University at Buffalo
Research and Education in eNergy, Environment and Water (RENEW)

Currents

News, events and more from the RENEW Institute, where faculty collaborate across disciplines to solve the world's most pressing problems

SPRING 2022

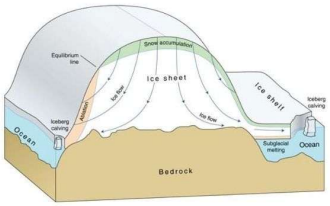
Message From the Director

As I complete my first 9 months as Director of the RENEW Institute, I am pleased to share with you the birth of "*Currents*"- a quarterly newsletter that will highlight the accomplishments of our talented RENEW faculty and students. I also want to introduce you to the RENEW Institute Steering Committee members and Focus Area Leaders, and invite you to actively participate in the ideation and development of research proposals in one or more of our Focus Areas**.** Recent changes and additional support in the RENEW Institute will facilitate grant preparations by researchers with convergent interests to address grand challenges surrounding energy production, climate change, water scarcity, and health effects of environmental pollution.

It was absolutely wonderful to see so many of you in person this month during our first face-to-face gathering to celebrate the end of another academic year, and to showcase the excellent research being conducted by our students. What a joy it is to reconnect, share research findings, and reinvigorate our community! To this end, I encourage you to join us at our May 23rd workshop—Health Equity Dimensions of a Changing Climate: Challenges and Opportunities— which exemplifies the leadership role that the RENEW Institute plays within our practice areas, the UB community, and society at large. I am excited for future opportunities to catalyze collaboration among our researchers, with the aim of marshalling our collective strengths to seek funding support for our Big Ideas. Together, we can—and will—be bold, think big, and do great things!

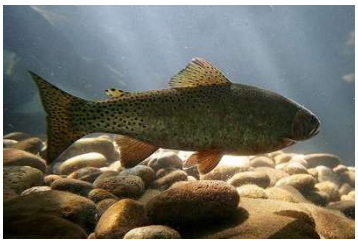
Diana S. Aga, Ph.D.
Henry M. Woodburn Professor of Chemistry
Director of RENEW Institute

News and Updates



Poinar highlighted on NASA NSIDC website

Geologist Kristin Poinar was a featured user on the National Snow and Ice Data Center website.
>> Read the profile.



Why aren't the fish breeding?

Three members of RENEW are part of a research team that will investigate why stocked fish in Lake Ontario have stopped reproducing.
>> See how they hope to rebuild the fishery's sustainability

Nowicki featured in NASA newsletter

Geologist Sophie Nowicki, a member of the NASA Sea Level Change Team, was the subject of a Scientist Interview on the NASA Sea Level Portal.
>> Read the interview

Five UB faculty named SUNY Distinguished Professors

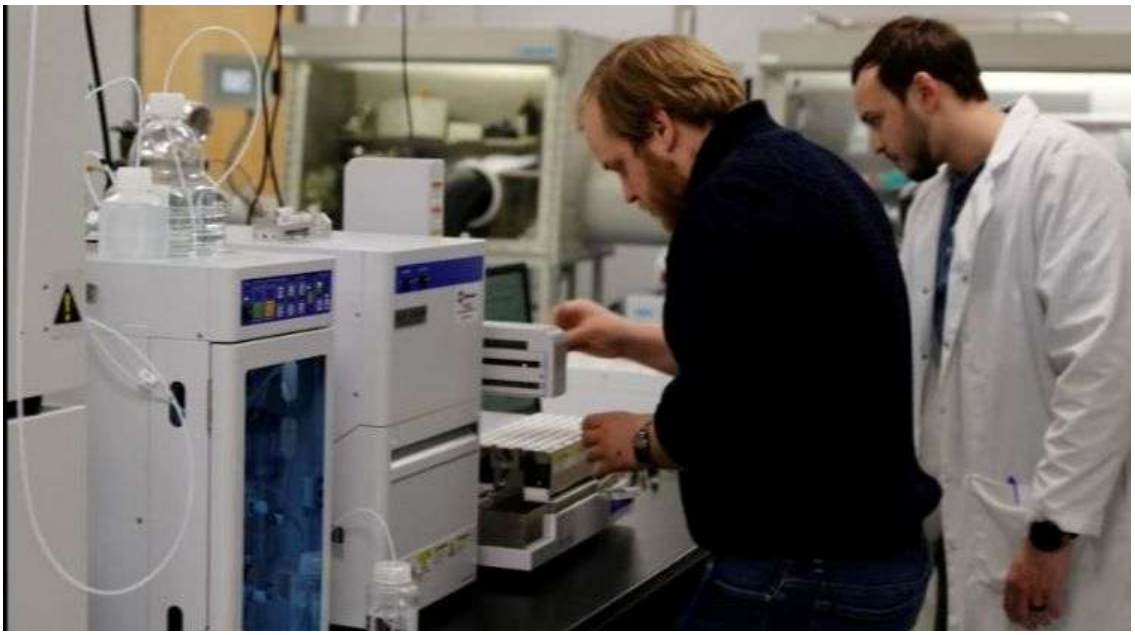
Chemical engineer Mark Swihart was among those appointed to the distinguished professor rank by the SUNY Board of Trustees.
>> Learn more about Swihart and the other recipients

Krabbenhoft wins award

Biologist Trevor Krabbenhoft, whose research focuses on the ecology of fish in a changing climate, has won the American Fisheries Society Genetics Section Early Career Award.

>> Read about Krabbenhoft's award-winning research

Shared Instrumentation Spotlight



The newest addition to RENEW's Shared Laboratory Facilities, a state-of-the-art **Combustion Ion Chromatography system**, eliminates the need for intricate sample processing steps for the analysis of common ions. It utilizes a high-temperature furnace to combust and extract ions directly from samples and separates them using ion chromatography, thus allowing for rapid and sensitive determination of ions such as fluoride, chloride, bromide, nitrites and nitrates, phosphates, and sulfates. This instrument is capable of routine detection down to low part-per-billion (ppb) levels and has broad applicability across research disciplines. Contact Shared Laboratory Director Joshua Wallace with questions or to schedule training.

>> Learn more about all of RENEW's instrumentation

Events and Outreach

Health Equity Dimensions of a Changing Climate: Challenges and Opportunities

A workshop with speakers from federal and local government, academia, and an international energy institute, plus proposal-oriented breakout sessions.
>> Learn more about this free event

Environmental Stewardship Program

RENEW community outreach includes partnership with a green infrastructure, job-readiness training program. Contact Lisa Vahapoglu if you are interested in presenting on a related topic.
>> Learn more about this partnership

Recent Publications

Graduate student from University at Buffalo, and collaborator from Stony Brook University, collect fish and water samples from the Hudson River to investigate the occurrence of chemicals of emerging concern and their endocrine disrupting effects on fish.

- **Diana S. Aga:** "Comprehensive assessment of chemical residues in surface and wastewater using passive sampling, chemical, biological, and fish behavioral assays." *Science of the Total Environment*.
- **Jun Liu, Thomas Thundat and Mark Swihart:** "Palladium Nanosheet-Based Dual Gas Sensors for Sensitive Room-Temperature Hydrogen and Carbon Monoxide Detection." *American Chemical Society Sensors*.

- **Sophie Nowicki:** "Seasonal Tidewater Glacier Terminus Oscillations Bias Multi-Decadal Projections of Ice Mass Change." *Journal of Geophysical Research: Earth Surface*.

- **Thomas Thundat and Mark Swihart:** "Ultrathin Palladium Nanowires for Fast and Hysteresis-Free H_2 Sensing." *American Chemical Society Applied Nano Materials*.

- **Mark Swihart:** "Mechanical characterization and adhesive properties of a dental adhesive modified with a polymer antibiotic conjugate." *Journal of the Mechanical Behavior of Biomedical Materials*.

- **Mark Swihart:** "Review of recent progress in electrospinning-derived freestanding and binder-free electrodes for supercapacitors." *Coordination Chemistry Reviews*.

- **Mark Swihart:** "Progress and potential of electrospinning-derived substrate-free and binder-free lithium-ion battery electrodes." *Chemical Engineering Journal*.

- **Shenqiang Ren and Mark Swihart:** "Flame aerosol synthesis of hollow alumina nanoshells for application in thermal insulation." *Chemical Engineering Journal*.

- **Mark Swihart:** "Surface-rare-earth-rich upconversion nanoparticles induced by heterovalent cation exchange with superior loading capacity." *Journal of Materials Science & Technology*.

- **Mark Swihart:** "On the Fokker–Planck approximation in the kinetic equation of multicomponent classical nucleation theory." *Physics A: Statistical Mechanics and its Applications*.

- **Diana Aga:** "Cellular Interactions and Fatty Acid Transporter CD36-Mediated Uptake of Per- and Polyfluorinated Alkyl Substances (PFAS)." *Chemical Research in Toxicology*.

- **Janet Yang and Michael Shelly:** "Predicting recycling intention in New York state: The impact of cognitive and social factors." *Environmental Development*.

>> Read more publications from RENEW faculty and staff

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As a valued member of the University at Buffalo community, you will receive periodic emails containing important information that support your success at UB.

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