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January 27, 2012

Two ME faculty receive NSF CAREER awards

ME Assistant Professors

Baskar

Ganapathysubramaniam and **Song Zhang** have each received a National Science Foundation CAREER award. The NSF CAREER award is to support junior faculty who exemplify the role of teacher-

scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. Baskar's project title is "A Predictive Modeling Framework for Exploring Process-structure-property Relationships in Organic Solar Cells." Song's project title is "Dense superfast 3D sensing of extremely rapidly changing mechanical and biological scenes." The funding for each award is \$400,000. Congratulations to Baskar and Song on this prestigious honor!

baskar



zhang



Recent grant award announcements

PI: Ted Heindel

Title: "Mixing Quantification in Screw Pyrolyzers"

Award Amount: \$111,094

Awarding Agency: ConocoPhillips

The goal of this project is to utilize the unique X-ray flow visualization capabilities available at ISU to visualize and characterize the mixing conditions in a model double screw cold flow pyrolyzer. Two-dimensional X-ray radiographic images of the mixing process will be acquired to provide videos of the double screw mixing process and provide qualitative mixing assessment. Three-dimensional X-ray computed tomography imaging will be used to capture local density variations to quantitatively assess mixing and identify those parameters that have the largest impact on mixing effectiveness.

heindel



PI: Robert Brown

Title: "ConocoPhillips Biofuels Research Program: Investigating Thermal Depolymerization"

Award Amount: \$1,225,717

Awarding Agency: ConocoPhillips

This project is part of the ConocoPhillips Biofuels Research Program, which extends over 8 years with total funding of \$22.5 million. There are several projects awarded among many faculty, and Dr. Brown's part of the award focuses on fast pyrolysis for the production of biofuels.

brown



PI: Timothy Bigelow

Title: "High-Frequency Ultrasound Extraction of Lipids from Microalgae"

Award Amount: \$148,663

Awarding Agency: ConocoPhillips

This project aims to challenge the existing notions of using sound to extract lipids from microalgae for the production of biofuels by using high-frequency ultrasound to lyse the cells instead of a traditional sonicator. In order for biofuels to replace

bigelow



hashemi



William March Scholar Nastaran Hashemi works in the lab with Benjamin Allen, senior in mechanical engineering.

Pursuing New Ideas

Being the William March Scholar in Mechanical Engineering at Iowa State University is much more than just a prestigious title.

Nastaran Hashemi was named the latest March Scholar this past fall, and she has hit the ground running with the funding that the award provides her. ([Full story](#))

Check out what's new with Team PrISUm

The student solar car team has published a newsletter with updates on new designs, plans for the upcoming year's competition, and an update on fundraising. Check out the [latest edition](#) of the newsletter. **Emmanuel Agba** is the advisor for Team PrISUm.

sundial



College of Engineering app for iPhone is available

[Download the official ISU CoE app for your iPhone today!](#) The app includes news, videos, campus maps, laundry info, and computer lab searching, and is the only officially sanctioned CyRide app available. The College of Engineering also has an app for [Innovate](#) available for the [iPad](#) and [iPhone](#).

Android versions of these apps will be available soon.

iphone



Upcoming Events

January 31, February 7 and 14 – [Teaching and Learning Circle: From Simple to Sophisticated: Assessment Techniques for the College Classroom](#)

February 6 – [Building the Golden Gate Bridge](#)

February 6 – Women in Mechanical Engineering: Trane Outreach Training, 4:30 pm, 2004 Black

February 7 – [2012 Spring Engineering Career Fair](#)

February 7 – [Café Scientifique - Particles Collide and Wreckage](#)

traditional fossil fuels, the production costs need to be reduced. High-frequency ultrasound should reduce the energy demands of the extraction process. To further reduce the cost, the researchers will also integrate the system with a microfluidic system to concentrate the algae. The microfluidic system when combined with our ultrasound extraction system should allow us to process microalgae at low concentrations such as those obtained directly from ponds or other growth systems.

[Flies](#)

February 9 – [Using Citation Management Software: Endnote/Endnote Web](#)

February 29 – Women in Mechanical Engineering: Bowling, Time TBD, Memorial Union Underground

Department of Mechanical Engineering
2025 Black Engineering Building, Ames, IA 50011
515 294-1423, isume@iastate.edu

Do you have department news you'd like to share?
Please e-mail news items for InCYde Mechanical Engineering to [Alex Rausch](#).