Energy at Hopkins

FOR FACULTY

COMMUNITY

Since it opened in 2021, the Ralph O'Connor Sustainable Energy Institute (ROSEI) has focused on research, education, policy, and translation. Creating a sense of community around energy at Hopkins is an area of critical importance, particularly as we expand and add new faculty.

"When I interviewed at Hopkins, I was inspired by ROSEI because it brings scientists, engineers, and researchers together to develop new technologies and advance our understanding of sustainable energy solutions. Hopkins has a lot of resources and focuses on education, which was important for me. I aim to not only achieve my research goals but also to inspire future professionals. That's why I chose Hopkins."

— Yuting Luo, *assistant professor of materials science*

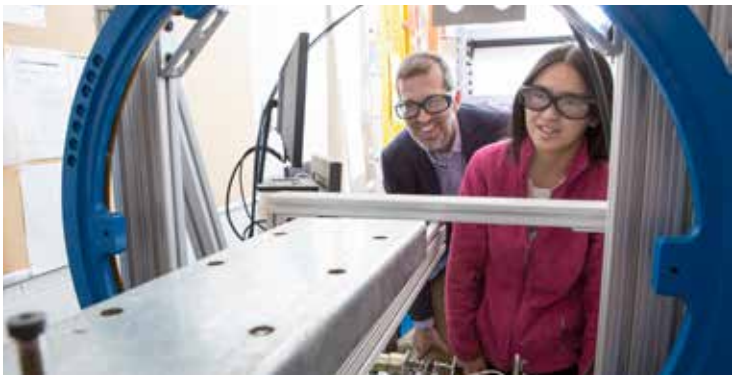
UNIVERSITY AND INSTITUTE GROWTH

ROSEI has successfully recruited six faculty members since its inception. Several are part of the Bloomberg Distinguished Professor (BDP) program, which aims to recruit faculty who will intellectually bridge the university's schools and divisions, conduct, and stimulate innovative research that crosses traditional disciplinary boundaries, and train a new generation of collaborative scholars.

ROSEI leads the Sustainable Transformations BDP cluster, aimed at uniting scientists, engineers, and market and policy experts with interests aligned toward solving critical technological and societal problems arising from the use of unsustainable chemicals and materials, fossil fuels, and other anthropogenic, environmentally harmful substances. Cluster scholar backgrounds include:

Scan for more information on BDP Cluster and Faculty Hiring.

- **Sustainable Transformations, Foundational Chemistry, and Materials:** chemistry for earth abundant catalysis, synthesis, capture and upcycle carbon, sustainable and stable storage
- **Sustainable Energy, Engineering, and Scale-up:** geo-scale solar and wind, solar devices, systems control, and infrastructure for next-generation power



- **Sustainable Society, Systems, Markets, and Policy:** macro energy systems, power market design, energy policy enablers, LCA, TEA, workforce, DEI, advocacy

"The change that we can make as a group now really becomes something special."

— Ben Schafer, *ROSEI's director*

The Whiting School of Engineering at JHU is making a transformational investment in the school and an unprecedented investment in people with the launching of the Data Science and AI Institute. The institute, which will include a state-of-the-art facility, is dedicated to the study of data, machine learning, and AI systems, and will bring nearly 180 new faculty to the university—with a majority having appointments in the School of Engineering. An emphasis is being placed on discovery across disciplines such as public health, national security, and the humanities.

Scan for more information on the Data Science and AI Institute.

INNOVATION

We are America's first research university, founded on the principle that by pursuing big ideas and sharing what we learn, we can make the world a better place. For more than 140 years, our faculty and students have worked side by side in pursuit of discoveries that improve lives.

JOHNS HOPKINS
RALPH O'CONNOR SUSTAINABLE ENERGY INSTITUTE

Researchers at our ten academic divisions and at the university's Applied Physics Laboratory (APL) have made us the nation's leader in federal research and development funding each year since 1979. Research isn't just something we do—it's who we are.

Johns Hopkins Engineering includes more than 25 established research centers and institutes, several of which span across university divisions, as well as partnerships with industry, government, and universities and laboratories around the globe. Only at Johns Hopkins are we able to collaborate with researchers and clinicians at the renowned schools of Medicine, Public Health, and Arts and Sciences.

The total activity in sponsored research funding initiated by WSE faculty continues to grow. Over the past five years, overall research funding has increased by 32%, with the NIH funding growing by 74% and other federal funding (not including the NSF and DOD) growing by 112%.

Research in ROSEI is focused on enabling innovations that address our vast energy needs and their consequences. ROSEI researchers cover a broad array of sustainable energy topics but have made significant strides in its four research pillars—carbon, grid, storage, and wind—and we encourage collaborations between individuals with a variety of research backgrounds.

Carbon: Our work in carbon management, particularly in partnership with the Department of Energy's ARPA-E program, has already resulted in the creation of two companies—one working on cleanly converting natural gas to hydrogen at point of use, and one working on direct air capture of carbon.

Storage: Our work in energy storage features a remarkable partnership with APL. The ROSEI-APL partnership is investigating more sustainable storage solutions and integrated solar-storage solutions.

Wind: ROSEI is leading Maryland's presence in a new national center—the Academic Center for Reliability and Resilience of Offshore Wind (ARROW)—that aims to expand the local offshore wind industry and provide greater opportunities for Maryland residents and businesses to participate in the growing clean energy economy.

Grid: ROSEI is leading a new global center—Electric Power Innovation for a Carbon-free Society (EPICS)—with a total budget of $15 million that is focused on helping society transition towards 100% renewable energy for power grids.

COLLABORATION

ROSEI understands and encourages collaborations with experts at different academic institutions. The institute is one of many domestic and international partners of two different global centers—EPICS and ARROW—that list both international and domestic universities as partners, including Imperial College London, University of Melbourne, University of Massachusetts Amherst, and Morgan State University.

Partnering with ROSEI provides access to a diverse group of external partners, including but not limited to:

- Pacific Northwest National Laboratory (PNNL)
- General Electric (GE) Vernova
- European Academy of Wind Energy (EAWE)
- Business Network for Offshore Wind (BNOW)
- Global Power System Transformation Consortium (G-PST)
- Energy Systems Integration Group (ESIG)
- Future Power Market Forums (FPMF)

Scan to connect with ROSEI.

JOIN US!

Scan for current faculty openings.

JHU and ROSEI contingent meeting Maryland Governor Wes Moore at the 2023 ARPA-E Innovation Summit