

Utah State University

DigitalCommons@USU

---

College of Engineering News

Colleges

---

6-16-2016

## USU Engineering Faculty Receive \$5.8M in Nuclear Energy Research Grants | College of Engineering

USU College of Engineering

Follow this and additional works at: [https://digitalcommons.usu.edu/engineering\\_news](https://digitalcommons.usu.edu/engineering_news)

 Part of the [Engineering Commons](#)

---

### Recommended Citation

USU College of Engineering, "USU Engineering Faculty Receive \$5.8M in Nuclear Energy Research Grants | College of Engineering" (2016). *College of Engineering News*. 96.

[https://digitalcommons.usu.edu/engineering\\_news/96](https://digitalcommons.usu.edu/engineering_news/96)

This Book is brought to you for free and open access by the Colleges at DigitalCommons@USU. It has been accepted for inclusion in College of Engineering News by an authorized administrator of DigitalCommons@USU. For more information, please contact [digitalcommons@usu.edu](mailto:digitalcommons@usu.edu).



# USU Engineering Faculty Receive \$5.8M in Nuclear Energy Research Grants | College of Engineering

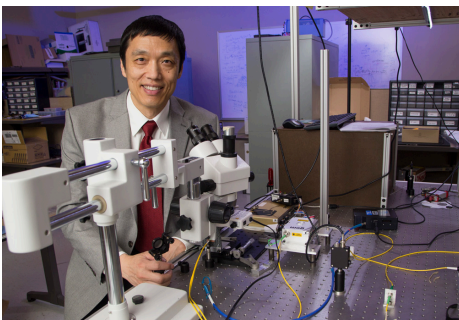
06/16/2016

**NEWS RELEASE** – June 16, 2016 – Two professors of mechanical engineering at Utah State University will receive grants from the U.S. Department of Energy totaling \$5.8 million for nuclear energy research. The news came in a Tuesday [announcement](#) from DOE officials who awarded more than \$35 million to 48 university-led nuclear research and development projects around the country through the Nuclear Energy University Program, or [NEUP](#).

## Quick Read

- Two USU College of Engineering professors of mechanical and aerospace engineering will receive major grants from the DOE's Nuclear Energy University Program. (NEUP)
- Professor **Heng Ban** will receive a \$5M grant to oversee research into accident-tolerant nuclear fuels – an increasingly relevant topic since the 2011 Fukushima Daiichi nuclear disaster and the development of light water reactors.
- Professor **Barton Smith** will receive an \$800,000 grant to improve computer models that predict how reactor cooling systems function in an accident scenario.

Heng Ban, a professor of mechanical and aerospace engineering, will receive a [\\$5 million grant](#) to study nuclear fuel safety and performance.



*Professor of Mechanical and Aerospace Engineering Dr. Heng Ban will receive a \$5 million grant to oversee research into accident-tolerant nuclear fuels – an increasingly relevant topic since the 2011 Fukushima Daiichi nuclear disaster.*

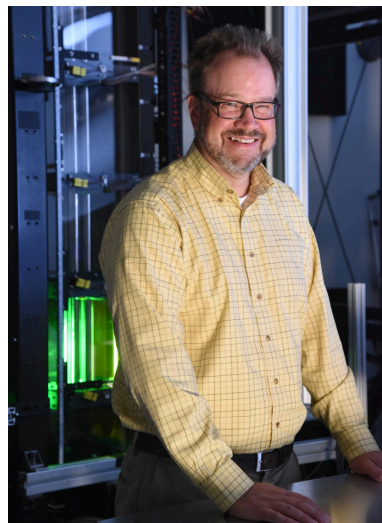
Ban and an international team of collaborators including universities, industry, national labs and government regulatory agencies will conduct a series of experiments on newly designed nuclear fuel materials that are safer and more tolerant to conditions similar to those that led to the Fukushima Daiichi nuclear disaster in 2011.

Ban says the research will advance our understanding of fuel behavior and performance in accident conditions and provide experimental and computational tools for DOE's Accident Tolerant Fuels program. The research will focus on several key technical areas that are critical to the safety of nuclear power generation.

His collaborators include USU College of Engineering Assistant Professors Ling Liu and Ryan Berke who will investigate how the extreme temperatures common to nuclear reactors affect the cladding material that encases nuclear fuel pellets.

Ban says the findings could also lead to significant progress toward benchmarks for model validation – a much-needed resource worldwide – using combined computational and experimental research.

Many of the experimental phases of the research will take place at Idaho National Laboratory's Transient Reactor Test Facility, or TREAT. This complex west of Idaho Falls, was originally designed to test reactor fuels and structural materials and will be used in the coming years to test accident-tolerant fuels and supporting structures.



*Professor of Mechanical and Aerospace Engineering Dr. Barton Smith will receive an \$800,000 grant to improve computer models that predict how reactor cooling systems operate in an accident scenario.*

USU Professor Barton Smith will receive \$800,000 to provide experimental flow data for assessing the accuracy of computer models. The experiments will be for natural convection flow through parallel channels and mimic flow through a nuclear reactor during accident scenarios. The findings will ultimately help improve computer models that predict how reactor cooling systems function in an accident scenario.

Smith will collaborate with Mark Kimber, an assistant professor of nuclear engineering at Texas A&M University.

In addition to DOE's NEUP grants, the agency awarded millions in additional funding to help promote innovative nuclear technologies.

"Nuclear power is our nation's largest source of low-carbon electricity and is a vital component in our efforts to both provide affordable and reliable electricity and to combat climate change," said Energy Secretary Ernest Moniz in a prepared DOE statement. "These awards will help scientists and engineers as they continue to innovate with advanced nuclear technologies."

###

**Researcher Contacts:**

Heng Ban 435-797-2098, [heng.ban@usu.edu](mailto:heng.ban@usu.edu)

Barton Smith 435-797-3278, [barton.smith@usu.edu](mailto:barton.smith@usu.edu)

**Media Contact:**

Matt Jensen – USU College of Engineering |  
[matthew.jensen@usu.edu](mailto:matthew.jensen@usu.edu) | office: 435-797-8170 |  
cell: 801-362-0830 | @EngineeringUSU |  
[engineering.usu.edu](http://engineering.usu.edu)

Cover Image Credit: Rama