MOMENTUM

Research Milestones in Mechanical Engineering

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Mechanical Engineering

Mechanical Engineering Online Master's Program

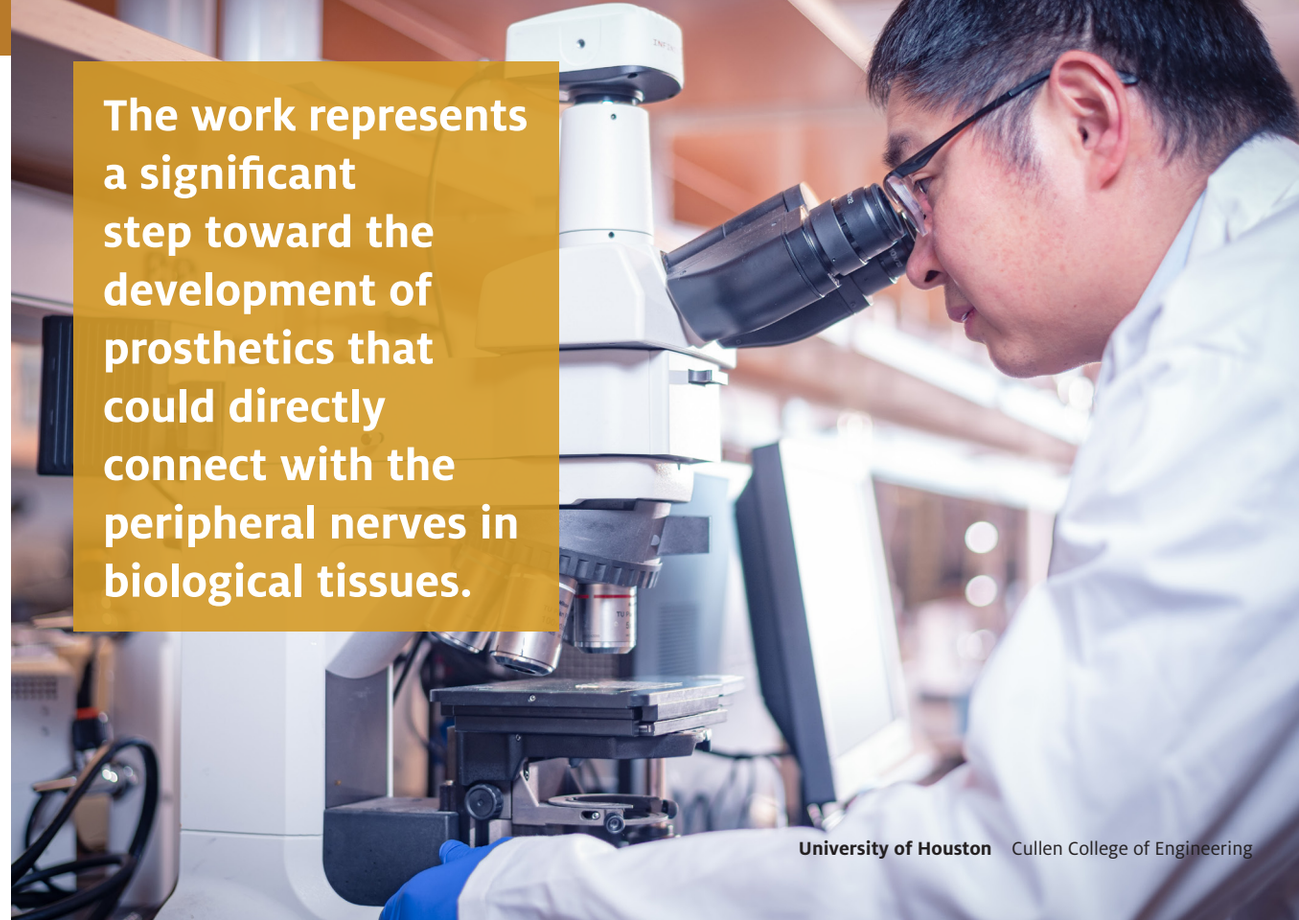
RANKED AMONG BEST IN THE NATION

Intelligent.com, a student-focused website, included UH's online mechanical engineering program in its 2019/2020 national rankings list of best public institution programs. The online master's program in mechanical engineering ranked No. 16. The rankings are calculated using a unique scoring system, which includes student engagement, potential return on investment and third-party evaluations. Intelligent.com analyzed hundreds of schools with comparable programs on a scale of 0 to 100. The methodology uses an algorithm that collects and analyzes multiple rankings into one score to easily compare different programs, according to Intelligent.com.

Researchers Build A

SOFT ROBOT WITH NEUROLOGIC CAPABILITIES

In work that combines a deep understanding of the biology of soft-bodied animals such as earthworms with advances in materials and electronic technologies, researchers from the United States and China have developed a robotic device containing a stretchable transistor that allows neurological function. **Cunjiang Yu**, Bill D. Cook Associate Professor of mechanical engineering at the UH Cullen College of Engineering, said the work represents a significant step toward the development of prosthetics that could directly connect with the peripheral nerves in biological tissues, offering neurological function to artificial limbs, as well as toward advances in soft neurorobots capable of thinking and making judgments. Yu is corresponding author for a paper describing the work, published in Science Advances.

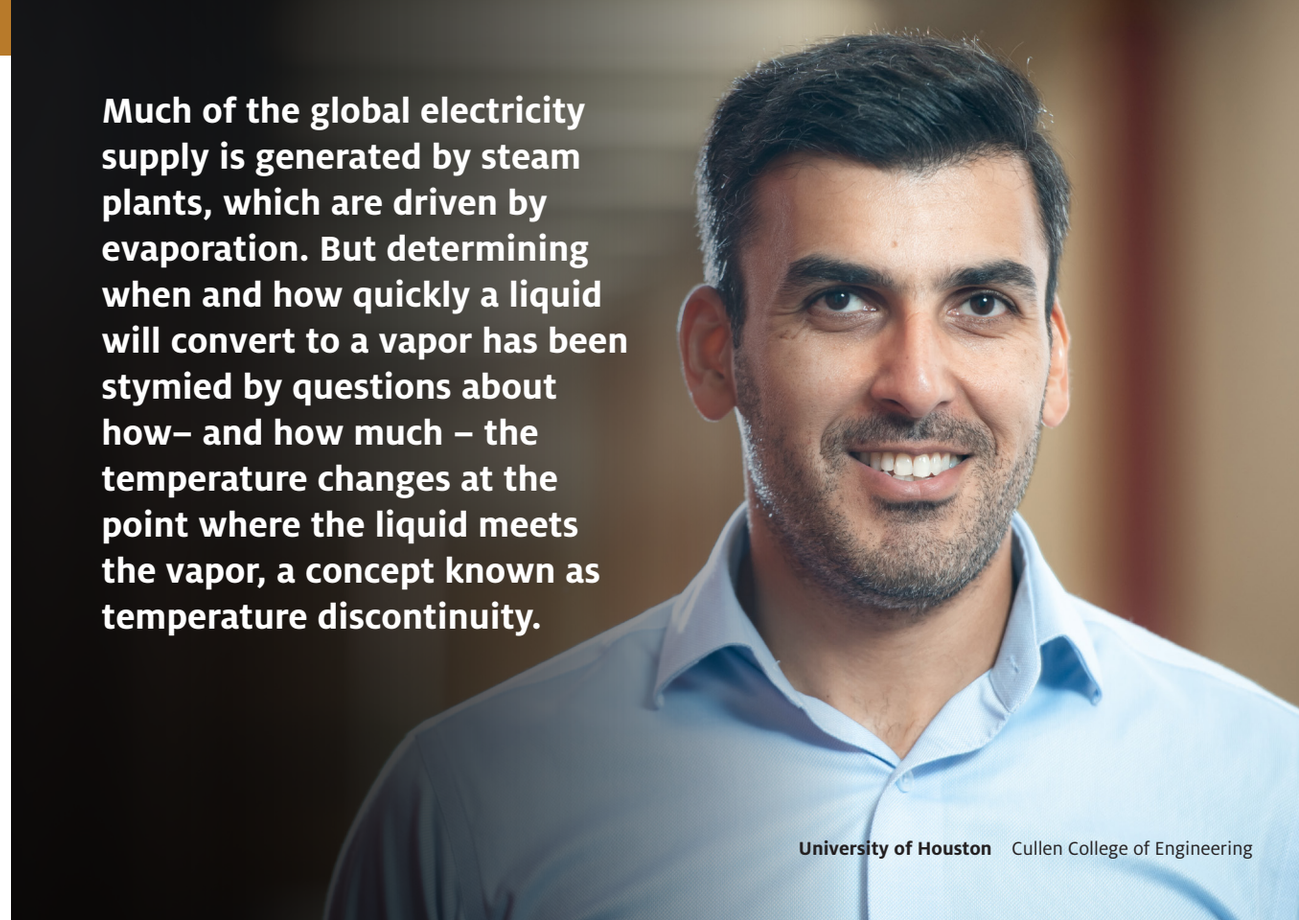


University of Houston Cullen College of Engineering

UH Researchers Solve A

SCIENTIFIC MYSTERY ABOUT EVAPORATION

Evaporation can explain why water levels drop in a full swimming pool, but it also plays an important role in industrial processes ranging from cooling electronics to power generation. Much of the global electricity supply is generated by steam plants, which are driven by evaporation. But determining when and how quickly a liquid will convert to a vapor has been stymied by questions about how – and how much – the temperature changes at the point where the liquid meets the vapor, a concept known as temperature discontinuity. Those questions have made it more difficult to create more efficient processes using evaporation, but now researchers from the University of Houston have reported answers to what happens at that interface, addressing 20 years of conflicting findings. The work was reported in the Journal of Physical Chemistry. **Hadi Ghasemi**, Cullen College Associate Professor of Mechanical Engineering at UH, said the new understanding eliminates the "bottleneck" that has complicated predictions and simulations of processes involving evaporation.



Haleh Ardebili developing

ADVANCED MULTI-FUNCTIONAL MATERIALS

Haleh Adebili, Bill D. Cook Associate Professor of Mechanical Engineering, received a $1.8 million sponsored research award from the George J. Kostas Research Institute for Homeland Security to develop advanced multi-functional materials. The goal of this research program is (I) to develop flexible multi-functional electronics including batteries, wind-harvesting modules (i.e. piezoelectric and nanotribology) and thin-film capacitors and super-capacitors for energy storage and fast discharge and to understand governing physics of these devices (II) to develop resilient anti-bacterial coatings and radiative cooling coatings and elucidate associated underlying physics and (III) to develop camouflage canvas and fabrics in entire electromagnetic spectrum with focus on IR.

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