

## **University of Texas Researcher Recognized for Pioneering Work Utilizing Nanotechnology**

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Guihua Yu, Ph.D., Associate Professor of Materials Science and Mechanical Engineering in the Cockrell School of Engineering at The University of Texas at Austin, is the recipient of the 2021 Edith and Peter O'Donnell Award in Engineering from TAMEST (The Academy of Medicine, Engineering and Science of Texas). He was chosen for his revolutionary use of nanotechnology and conductive polymer-hydrogels to provide solutions to two of society's biggest challenges: water sustainability and energy storage.

Dr. Yu's approach of looking at organic nanomaterials and understanding structures down to their smallest scale has led to the creation of new multifunctional polymeric nanostructures and hybrid organic-inorganic nanomaterials with unique physical properties that improve efficiency and function.

Breakthrough applications of his work range from a new type of soil that can pull water from the air and distribute it to plants using super-moisture-absorbent gels to decoding new storage mechanisms of metal compounds with up to three times the grid-scale energy storage capability compared to materials common in commercial lithium-ion batteries.

"In eight years at [UT Austin](#), Dr. Yu has become one of the top one percent most cited materials scientists globally," said Keith P. Johnston, Ph.D. (NAE), Claire and Peter Buenz Endowed Chair in Chemical Engineering at The University of Texas at Austin. "His ability to take advances in the structures of materials to give higher performance is helping us to see a greener energy future where smaller devices and earth-abundant materials could greatly improve batteries, and solar technology can produce water out of thin air to bring farming capabilities to areas not previously possible."

Dr. Yu is one of four Texas-based scientists receiving the TAMEST 2021 Edith and Peter O'Donnell Awards for their individual contributions addressing the essential role that science and technology play in society, and whose work meets the highest standards of exemplary

professional performance, creativity and resourcefulness.

“Dr. Yu’s innovative research has harnessed the power of engineering at its smallest scale to solve some of the world’s largest problems,” said David E. Daniel, Ph.D. (NAE), 2021 TAMEST Board President. “We are honored to recognize Dr. Yu’s significant contributions to his field with the 2021 O’Donnell Award in Engineering. We look forward to see what world-changing solutions he will develop next.”

Read the [original article](#) on Scienmag.