom discussions. It’s a great way to spark curiosity and support teaching and learning that connects directly to real-world challenges. To get these ideas into students' hands, we’re turning the comic into bookmarks that can be shared in schools. Our hope is that this small, creative tool will help start conversations about sustainability and open minds to the many possibilities in engineering. Stay tuned! EARTH Man is just getting started. -Dr. Casey Williams, Education Director



Thank you to our fantastic artist, [Chamisa Kellogg!](#)



# Meet Our Staff

**We asked our staff four questions:**

- What is your role at EARTH?
- How can you help our members?
- What brought you to ERC EARTH?
- What is your favorite Karaoke song?

IT'S OKAY  
to ASK  
For HELP



## **Tiffany Oquendo, Administrative Director, University of Kansas**

You can ask me for help with all EARTH operational and administrative matters, including Reporting, NSF Site Visits, Annual Meetings, Center Meetings, Human Resources, and Information Systems, such as EARTH CORE, website & SharePoint sites, ERCWeb, and Google Drive. You can reach me about anything, and I will try to help or point you in the right direction. I may not know it all yet, but I'm picking it up one clever question and coffee-fueled insight at a time. My introduction to EARTH was in the proposal phase; my role at KU was developed to help Dr. Mark Shiflett because, as you all know, he's a very busy person and was, of course, very occupied managing and writing this huge proposal. My first project was to help Thorn Run Partners solicit

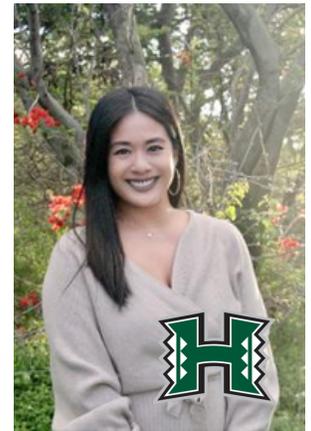
Letters of Support & Commitment from our partners and supporters, and to help faculty gather supporting personnel documents (Biosketches, Current & Pending Support, and Conflict of Interest forms). After we submitted what ended up being an almost 1000-page proposal, I helped to plan for the pre-award NSF Site Visit and acted as EARTH Administrative Associate until December 2024 when I excitedly accepted the Administrative Director position. **Killing Me Softly - Fugees**



## **Sabrina Fallejo Uganiza, Administrative Support, University of Hawai'i at Mānoa**

I am the impact and belonging (IB) administrative support. I help with scheduling, organizing, and drafting documents/initiatives. What brought me to ERC EARTH was the opportunity to support the IB co-chair, Jennifer Pagala Barnett.

**Whitney Houston - I have nothing =)**



## **Joey Blanchett, Engineering Technician, University of Kansas**

I found the ERC by accident through a temp agency after getting out of the military, and I've been here since. If anything needs fixing, come find me!

**I've never done karaoke but if I had to choose a song it would be Tequila, it's only 3 words for lyrics!**



# Meet Our Staff



## **Emily Weiss, Administrative Assistant, University of Kansas**

People can ask me to help with any day-to-day tasks such as offering office support to EARTH staff and faculty, travel coordination, meeting scheduling assistance, and communication/information distribution or EARTH social media management. I started looking for a new job last year and always liked the idea of getting to work for my alma mater KU. When I learned about EARTH, I knew it would be a great fit. The opportunity to work with so many talented and accomplished people at KU and EARTH's partner universities really drew me in. I wanted the chance to be a part of something meaningful and groundbreaking and EARTH more than fits that bill!

**Breaking Free - High School Musical (bviously needs to be a duet!)**

## **Beth Panitz, Communications Coordinator, University of Maryland**

I'm one of two administrative contacts from the University of Maryland. We serve as a conduit between the EARTH admin team and the UMD principal investigators. I'm the communications coordinator for the University of Maryland Center for Environmental Energy Engineering (CEEE), and our center is happy to contribute to EARTH's mission. CEEE has over 30 years experience in developing sustainable HVAC&R technologies. With help from EARTH, our researchers – together with UMD's Department of Materials Science and Engineering – are developing solid-state elastocaloric cooling that would have zero direct global warming impact. **Piano Man by Billy Joel**



## **Tony von Sadovszky, Innovation Officer, University of Kansas**

As Innovation Officer at EARTH, I facilitate the translation of research into commercially viable technologies. My role includes educating and advising on intellectual property, licensing, startup formation, and market alignment—whether through partnerships with established companies or new ventures.



I'm a resource for anyone looking to position their work for real-world impact as scalable market-relevant solutions, engage with industry, or explore pathways to commercialization and investment. What brought me to EARTH is its ambitious and mission-driven approach to transforming an industry through collaborative, cross-sector innovation. EARTH's commitment to systems-level change—linking science, engineering, workforce development, and policy—resonates with my interest in programs that create lasting commercial, societal, and environmental value. I see EARTH as a rare opportunity to contribute to a deeply interdisciplinary initiative with real momentum and meaningful outcomes.

**San Tropez (Pink Floyd - Meddle)**



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# Meet Our Staff



## Barbara Villarosa, Research Project Manager and Education Coordinator, University of Notre Dame

My responsibilities as the Research Project Manager at Notre Dame include risk assessment, financial compliance, ensuring financial resources align with project goals, and analyzing financial reports to support strategic decision-making. I coordinate the summer education programs and manage on-campus logistics to ensure participants have a productive and rewarding research experience. I also support EARTH-related events and communications, as well as help to manage milestones, timelines, and project goals. EARTH researchers can contact me to schedule or reschedule research meetings and update the lists of faculty and non-faculty researchers, as well as the associated Google Groups.



All research meetings are recorded, and the recordings, participant lists, and meeting summaries are uploaded into separate meeting folders in the shared Drive for all to review at their convenience. I have been at the University of Notre Dame for 24 years, starting in HR and then moving into other research administrative roles. I spent 18 years at the Center for Sustainable Energy (ND Energy) supporting faculty affiliates and contributing to the growth in energy-related research at Notre Dame. This is where I first learned about EARTH, as Jen Schaefer and others asked me to help organize and execute the pre-proposal planning meeting at Notre Dame, which I did. When EARTH later received funding, the VP of Research suggested that Jen 'hire' an ND Research Project Manager to help her manage the responsibilities that come with being the EARTH Deputy Director. At that point, Jen was unaware of my transition from ND Energy to a new role in Notre Dame Research as either a Research Project Manager or Event Specialist. When she said to the VP that she already had someone in mind (me!), the decision to accept the Research Project Manager position became clear. I am thrilled to be a part of the EARTH family and to have the opportunity to work with so many talented researchers and professionals. I am happy that Jen chose me for the 'job!' **I have never done Karaoke and I probably never will, so I do not have a favorite song to share! However, I do like to listen to Adele, Carrie Underwood, Keith Urban, Bruce Springsteen, and Cat Stevens, just to name a few.**

## Leanne Poteet, Program Manager, University of Maryland



I am one of two administrative contacts from the University of Maryland. We communicate between the EARTH administrative team and the UMD principal investigators. We have helped to recruit teachers for the RET and will help with logistics for that program. We organize monthly meetings of the UMD PIs on campus. I am the program manager for the Center for Environmental Energy Engineering (CEEE) at University of Maryland. We are very excited to be one of the universities in ERC EARTH. Dr. Radermacher asked if I could help with the administrative aspects of UMD's participation in EARTH. I am happy to support this important work and am grateful that we are a part of this engineering research center.



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# Meet Our Staff



## Casey Williams, Education Director, University of Kansas



I focus on establishing strong relationships with our educational partners and supporting engineering workforce development initiatives and activities. You can reach out to me for anything related to building partnerships, planning educational programs, designing curricula or developing strategies to prepare students for careers in the sustainable HVACR industry. I chose this role because of my passion for climate change education and engineering education. EARTH brings both of those worlds together in a powerful way—using hands-on, real-world learning to address one of the most urgent challenges of our time. I'm excited to contribute to a mission that not only advances sustainability but also equips the next generation of engineers and technicians to lead in a rapidly changing world.

**Mr. Brightside by The Killers**

## Jessica Tami, Research Project Manager, University of Kansas

I am your liaison to our leadership team and I ensure that we are on track to accomplish our milestones as a Center by overseeing our pillars (convergent research, engineering workforce development, innovation ecosystem, impact and belonging). I am a chemist, so I can help on a technical level (brainstorming ideas, reading manuscripts, presentations) and administrative level by connecting you to whatever resources you may need. After I finished my PhD and postdoc, I knew that I wanted to stay in higher education/academic research but in a more facilitating role. I saw that a new NSF Engineering Research Center was looking for a project manager, specifically someone with a technical background who enjoys supporting students, and I jumped at the opportunity. I am excited to be a part of EARTH, where I can bridge my science background and people skills!



**Build God, Then We'll Talk by Panic! At the Disco**



## Will Vincent, Financial Analyst, University of Kansas

You can come to me for anything money related: purchasing, payroll, industry membership billing, EARTH budget. Money coming in and out. I wanted to be a part of something innovative and impactful on a nationwide and global scale. I believe that my six years of experience of finance at KU could be put to good use to achieve a successful outcome of this NSF Engineering Research Center.

**I would never do Karaoke, but my favorite to see others perform is What's My Age Again by Blink182.**



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# Student Leadership Council Spotlight

Congratulations to KU graduate student **Julia Espinoza**, our Student Leadership Council (SLC) treasurer, for presenting her research at the ACS Spring Meeting in March. She presented under the Division of Industrial and Engineering Chemistry via the Younger Chemists Committee.



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Wonderful Institute for  
Sustainable Engineering



LEARN MORE



## Thermodynamic and Process Analyses of Extractive Distillation for Separating Refrigerant R-410A Using Imidazolium-Cyano-Based Ionic Liquids

Julia E. Espinoza Mejia, Abdulrhman M. Arishi, Mark B. Shiflett, Aaron M. Scurto\*  
*Ind. Eng. Chem. Res.* **2025**, 64, 672–691.

DOI: 10.1021/acs.iecr.4c03268



## New Publication Alert!



### Clean photochemical conversion of perfluoroalkylated phenanthrene-9,10-o-quinones to perfluoroalkylated diphenic anhydrides



Shankar Gairhe, Mason Ferrie, Haoran Sun\*

*J. Fluor. Chem.* **2025**, 283–284, 110406.

DOI: 10.1016/j.jfluchem.2025.110406



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# Funding & Internship Opportunities

**Office of Science Graduate Student Research (SCGSR) Program**, Extended Research Residencies at DOE National Laboratories: Supplemental awards (up to \$3,600 per month) to graduate students for pursuing part of their PhD thesis research working for up to 1 year side by side with scientists or engineers at a DOE National Laboratory or facility.

**The deadline to apply is May 7!**

**Non-Academic Research Internships for Graduate Students (INTERN) Program:** INTERN enables graduate students to acquire core professional competencies and skills to support careers in any sector of the U.S. economy (i.e., industry, government, nonprofit). INTERN supplements provide up to \$55,000 to support travel, tuition and fees, health insurance, additional stipend and other costs. Active NSF awardees may submit supplemental funding requests for up to six additional months of graduate student support on their grant.

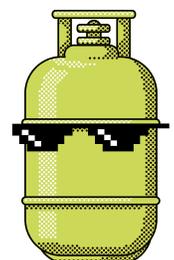
**Skills Training in Advanced Research & Technology (START):** This supplemental funding opportunity provides students, faculty, and student/faculty teams in two-year Institutions of Higher Education (2-yr IHEs) with experiential learning opportunities for advanced skills development involving IUCRC or ERC associated projects. Note: For ERCs, all supplements must be submitted by the lead institution for the ERC award.

**NSF-NIST Interaction in Basic and Applied Scientific Research:** This program is designed to facilitate collaborative research and educational activities among NIST scientific and engineering staff and researchers supported by NSF. Through use of supplemental funding requests in existing NSF awards, support may be requested for travel expenses and per diem associated with work on-site at NIST to collaborate on research with NIST staff and access specialized research instrumentation available at NIST for NSF-supported PIs, co-PIs, post-doctoral scholars, undergraduate and graduate students and other personnel associated with the NSF-NIST collaborative research.

**Small Business/Engineering Research Center Collaborative Opportunity (SECO),** Supplemental Funding Opportunity for Current SBIR/STTR Phase II Awardees: SECO aims to facilitate the market entry and adoption of products, services, and processes developed by NSF Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase II grantees through partnership with an NSF-funded Engineering Research Center (ERC). PIs of currently active SBIR Phase II awards and PIs/Co-PIs of currently active STTR Phase II awards are eligible to apply for this opportunity.

**[Faculty: Click here for our complete list of opportunities!](#)**

**[Check out our website for opportunities with our industry members, professional organizations, and national labs!](#)**



# Are You Graduating This Spring?



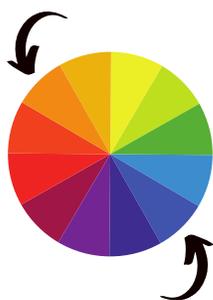
We would like to feature you in our May newsletter!  
*Sharing thesis defense details is optional.*  
Please email [Jessica Tami](mailto:jessica.tami@nsf.gov) to be included.



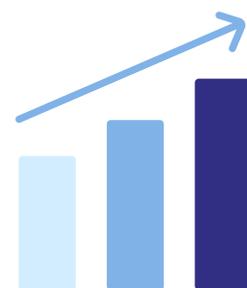
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## Improving Accessibility in Science

**DID YOU KNOW THAT 1 IN 12 MEN AND 1 IN 200 WOMEN HAVE A COLOR VISION DEFICIENCY?**



Using opposing colors on the color wheel (left) or choosing one color and adjusting the saturation levels (right) are great ways to aid those with color deficiencies or perception.



Check out this [article](#) in Nature for more information!

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## Announcements and Reminders

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

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



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