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UNIVERSITY of WASHINGTON



MOLECULAR ENGINEERING & SCIENCES INSTITUTE

FALL 2021



Researchers develop “nanopore-tal” enabling cells to talk to computers

Molecular engineering graduate student Nicolas Cardozo co-authored a [recent paper in *Nature Biotechnology*](#) introducing a new class of reporter proteins that can be directly read by a commercially available nanopore sensing device. The new system can perform multiplexed detection of protein expression levels from bacterial and human cell cultures far beyond the capacity of existing techniques.



UW MoIE welcomes 8th cohort

Learn more about our newest trainees and their current research interests.



MoIE Ph.D. program overview

Check out the recording of our recent information session. Deadline to apply is December 15.



STEM Grad School 101

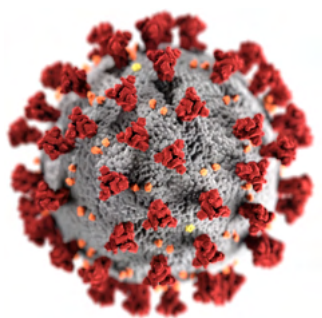
MoIE students talked about all things grad school at this informative event.

RESEARCH HIGHLIGHTS



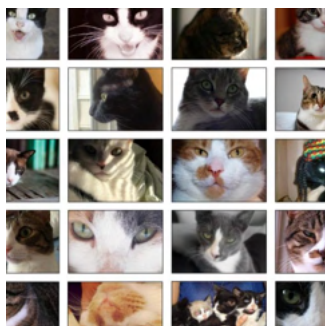
Can you lose weight? Ask your microbiome

A team led by Sean Gibbons at the Institute for Systems Biology found that the strongest associations with weight loss success or failure – independent of BMI – are found in the genetic capacity of the gut microbiome, opening the door to diagnostic tests that can identify people likely to lose weight with healthy lifestyle changes versus those who might need more drastic interventions.



Discovery and characterization of DNA aptamers for rapid SARS-CoV-2 detection

Bioengineering Professor Suzie Pun, in collaboration with Biochemistry Professor David Veessler, discovered a DNA aptamer that selectively binds to the SARS-CoV-2 spike protein and can be used to detect SARS-CoV-2 in rapid diagnostic tests.



[Computing goes molecular with DNA-based similarity search](#)

Researchers from Microsoft and the UW's [Molecular Information Systems Lab](#) teamed up to develop a new technique to perform content-based similarity search among digital image files stored in DNA molecules.

RECENT PUBLICATIONS

[Scalable control of developmental timetables by epigenetic switching networks](#)

[Advances in Hydrogen/Deuterium Exchange Mass Spectrometry and the Pursuit of Challenging Biological Systems](#)

[Predicting a Key Catalyst-Performance Descriptor for Supported Metal Nanoparticles: Metal Chemical Potential](#)

[Developments and Ongoing Challenges for Analysis of Surface-Bound Proteins](#)

[Probing interactions of therapeutic antibodies with serum via second virial coefficient measurements](#)

[Modeling Current Density Non-Uniformities to Understand High-Rate Limitations in 3D Interdigitated Lithium-ion Batteries](#)

[Magneto-Endosomal Therapy for Cancer](#)

[Pooling in a Pod: A Strategy for COVID-19 Testing to Facilitate a Safe Return to School](#)

[A Continuously Benchmarked and Crowdsourced Challenge for Rapid Development and Evaluation of Models to Predict COVID-19 Diagnosis and Hospitalization](#)

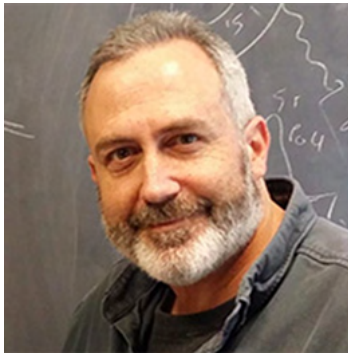
[Surfactants influence polymeric nanoparticle fate in the brain](#)

CONGRATULATIONS



[Kelly Stevens named to National Academies New Voices cohort](#)

Stevens is one of 22 leaders nationwide selected to participate in an initiative to engage diverse perspectives on the convening and advisory functions of the National Academies.



[UW physics professor receives grant to study nuclear waste](#)

Professor Gerald Seidler received an \$800,000 grant from the U.S. Department of Energy to create concrete waste caskets to dispose of nuclear fuel byproducts.



[MAF senior scientist recognized for contributions to surface science community](#)

Dan Graham received the 2021 AVS Applied Surface Science Division Peter M. A. Sherwood Mid-Career Professional Award for innovation and leadership in the application of ToF-SIMS to organic and biological materials and for the development of widely used multivariate analysis tools.

FALL SEMINAR SERIES

[Tuesdays 1:00 - 2:00 PM in Nano Engineering and Sciences \(NAN 181\)](#)

10/26 - Allie Obermeyer, Chemical Engineering, *Columbia University*

11/02 - Jose Avalos, Chemical and Biological Engineering, *Princeton University*

11/16 - Oliver Brand, Institute for Electronics and Nanotechnology, *Georgia Tech*

11/30 - Jonathan Barnes, Chemistry, *Washington University in St. Louis*

12/07 - Jerome Fox, Chemical and Biological Engineering, *University of Colorado at Boulder*



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