UNH News Release: UNH Professor Receives $750,000 in Prestigious Dept. of Energy Award

UNIVERSITY of NEW HAMPSHIRE

Media Relations

May 15, 2013
UNH Professor Receives $750,000 in Prestigious Dept. of Energy Award
image
Xiaowei Teng, assistant professor of chemical engineering at the University of New Hampshire, has received a $750,000 Early Career Research Award from the U.S. Department of Energy. Credit: Lisa Nugent, UNH Photographic Services

DURHAM, N.H. – Xiaowei Teng, assistant professor of chemical engineering at the University of New Hampshire, has received an Early Career Research Award from the U.S. Department of Energy to pursue research that will improve the ability to store energy in supercapacitors. The award, of $750,000 over five years, is one of just 61 that went to researchers from universities and national laboratories; it was chosen from about 770 proposals.

Teng's work aims to fill a void in the energy storage field, particularly related to electric vehicles. Electric vehicles currently use lithium-ion batteries to store the energy needed to run them; the long charging time of these batteries has proved to be a major barrier in the development of electric vehicle technology.

"If you pump gas into an 18-gallon car, it only takes less than five minutes. People are not going to wait two hours for their batteries to charge," says Teng, describing what's called the charge-transfer rate.

Supercapacitors, which charge within minutes or even seconds, hold promise as an alternative – or augmentation – to ion batteries in electric vehicles. Teng will investigate the storage mechanisms of transition metal oxides (TMOs), compounds with electronic and conductive properties, in supercapacitors. TMOs are appealing due to their very low cost, he says. In addition, because supercapacitors can look just like ion batteries, they use the same "infrastructure," from battery cases to installation in vehicles, also driving down costs.

With the award, which will support at least one Ph.D. student and five undergraduates, Teng will aim to understand the properties of TMOs at nanoscale. "We're going to use techniques to see how charge can be transferred and stored in these TMOs," he says. "And we're going to develop a new type of TMOs that can hold more energy and are very stable, chemically."

While the implications of this research could be far-reaching, Teng notes that it is more fundamental than immediately practical in nature. Fittingly, this award, which will also help purchase supplies and equipment for his lab and fund

travel to use the specialized facilities at Brookhaven National Laboratory in New York and Oak Ridge National Laboratory in Tennessee, came from the basic energy science branch of the Department of Energy.

“I’m not building cars, and you won’t be able to buy this at Best Buy soon,” Teng says. “But this outcome can make a very significant transformative impact on the electric car industry.”

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,300 graduate students.

Photograph available to download: http://unh.edu/news/releases/2012/sept/Teng.jpg
Caption: Xiaowei Teng, assistant professor of chemical engineering at the University of New Hampshire, has received a $750,000 Early Career Research Award from the U.S. Department of Energy.
Credit: Lisa Nugent, UNH Photographic Services

Media Contact: Beth Potier | 603-862-1566 | UNH Media Relations | @unhnews
Read UNH Today

UNH Photo Gallery

Get Connected

Find us on Facebook Follow UNH Today on Twitter UNH on Google Plus UNH on Foursquare
UNH YouTube Channel UNH Alumni Association on LinkedIn

- Home
- Expert List
- Resources
- Image Gallery
- Getting the Word Out
- Press Tips
- About UNH
- Contact Media Relations

Copyright © 2018, The University of New Hampshire • Durham, NH 03824 • UNH main directory: (603) 862-1234.
Media Relations is a unit of Communications & Public Affairs which is a division of University Advancement.
ADA Acknowledgement | Contact the Webmaster | UNH Today | UNH Social Media Index