



UNIVERSITY of WASHINGTON



MOLECULAR ENGINEERING & SCIENCES INSTITUTE

FALL 2022

## INSTITUTE NEWS

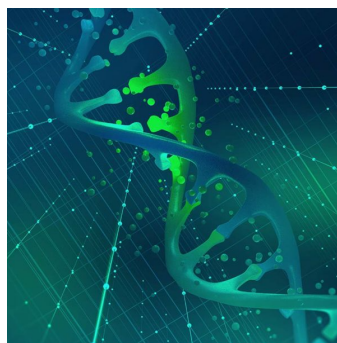


### **Renowned UW bioengineer Suzie Pun named next MoES Institute Director**

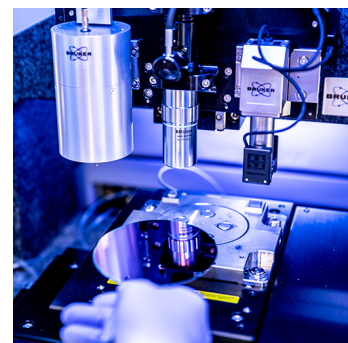
Pun brings a depth of academic leadership and industry experience and a vision for the future of MoES that will serve the Institute and the UW well.



**UW MoIE welcomes largest cohort**



**Engineering biology to help people the planet**



**MAF expands tool search capability**

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

Established in 2013, the UW Center for Synthetic Biology recently launched a new website to support this growing community.

Check out the tools available at the Molecular Analysis Facility to support your research needs.

## RESEARCH HIGHLIGHTS



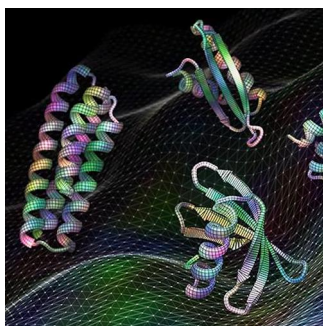
### [Repurposing carbon emissions could power the circular economy](#)

What if CO<sub>2</sub> from emissions could be turned into valuable chemicals? Researchers, including chemical engineering professor [James Carothers](#), are figuring out how to make this a reality.



### [DNA typewriter taps out a record inside cells](#)

The most powerful application of this novel tool, developed by scientists – including MoIE alum [Will Chen](#) – in the lab of genome sciences professor [Jay Shendure](#), may lie in documenting the biological events that unfold within the boundaries of normal and diseased cells.



### [Biologists train AI to generate medicines and vaccines](#)

Machine learning, used to design proteins with variable functions, is also doing things scientists didn't realize it was capable of. MoIE student [Dave Jurgens](#) contributed to this recent publication from the [Institute for Protein Design](#).



### [Meet the Researcher: Ayokunle Olanrewaju](#)

[Olanrewaju's](#) research applies 3D microfabrication, autonomous microfluidics and molecular assays to address medical challenges in treating infectious and chronic diseases, such as HIV, tuberculosis and cancer.

## RECENT PUBLICATIONS

[Anisotropic Thermally Conductive Composites Enabled by Acoustophoresis and Stereolithography](#)

*Advanced Functional Materials*

[Accurate de novo design of membrane-traversing macrocycles](#)

*Cell*

[Recombinant FimH Adhesin Demonstrates How the Allosteric Catch Bond Mechanism Can Support Fast and Strong Bacterial Attachment in the Absence of Shear](#)

*Journal of Molecular Biology*

[Yeast cells actively tune their membranes to phase separate at temperatures that scale with growth temperatures](#)

*PNAS*

[Fully Additive Electrohydrodynamic Inkjet-Printed TiO<sub>2</sub> Mid-Infrared Meta-Optics](#)

*Advanced Materials Interfaces*

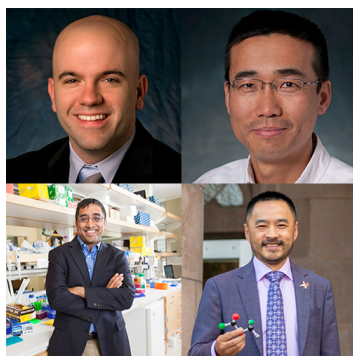
[Organic Electro-Optics and Optical Rectification: From Mesoscale to Nanoscale Hybrid Devices and Chip-Scale Integration of Electronics and Photonics](#)

*Industrial & Engineering Chemistry Research*

[Scaffolding protein functional sites using deep learning](#)

*Science*

## CONGRATULATIONS



**MoES faculty elected to Washington State Academy of Sciences**

[Xiaosong Li](#), [Jim Pfaendtner](#), [Jihui Yang](#) and [Jay Shendure](#)



**Seattle-based Alzheimer's biotech AltPep raised \$44.4M**

The funding will allow the spinout from [Valerie](#)



**UW biosensor researcher wins prestigious innovation honor**

were recognized for their outstanding record of scientific achievement, and their willingness to work on behalf of the Academy to bring the best available science to bear on issues within Washington State.

[Daggett's lab](#) to build upon their promising preliminary data demonstrating detection of Alzheimer's disease at its earliest stages and further their preclinical therapeutic program.

[Andre Berndt](#), a UW professor of bioengineering, received the McKnight award to support the development of a system to screen tens of thousands of optogenetic biosensors, fundamentally changing the way neuroscience research is conducted.

## FALL SEMINAR SERIES

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

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10/04 | Chenxu Yu, Agricultural and Biosystems Engineering, *Iowa State University*

10/11 | Julia Dshemuchadse, Materials Science and Engineering, *Cornell University*

10/18 | Ayokunle Olanrewaju, Mechanical Engineering, *University of Washington*

11/01 | Stuart Rowen, Molecular Engineering, *University of Chicago*

11/08 | David Dickensheets, Electrical & Computer Engineering, *University of Montana*

11/15 | Neha Kamat, Bioengineering, *Northwestern University*



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