

November 30, 2012

## Fehrman speaks to ME 433

**William Fehrman**, President and CEO of MidAmerican Energy Company, spoke to ME 433 (Alternative Energy Conversion) students on Friday, November 9.



Fehrman

Fehrman's talk was titled "Challenges Facing Energy in Iowa". He spoke about MidAmerican Energy's efforts in the field of sustainable energy. In 2000, MidAmerican Energy had no wind power capabilities. Eleven years later, wind energy contributed to 31% of their generating capacity. They have 13 wind energy projects throughout the state, generating 2,284.8 megawatts a year. Through wind energy efforts like MidAmerican Energy's, Iowa has become the second largest generator of wind power, behind only the state of Texas.

Wind energy has the greatest potential in Iowa, but nuclear power, biomass, and solar could also play a part in Iowa's future. Fehrman posited that nuclear energy was a better option for Iowa than natural gas. For one, natural gas generation has exposure to fuel price escalation, something nuclear generation does not. Nuclear generation also requires higher Iowa investment and employment than natural gas.

The state of Iowa is in a position to take advantage of the renewable resource of biomass. It is expected that a combination of local corn stover, switchgrass and forage sorghum could supply biomass needs. Crops can provide high yields of biomass per acre using Conservation Reserve Program land, with farming practices that are environmentally friendly, require minimal fertilizer and water, and limit erosion. It is clearly evident that biomass production will play a large part in Iowa's energy production future.

Fehrman also spoke about solar energy, but argued it wasn't the best option for Iowa due to the relatively low solar insolation in the Midwest region. Wind energy is cheaper and more effective than solar in the state, making it the clear option for alternative energy production.

The lecture was extremely valuable and cogent for the 90 undergraduate students in ME 433. Not only did it focus on alternative energy production, but had a local and regional application.

"Many of the students come from Iowa," said **Mark Bryden**, associate professor of mechanical engineering and instructor of ME 433. "They want to know how to find a job in Iowa in the energy field. Our students want to make a difference. Energy has a very large reach and arm."

Bryden acknowledged the large part MidAmerican Energy plays in Iowa's energy industry and economy, and commended Fehrman for his close work with Iowa State University. Multiple students in his ME 433 class have held internships with MidAmerican Energy.

## ASMEnews features ME alum Nathan Johnson

Dr. Nathan Johnson is a National Science Foundation/American

Be sure to check out the

# DESIGN EXPO

**December 4, 2012**  
12-4pm Howe Hall Atrium

## ASME 2012 International Mechanical Engineering Congress & Exposition

November 9-15 in Houston, TX



Art Bergles and his wife Penny visit with ME Department Chair Caroline Hayes at the conference. Bergles is a member of the awards committee for this year's conference, and was the chair of the Mechanical Engineering Department from 1972 to 1983.

ME alum Subra Suresh received the Timoshenko Medal in recognition of his distinguished contributions to the field of applied mechanics. The award was presented at the ASME Honors Assembly, which showcases the work and contributions of some of today's leading engineers, educators, entrepreneurs and innovators. Suresh received his M.S. from Iowa State in mechanical engineering in 1979, and was awarded the ISU Alumni Association's Distinguished Alumni Award in 2011.



Suresh

## Ganesh Balasubramanian joins ME faculty

**Ganesh Balasubramanian** is looking forward to immense opportunities in teaching and nanotechnology research as he begins his new faculty position in the mechanical engineering department (ME) at Iowa State.

"Working in higher education offers freedom to

Society for Engineering Education Postdoctoral Research Diversity Fellow at HOMER Energy LLC, in Boulder, CO. He has seven years of experience working in corporate, academic, and nongovernmental organizations, including two years of research and development in eight developing countries. Johnson has a Ph.D. in mechanical engineering from Iowa State University, where he had previously earned bachelor's and master's degrees in mechanical engineering, and a master's degree in international development. He has been an ASME member since 2002. Johnson is also active with Engineering for Change (E4C), which includes ASME as one of its founding organizations. ([Read Dr. Johnson's interview with ASME](#))

## Recent grant award announcements

### PI: Cris Schwartz

**Title:** "CAREER: Using Haptically Augmented Tactile Communication Methods to Foster the Inclusion of the Visually Impaired in STEM Professions"

**Award Amount:** \$400,000

**Awarding Agency:** United States National Science Foundation (NSF)



Schwartz

This work will investigate how different tactile cues (texture, temperature, friction, etc.) can be incorporated into existing Braille codes and other tactile communication systems in order to increase the information density of transcribed material. The ability to increase information density will allow for more data-rich content (data plots, scientific diagrams, charts) to be available for blind students in their educational materials. The goal of the study is to identify fundamental approaches to allow talented blind students to actively learn and participate in STEM fields.

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pursue one's interests," he says. "Just like athletes earn their livelihood by playing sports they excel in, academics build their careers by teaching and researching. In both cases, unless you enjoy the work, you can never succeed"



Balasubramanian

This fall, he started at Iowa State as an assistant professor. His immediate focus will be establishing a research program centered on the influence of separate dimensions on mechanical properties of materials, and how to employ them for energy related applications that range from nano to macro scales. Understanding the materials' behavior at the nanoscale will allow researchers to design new materials for targeted applications, improve properties of existing devices, and control different behaviors by manipulating systems at the molecular level. ([Full story](#))

## Three finalists named in engineering dean search

Three finalists have been named in the search for Iowa State University's next dean of the College of Engineering. The finalists are: **Robert Bishop**, dean of the college of engineering at Marquette University, Milwaukee, Wis.; **Mark Law**, associate dean of engineering for academic affairs at the University of Florida, Gainesville; and **Sarah Rajala**, dean of the college of engineering at Mississippi State University, Starkville. All will be participating in open forums on campus Nov. 26 – Dec. 3. ([Full story](#)).

## Upcoming events

**December 3** – [Open Forum with Sarah Rajala, Dean Candidate Finalist](#)

**December 4** – [ME Design Expo](#)

**December 15** – [Mechanical Engineering Undergraduate Pre-Commencement Reception](#)

**December 15** – [Fall 2012 University Commencement Ceremony](#)

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