



## RAVEN INDUSTRIES EXPANDS RESEARCH AND DEVELOPMENT EFFORTS BY LOCATING AT MINES

“We look forward to Raven offering our students the opportunity to further develop their skills by immersing themselves in a work experience.”

—President  
Robert A. Wharton



Raven Industries Inc., headquartered in Sioux Falls, South Dakota, has opened a research and development facility on the South Dakota School of Mines and Technology campus to help support the growth plans of its four divisions and develop a source for recruiting new talent.

“We are honored to be sought out by Raven Industries for our top-caliber engineering students. Both the company’s technology and reputation for its work with NASA and the military make for a natural fit here at the South Dakota School of Mines and Technology,” said President **Robert A. Wharton**, PhD. “We look forward to Raven offering our students the opportunity to further develop their skills by immersing themselves in a work experience.”

The publicly-traded company opened in 1956 and designs and manufactures

high-quality, high-value technical products, serving precision agriculture, high-performance specialty films, aerospace, and electronic manufacturing services markets.

The company opened its approximately 2,000-square-foot facility in February at the Black Hills Business Development Center, located at the School of Mines. The center is home to businesses and industries, from large nationally known companies like Caterpillar to small one-person start-up companies.

**Dan Rykhus**, president and CEO of Raven Industries, said the business development center aligns with Raven’s goals and enables the company to “provide rewarding engineering jobs right here in South Dakota. ... We plan to take advantage of science and engineering students, post-graduate students and graduates, as well as other strong talent in the area.”

Raven hired three full-time employees and six part-time interns at the School of Mines to work on electronic design and software programming, as well as mechanical projects relating to precision agriculture equipment through its Applied Technology Division. The precision agriculture technology developed at Mines will ultimately help to feed an expanding population by improving efficiencies, accuracy and minimizing waste to produce more food on less land. As the facility expands, Raven plans to add development projects for its remaining three divisions: Electronic Systems, Engineered Films and Aerostar.



### SHUMAN PROMOTED TO HUMAN RESOURCES DIRECTOR

**Kelli Shuman** has been promoted to SDSM&T's director of human resources. She began her career in human resources with the School of Mines in 2005 as personnel assistant, was promoted to assistant director of human resources within 18 months, and became associate director in July 2010 prior to her recent appointment.



### PETUKHOV PUBLISHES COMMENTARY IN PHYSICS

*Physics* published a commentary by Dr. **Andre Petukhov**, head of the South Dakota School of Mines and Technology physics department, entitled "Viewpoint: Spins Jump Another Threshold." The article, published January 17, discusses research on mapping between quantum dot and quantum well lasers, as well as the future of new spin laser devices based on vertical cavity semiconductor laser technology.



### SHENDE, PUSZYNSKI, BHOSALE RESEARCH ARTICLE CITED BY REGI

Research of Drs. **Rajesh V. Shende** and **Jan A. Puszynski** of the chemical and biological engineering department and **Rahul R. Bhosale** (Ph.D. ChE12), a chemical engineering doctoral student, was published in the *International Journal of Hydrogen Energy* and later cited by Renewable Energy Global Innovations as a key scientific article. The article, entitled "Thermochemical Water-Splitting for H<sub>2</sub> Generation Using Sol-Gel Derived Mn-Ferrite in a

Packed Bed Reactor," was published in the February, Volume 37, Issue 3, edition of *Hydrogen Energy* and cited by REGI in May. Each week REGI selects from more than 5,000 peer-reviewed journals key scientific articles to feature on its website.

### FRENCH PUBLISHED IN AMERICAN METEOROLOGICAL SOCIETY JOURNAL

Dr. **Adam French**, assistant professor in atmospheric sciences, published a paper in the American Meteorological Society's *Weather and Forecasting* journal. The article entitled "Observations of Mergers between Squall Lines and Isolated Supercell Thunderstorms" was published in the April, Volume 27, Issue 2, edition. In it, Dr. French highlights his research regarding cases where different configurations of thunderstorms merge into a single storm system. His analysis revealed an evolving severe weather threat during these cases, with large hail occurring prior to the merger and damaging winds becoming more prevalent after the storms merge. Tornadoes occurred both before and after the merger. The research will help forecasters anticipate types of severe weather in cases where these types of mergers are possible.

### STEINBECK REVIEW PUBLISHES RICE ARTICLE

Dr. **Rod Rice**, Mines English professor, published an article in the *Steinbeck Review* journal. "Circles in the Forest: John Steinbeck and the Deep Ecology of To a God Unknown," was published in the December 2011 edition. The peer-reviewed journal is published by Wiley-Blackwell for the Martha Heasley Cox Center for Steinbeck Studies at San Jose State University. It was the



third article Dr. Rice published in 2011. Other articles published were "Cannery Row" in the January 2011 edition of *Masterplots: 3rd Revised Edition*, of Pasadena, Calif., and "Metafiction on Main Street: Garrison Keillor's Lake Wobegon Days," in the February 2011 edition of *MidAmerica: The Yearbook of the Society for the Study of Midwestern Literature*, a Michigan State University peer-reviewed journal.

### JOHNSON ENDS TERM AS TEACHING STATISTICS INTERNATIONAL JOURNAL EDITOR

Dr. **Roger Johnson**, professor in the School of Mines mathematics and computer science department, stepped down as editor of the international journal *Teaching Statistics* after a four-year term. The United Kingdom-based journal, which publishes three times a year, produces articles on statistics aimed at teachers of learners to about age 19. He will continue his affiliation with the journal as a member of its editorial board. In this capacity he may review articles, offer advice to the new editor and vote on the year's best article, an honor which he won twice prior to being named editor in 2007. Before taking on the role of editor, Dr. Johnson published 10 articles in *Teaching Statistics* starting in 1993.



**100th Anniversary**  
**M Hill**

**WANT TO CELEBRATE?**

- WHEN: NOON, OCT. 5, 2012
- WHERE: MARCH/DAKE PLAZA
- WHAT: Free barbeque hosted by the ASCE Student Chapter, followed by a surveying demonstration of how the M was laid out 100 years ago by civil engineering students



## Supplement to THE HARDROCK - Summer 2012

### FACULTY, STAFF HONORED FOR SERVICE TO SCHOOL OF MINES

Faculty and staff were recognized for exemplary service to the university during the annual Employee Service and Recognition Awards reception. Receiving awards were Dr. **Michael Batchelder**, James and Connie Green CAMP Faculty Award; **Cindy Christensen**, Dick Kitchen Award for Outstanding Staff Person; Dr. **Edward Duke**, Presidential Award for Outstanding Professor; **Elaine Linde** (ME89), Benard A. Ennenga Award; **Kim Osberg**, Virginia Simpson Award; **Molly Frankl**, EXEMPTlary Service Award; and **Marie Romano**, Outstanding Student Service Employee of the Year Award. Retiring employees recognized were **Laura Geary** (Math73), 29 years; Dr. **Zbigniew Hladysz**, 31 years; **Daniel Kratzer**, seven years; **Josephine Lee**, 38 years; and Dr. **Henry Mott** (CE73), 24 years. Among employees recognized for 5, 10, 15, 20, 25, 30, 35 and 40 years of service to the School of Mines and/or the State of South Dakota were **Sharon Reid**, with 35 years, and Dr. **Stanley Howard**, with 40 years.

### CHEMICAL ENGINEERING CHAPTER HOSTS REGIONAL CONFERENCE

School of Mines chemical engineering students hosted 130 of their peers from universities in Colorado, Utah, Arizona, New Mexico, Wyoming and North Dakota at the Rocky Mountain Regional Conference of the American Institute of Chemical Engineers (AIChE). Mines alumna **Karen Swindler** (ChE88), senior vice president for manufacturing in the Americas region of Lyondell Basell Industries in Houston, and alumnus **Jake Jacobsen** (ChE81), global reliability excellence lead for Cargill's animal protein businesses, delivered keynote addresses at banquets. The Mines AIChE student chapter last hosted the event in 1999 and is scheduled to host again in 2024.

### WENTZ SNARES IBM CONTEST HONORABLE MENTION

Senior Austin Wentz of Summerset earned honorable mention in his division of the IBM Master the Mainframe for 2011 contest, which centers on utilizing mainframe architecture, a traditional workhorse for managing a large volume of transactions, a common need in banking, finance and commerce. Wentz, a computer science major, participated in the part 3 division of the IBM contest, which is reserved for the most advanced competitors. Students had three months to explore the system and complete an extensive project involving multiple programming languages and maintaining the desired security protocols.

### KOCH RECEIVES CHEMISTRY AWARD

Hardrocker **Kelsey Koch** (Chem12) of Sioux Falls, South Dakota, was selected to receive the Sioux Valley ACS Section Outstanding Chemistry Senior Award.

### MINES HONORS 60 STUDENTS FOR SCHOLARLY ACHIEVEMENTS

Scholastic achievement awards were presented to 60 students at the 61st annual Honors Convocation at the South Dakota School of Mines and Technology. Also recognized were McKie Automotive Group with the 2012 Mines Award for Outstanding Public Service and high school teachers Jennifer Anders of Harding County High School in Buffalo, South Dakota, and Thor Gunderson of Campbell County High School in Gillette, Wyoming, who were nominated by Mines students.

### BLUME NAMED TO LEAD FACILITIES SERVICES

**Thomas Blume** has been named director of Aramark Facilities Services at South Dakota School of Mines and Technology. He joined the School of Mines from the University of Portland, where he served as director of the Physical Plant. Blume was with the University of Portland for 12 years and also worked in the Admissions Office and as interim director of Financial Aid. He also previously served 11 years in the United States Air Force as a combat crew commander and warranted contracting officer.



#### TELL US WHAT YOU THINK!

We value your opinions as we strive to continuously improve the *Hardrock* magazine. Take a brief anonymous survey at [www.surveymonkey.com/s/YM6GCZ2](http://www.surveymonkey.com/s/YM6GCZ2)

1. How do you commonly acquire information about the South Dakota School of Mines and Technology?
2. How often do you typically read an issue of the *Hardrock* magazine?
3. How much of each issue of the *Hardrock* magazine do you read?
4. How do you prefer to read your copy of the *Hardrock* magazine?
5. Please rate the quality of the *Hardrock* magazine.
6. Please rate your interest in receiving information about activities of the Alumni Association.
7. Please rate your interest in receiving information about university affairs.

PLEASE CONSIDER THESE FEW, SIMPLE QUESTIONS AND TAKE THE SURVEY ONLINE AT OUR SURVEY WEBSITE LISTED BELOW:

Visit  [www.surveymonkey.com/s/YM6GCZ2](http://www.surveymonkey.com/s/YM6GCZ2)

Please respond by September 1, 2012