

March 27, 2012

## Wang discovers spider silk conducts heat as well as metals

**Xinwei Wang**, associate professor of mechanical engineering, is leading a study that found spider silk is very good at transferring heat. Spider silk, in fact, conducts heat as well or better than most metals. The findings were recently published in the journal *Advanced Materials*. Now that Wang knows a lot about spiders and their webs, one colleague calls him Iowa State's Spiderman.

([Full story](#))

Most recently, Dr. Wang's work was featured on Discovery Canada's show, "Daily Planet". A look at his work begins at 1:50 of [the clip](#).



Wang



Vice president Joe Biden speaks in Howe Hall. Photo credit: *Huiling Wu/Iowa State Daily*

## Biden visits Iowa State, emphasizes manufacturing and innovation

During his visit to Iowa State's campus on March 1, **Vice President Joe Biden** highlighted the role engineering will play in the country's future economic growth, which relies on keeping jobs and innovation in the United States. ([Full story](#))

## President Obama highlights Energy Department efficiency training centers

**President Barack Obama** recently touted the Energy Department's cost-cutting Industrial Assessment Program during a visit to the University of Miami. Through Industrial Assessment Centers at universities throughout the United States, engineering students receive practical training in industrial processes, energy assessment procedures, and energy management principles, and gain real-world experience by working directly with small and medium-sized industrial and manufacturing facilities in their communities.

The Industrial Assessment Center (IAC) at Iowa State University (ISU) provides free energy use, productivity enhancement, and waste reduction assessments to qualifying manufacturers. The IAC program at ISU is one of 26 IACs located nationwide and is funded by the U. S. Department of Energy. ([Iowa State Industrial Assessment Center](#))



Mechanical engineering senior Chris Radke stands next to NASA's Project Morpheus launcher.

## Radke designs rocket engines for NASA

**Chris Radke**, a concurrent MS/BS student in mechanical engineering, is helping NASA in its quest to send robots to the moon. After landing an internship at the College of Engineering career fair, he has successfully designed and tested six rocket engines. Radke is part of Project Morpheus, a concept to use vertical launch systems to send robonauts to the moon. The propulsion system is fueled by methane and liquid oxygen. Methane is a waste gas of the International Space Station and could also conceivably be harvested from ice in lunar craters. Radke also had the opportunity to brief the White House staff on this project. This fall, Radke will join NASA full time.

Project Morpheus was recently featured on Popular Science's website. ([Read the article and watch the test launch video](#))

## ME sophomore gains early experience in research opportunities

**Alex Avendano**, a sophomore in mechanical engineering, took advantage of an early start on research experience – and it's paying off. Avendano, originally from Carolina, Puerto Rico, began his career at Iowa State the summer before his freshman year as part of the MoSAlc REU program. This sparked his interest in DNA based sensors. Avendano conducted a series of experiments, directed by Pranav Shrotriya, associate professor in mechanical engineering, for measuring the immobilization density of DNA strands on gold surfaces.



Avendano

He submitted a research paper on his work, "Surface Coverage of Thiolated Molecules on Microsurfaces for Microcantilever Sensors" to the 47th Annual Technical Meeting of the Society of Engineering Science. Avendano was selected for a travel fellowship to present his paper in the undergraduate student paper competition, the only freshman competing. Because of this participation, Avendano was named a Hispanic Engineer National Achievement Awards Corporation (HENAAC) scholar at Great Minds in STEM.

## Recent Grant Award Announcement

### Co-PI: Judy Vance

**Title:** "Interdisciplinary Design Education Research and Engagement"

**Award Amount:** \$1,521,500

**Awarding Agency:** Iowa State University

This project is an effort between the College of Engineering, College of Design, and Extension and Outreach. The main thrust is to expand the university's efforts in the area of design through interdisciplinary efforts that cross administrative units. The proposal has four key focus areas: Community, Industry, K-12 and Alternate Academic Models. In engineering, the primary focus is on developing a new PhD program, an engineering minor, and innovative new courses that will bring students from the College of Design and students from the College of Engineering together in design teams. The project is led by the College of Design's **David Ringholz**.



Vance

In the summer of 2011, Avendano worked with research on delivery vectors for gene therapy treatment of cancer. The research was performed at Rice University in Houston through a collaboration with Princeton University. This summer Avendano will be interning as a durability engineer at General Electric Transportation Division in Erie, Pennsylvania. He aspires to become a university professor and manage his own research group someday.

## Upcoming Events

**March 28** – [Symphonies of the Soil: Film and Discussion with Deborah Koons Garcia](#)

**March 29** – [Graduate Research Symposium](#)

**April 7** – [Cyber Security and Federal Information Technology – Steven VanRoekel](#)

**April 12** – [Graduate Seminar Series – Lockheed Martin Lecture](#)

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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).