

STEVEN W. SQUYRES, Ph.D., AWARDED MINES MEDAL

# THE HARDROCK™

//SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY//

//FALL/WINTER 2010//



**ALSO IN THIS ISSUE:**

**ALUMNI FEATURE: MICHAEL BLACK  
THE MOVE TO NCAA D-II CANDIDACY**

**CAPITAL CAMPAIGN: THE FACES OF BUILDING THE DREAM  
LEED® GOLD CERTIFIED: PALEONTOLOGY RESEARCH LABORATORY**





# PERSPECTIVES



Our 125th anniversary year is an energizing, dynamic, and highly successful one. The School of Mines continues its promising traditions and legacy of being a university of “the highest merit” where generations of students come to fulfill their hopes and dreams – many from South Dakota and the West, some from India, China, Mongolia, Europe, Africa, the Middle East, and other U.S. and global locales.

Throughout our history, our core competitive advantage as a university dedicated to the development of professional leaders, has been, as it is today, the strength of our world-class faculty in

concert with industry and business leaders who are committed to advancing the education of our students, and our success as an institution. Coupled with this commitment has been the substantive engagement and contributions of our alumni and friends with their participation in such celebrations and achievements as our 2010 all-school reunion, the launching of our second capital campaign, the opening of a newly Gold-certified Leadership in Energy and Environmental Design (LEED) research laboratory, the support of student scholarships, and other successes.

Speaking of successes, our enrollment has increased again this year – 8 percent overall. Our freshman enrollment grew nearly 21 percent and graduate student enrollment increased by 15 percent. We are all aware that growth in the student body requires continuing development and improvement of campus facilities. In this issue, you will read about the opening of the new Paleontology Research Laboratory, affording students access to an outstanding collection of fossils, mineral and rock samples, and a state-of-the-art research facility.

Many of you may recall a professor, mentor, or a leader in science or engineering who inspired you to achieve high standards through his or her exemplary leadership and/or outstanding and innovative work. We at Mines seek to motivate students to excel as leaders through activities such as the Mines Medal ceremony and related campus and community events. You will read about one such accomplished leader, Dr. Steven W. Squyres, the Goldwin Smith Professor of Astronomy at Cornell University, and our 2010 Mines Medal recipient. Dr. Squyres energized many of us, especially our students, with his leadership and story of highly successful robotic missions to Mars.

This year, the first Mines Medal Graduate Student Fellowship recipient, Erin Handberg, a Mines alumna from South Dakota, was honored as well. She is pursuing a Ph.D. in nanoscience and nanoengineering and a master’s degree in physics.

I am confident that our next 125 years will continue to offer future generations of talented individuals, such as Ms. Handberg and Mr. Michael Black, our featured alumnus in this issue and the director of the Bureau of Indian Affairs, the opportunity to fulfill their hopes and dreams.

Together, we can make this happen.

Sincerely,

**Robert A. Wharton, Ph. D.**

**President**

South Dakota School of Mines and Technology

**THE HARDROCK**

FALL 2010

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Greetings, Hardrockers!

My initial thoughts for this farewell letter as your alumni president were to discuss my experiences, observations, and accomplishments. Upon further reflection, this message seemed limiting since the Alumni Association is much bigger than any single position or any single alumnus. This long-lived, tradition-rich, well-structured and occasionally well-lubricated piece of machinery is comprised of 15,000 moving parts where many alumni step forward to volunteer in some capacity. These volunteers show up in many roles – board members, area vice presidents, past alumni presidents, Five-Year Reunion committee chairs, and numerous other contributors. This spirit of “what are friends for?” or “whatever it takes!” makes me proud to be one of those 15,000 moving parts. It has been a rewarding and enjoyable tour of duty.



In addition to my transition, many others have completed their obligations with the Alumni Association. Our outgoing board officers and members during the past three years (plus) include: Treasurer John Davies (ChE71), Past President Marlene Nelson (ME74), and board members Barb Dolan (CSc87), Wayne Greaves (GeolE71), Dean Herll (CE92), and Joanne Noyes (M.S. Geol87). Their participation and support during the past three years is greatly appreciated. Also, many thanks go to this past summer’s All School Reunion Co-Chairs Gary Callahan (ME70) and Monte Dirks (MetE74), and the numerous sub-committee chairs and volunteers, for making this special tradition a huge success.

In addition to these volunteers, it is appropriate to recognize two of the Alumni Association’s special volunteers – our Executive Vice President Paul Gnirk (MinE59) and our Executive Director Tim Vottero (Chem84). Clearly, these two dedicated alumni “get it done.” A good example is the recent Five-Year Reunion where it was easy to find their fingerprints all over numerous functions.

During my two years as your president, I was gifted with many memories. Here are a few: assisting Gene McPherson (EE68) with setting the reunion plaque on M-Hill; chatting with Ron Jeitz (CE69) as we drove from Atlanta to New Orleans; discussing the two Governors Mickelson with Bill Tucker (GeolE56) as we played the Washington Golf and Country Club; visiting with John Chikos (CE75), my college roommate for three years; shaking hands with Jack Goth (MetE50); having a beer with Steve Newlin (CE75); listening to Jerry Brown’s (CE65) laugh; playing in the Hardrocker golf tournament with my former teammates, Steve Weiland (CE76), Steve Lux (ME72), and Mark Lux (MinE80); and so many other memories... for which I am quite grateful.

In closing, I also want to acknowledge the support over the past two years from my wife, Debbie, and son, Michael. The reins of the alumni president have been passed to a very capable successor – Pete Birrenkott (ME71). The association will be in good hands with Pete’s aggressive style of evaluating and solving problems.

I look forward to visiting with many of you about your School of Mines memories. In the interim, remember, “We Mine Alumni.”

Regards,

Ralph Wagner (CE75)

2009-10 Alumni President



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In this photo:  
Students celebrate  
M-Week 2010





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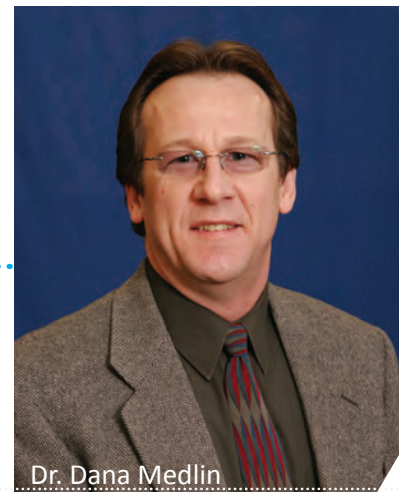
## Detecting Radiation, One Crystal at a Time

A team of School of Mines researchers are investigating materials used to create extremely precise detectors that can identify the source and nature of radiation from space- or earth-based radioactivity.

The team, led by principal investigator Dr. **Dana Medlin**, associate professor, materials and metallurgical engineering, is developing a process for the production of ultra-high purity germanium crystals, which will be used to create the detectors. The researchers chose germanium because of its effective performance as a semiconductor, which releases a detectable energy pulse when struck by radiation. These pulses can then be measured to determine levels of radiation. Constructing these materials on the earth's surface, however, leaves

them vulnerable to cosmic rays, limits the components' purity, and greatly diminishes the detector's operating characteristics. In response, the crystals will eventually be produced and used at the 4,850-foot underground level of the Deep Underground Science and Engineering Laboratory (DUSEL). The team will also focus on the electroforming of ultra-high-purity copper needed to assemble the detectors.

This project, and others relating to the DUSEL, will now fall under the umbrella of the newly-created DUSEL Project Office. The office, directed by Dr. **Bill Roggenthen** (GeolE69), plans and manages the university's current and future activities associated with the underground facility.



Dr. Dana Medlin

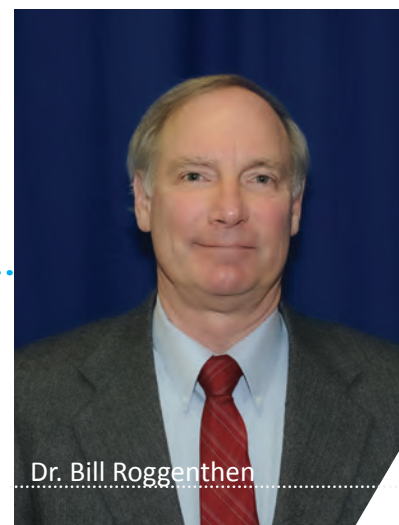
## Mines Team Captures Fourth Place at Imagine Cup

During Microsoft's eighth annual Imagine Cup, students from across the country came together in Washington, D.C., to celebrate their creativity and passion for solving the world's toughest problems using technology. More than 22,000 students registered for this year's U.S. competition; only 80 were selected by a panel of judges to compete in the U.S. finals.

The School of Mines team of **Robyn Krage** (CSci10), **Lori Rebenitsch** (Phys10), and **Jaelle Scheuerman** (CSci10) were among the lucky few. Working with faculty mentor Dr. **Antonette Logar** (CSc85) interim dean of graduate education, and professor of mathematics and computer science, the team competed in the Software Design Invitational, taking fourth place.

The team, which calls itself "Team Blob" from the image processing term for the shape that a finger makes when it touches a screen, created a project to address gender equality by developing a multitouch design tool to help teachers create interactive presentations. Their project, the Blob Multitouch Designer, is an effort to bring emerging multitouch technology into K-12 classrooms. It allows teachers to create interactive presentations that encourage collaboration between students.

Imagine Cup judges weren't the only ones that recognized the value of the project. In an address to the Accelerator Summit, Microsoft CEO Steve Ballmer discussed Team Blob and the impact of their project on education.



Dr. Bill Roggenthen

## The School of Mines In the News

The American Society of Civil Engineers (ASCE) team finished in first place overall at the 2010 ASCE Rocky Mountain Regional Conference...The School of Mines mucked their way to 10th out of 28 teams during the 2010 Intercollegiate Mining Games held in Kalgoorlie, Australia...The School of Mines captured the Human Powered Vehicle (HPV) team took second place at the 2010 ASME HPV Challenge West. Outlasting much of the competition with 669 miles to the International Aerial Robotics Competition in Mayaguez, Puerto Rico, taking awards for best technical presentation, best technical paper, and best system.



## Treasure from Trash

With the rapid depletion of petroleum reserves, the need for renewable fuels has become increasingly vital. School of Mines researchers are addressing this need by developing improved technologies for the conversion of agricultural and forestry waste (i.e., corn stover, wood, and grasses) into high-value ethanol.



The researchers, led by principal investigator Dr. **Todd Menkhous**, assistant professor, chemical and biological engineering, have discovered a means of absorbing harmful compounds in solution, which are toxic to the yeast cells that make ethanol. With this knowledge, they can now attempt to concentrate sugars prior to fermentation. This method produces ethanol more efficiently, reducing distillation energy costs and generating a higher ethanol concentration.

In addition, the team has created a faster, more efficient conversion process by reusing yeast cells in fermentation technologies. Applying this research to current biorefinery methods will yield a substantial cost savings, leading to production of ethanol that is economically competitive with petroleum-based processes.

## Paleontologists Uncover Giant Marine Reptile



Approximately 80 million years ago, marine reptiles swam the inland sea that covered South Dakota and left a rich fossil record behind. Dr. **James Martin** (Geol71), executive curator of the Museum of Geology, has excavated hundreds of these creatures during his more than 30 years in the field. This fall, he added another to the list. "This specimen represents the best preserved mosasaur I've seen in 20 years and is a credit to state and federal cooperation," he said.

The fully-articulated plioplatecarpine mosasaur measures 10 feet, retains its skull, and even has soft tissue preserved. The other factor that makes the specimen extraordinary is that it still contained remains of its last fish supper. Now removed from the field, the specimen is being prepared and studied, and will be displayed in the new Paleontology Research Laboratory.

## Growing the South Dakota Economy

A recent report from the South Dakota Board of Regents revealed that the School of Mines generates a long-term economic impact of \$148.3 million per year through job support, day-to-day operations, consumption of goods and services, and student and visitor spending.

In fiscal year 2009 (July 1, 2008, to June 30, 2009), the School of Mines received \$14.2 million in state appropriations – approximately 27 percent of the university's total budget. The university leveraged this state support through entrepreneurial activities such as increasing research activity through securing grants and contracts, growing enrollment, and collaborating with stakeholders to generate an incredible return on investment for the State of South Dakota.

The focus on research activity has resulted in some of the most dramatic growth for the School of Mines in recent years. In South Dakota and nationwide, scientists and engineers provide a substantial boost to the

economy through innovations generated through research activity. School of Mines faculty, staff, students, and alumni drive the development of technology-based companies that employ thousands of South Dakotans. The School of Mines is also a leading partner in the Deep Underground Science and Engineering Laboratory (DUSEL). The DUSEL is more than just a beacon to scientists and engineers from all over the world; it is a draw to employees interested in building the infrastructure of the proposed laboratory. As the DUSEL grows in size and scope, a highly-skilled staff is required to continue its momentum – a staff that must live, work, and spend money, supporting the economic growth of the region.

School of Mines team placed first at the American Society of Mechanical Engineers (ASME) District C Student Professional Development Conference...The School of Mines placed fourth place at NASA's first annual Lunabotics Mining Competition and zoomed into 17th place at the SAE Formula California 2010 competition...The School of Mines took 17th place at the SAE Supermileage Competition...The Unmanned Aerial Vehicle team flew its way to second place at the SAE Supermileage Competition...



# Flying Colors

Some people are born to lead. Others are called. **Michael Black** (ME86) is a unique combination of both.

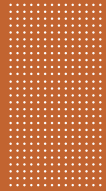
Born in Flandreau, South Dakota, in 1964, Black is the son of Bureau of Indian Affairs (BIA) employees who believed in the organization and its mission of bettering the lives of Native Americans. Their multicultural marriage – his mother is an enrolled member of the Pine Ridge Oglala Sioux Tribe and his father was white – instilled an appreciation for diversity in Black at a young age, and their service had a profound impact on the philosophies that have guided his success.



“My Dad was a non-Indian working in Indian Affairs, and race or anything else didn’t matter to him,” says Black, who is also a registered Pine Ridge Oglala Sioux. “He had a great passion for educating Indian youth and was there to do whatever he could. I learned a lot about dedication to service, doing the right thing, and treating people the right way from my parents. That has had a major effect on me and the way I’ve lived my life.”

# MICHAEL





.....  
“Mike Black has served Indian Country and the nation as a dedicated public servant for many years. I will rely on him as part of my senior management team as we move forward on initiatives to improve public safety and employment opportunities in tribal communities, promote tribal self-determination through energy and economic development, and honor the trust responsibility.”

Larry Echo Hawk, U.S. Assistant Secretary-Indian Affairs  
.....

**MIKE BLACK**

**DIRECTOR, BUREAU OF INDIAN AFFAIRS**



## Learning to Fly

After graduating from Aberdeen Central High School, Black and a group of friends chose to attend the South Dakota School of Mines and Technology. Bolstered by those friendships and others he soon developed – many of which still carry on to this day – he quickly found his home. According to Black, he never felt out of place, despite the underrepresentation of Native Americans at that time. “I think the school didn’t care what I was – they just wanted me to be an engineer.”

He threw himself into his involvement with Theta Tau and enjoying the Black Hills. Then, in the course of one semester during his junior year, his life changed. He became a newlywed, welcomed his first child, and buried his father.

Black thinks back on that time with great appreciation of the exceptional professors who helped him find his way through that difficult time. “It really showed me what it was like to be at a smaller school. My professors really worked with me to help me get through what was a really tough semester,” he says. “I don’t know if you get that at a lot of big schools, and I will always be grateful for that support.”

During this period, the dedication and perseverance that he witnessed in his parents became ingrained in him. Instead of being derailed by change and challenges, Black rose above them. “There was no doubt in my mind that Dad would have wanted nothing more for me than to finish school. Giving up was never an option,” he says. “I had responsibilities at that point that I had to fulfill. That’s what he would have wanted.”

## Taking Flight

After graduation, Black and his young family returned to Aberdeen, where he followed in his parents’ footsteps. He began his federal career with the Bureau of Indian Affairs as a general engineer in the Office of Facilities Management. After five years, he moved to Montana’s Billings Area Office (now the Rocky Mountain Regional Office) as the regional facility manager. His upward trajectory was beginning to take flight. In 2001, he was named chief of the office’s Division of Engineering, and in 2004 he assumed the position of deputy regional director for the Rocky Mountain Regional Office.

Throughout these years, Black’s dedication was to the BIA and to his daughters, whom he was raising as a single father. Even as his responsibilities grew, he welcomed the opportunity to learn more, to experience more, and his supervisors took note. It wasn’t long before the BIA asked Black to serve as the acting regional director of the Great Plains Regional Office in Aberdeen, South Dakota. It was a serendipitous time for change, coinciding with his youngest daughter heading to college.

“This was a difficult decision for me, because I had spent 16 years in Montana raising my children and working at that office,” he says. “But this was an opportunity to improve myself and an opportunity to provide something to the organization.”

## Soaring Above the Clouds

Eight months after reporting as acting regional director, Black was selected to fill the permanent position. The appointment was a major increase in responsibility: overseeing 12 agencies serving 16 tribes in Nebraska, North Dakota, and South Dakota. Less than two years later, the BIA requested his leadership again, this time on a much larger scale. In March 2010, he was asked to serve as acting director of the entire bureau.

“At the time I was kind of floored,” he says, “especially knowing full well what I was being asked to take on. I thought my responsibilities when I put in for Great Plains were a lot, but this was another thing entirely.” And so Michael Black received his calling.

On April 25, 2010, Black officially became the fifth director of the Bureau of Indian Affairs and the 59th person to have headed the organization during its 186-year-history (see “Profile: Bureau of Indian Affairs” on facing page). Today, Black oversees 5,000 employees carrying out the mission of the Bureau through social services, natural resource management, economic development, law enforcement, administration of tribal courts, implementation of land and water claim settlements, housing improvement, disaster relief, replacement and repair of schools, repair and maintenance of roads and bridges, and much more.



The work that Black and his employees do each and every day has a major impact on the lives of the country's 1.9 million Native Americans and Alaska Natives. Their mission is truly for the people, by the people, in a way not seen before in the organization. For the last 30 years, the number of Native Americans and Alaska Natives employed by the BIA has seen a steady increase. Today, they have the largest representation in the bureau's history. Through their work in enhancing the quality of life in tribal communities, they honor the past and improve the future.



Black meets with staff and students at the Mines Office of Multicultural Affairs.

As their leader, Black works to create a culture of personal responsibility and service that permeates the bureau's every activity. "I can give the company line – I'm here to carry out the government's fiduciary and trust responsibilities – but I'm really here to help better the lives of people through carrying out our mission," he says. Under Black, the BIA – and the people it serves – looks to a brighter tomorrow.

.....  
**"I know I've been blessed."**  
 .....

**Michael Black (ME86)**  
 .....

## PROFILE: BUREAU OF INDIAN AFFAIRS

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Established March 11, 1824, the Bureau of Indian Affairs is one of the oldest agencies in the United States. Known throughout the years as the Indian Office, the Indian Bureau, the Indian Department, and the Indian Service, the name "Bureau of Indian Affairs" was adopted in 1947. Its initial mission was to oversee and carry out trade and treaty relations between the federal government and the tribes.

As the relationship between the federal and tribal governments has changed and evolved, so has the BIA. Today, the bureau partners with tribes to balance self-determination with government-to-government relationships and responsibilities. Serving 1.9 million Native Americans and Alaska Natives enrolled in 565 federally recognized tribes in 33 states, the bureau carries out its mission through four offices.

- **Office of Indian Services:** Manages general assistance, disaster relief, Indian child welfare, tribal government, Indian Self-Determination, and reservation roads programs.
  - **Office of Justice Services:** Directly operates or funds law enforcement, tribal courts, and detention facilities on Federal Indian lands.
  - **Office of Trust Services:** Works with tribes and individual Native Americans and Alaska Natives in the management of their trust lands, assets, and resources (including 55 million surface acres and 57 million acres of subsurface minerals estates).
  - **Office of Field Operations:** Oversees 12 regional offices and 83 agencies carrying out the mission of the bureau at the tribal level.
- .....





# Preserving the Past, Protecting the Future

The South Dakota School of Mines and Technology has officially opened the new Paleontology Research Laboratory, starting a new chapter for one of the world's finest fossil collections.

The 33,000-square-foot facility provides a safe, environmentally-controlled location for the Museum of Geology's fossil, geological, and archival collections, protecting a rich heritage of more than 500,000 invertebrate and vertebrate fossils, mineral and rock samples, and fossil plants. The building houses geochemistry, preparation, and molding/casting laboratories for the preparation, preservation, and conservation research involving the collections. Hallway viewing windows of the laboratories allow visitors to watch and progress through the steps needed to take a fossil from the ground to a museum exhibit.

In addition to the collections it houses, the building itself is unique. Because of the program's significant study of past environments and sustainability issues, creating a green building became an important design objective and has resulted in the Paleontology Research Laboratory earning a Leadership in Energy and Environmental Design (LEED) Gold certification. The facility is the first state-owned building in South Dakota to receive this distinction.

The Paleontology Research Laboratory has also been awarded a Silver Hard Hat Award for Outstanding Green Building Project by *Mountain States Construction Magazine*. The annual Gold Hard Hat Award program is a competition to determine the best projects completed by firms in Colorado, Kansas, Nebraska, North Dakota, and South Dakota.





## MATERIALS

Recycled and regional materials are used throughout the building. Local concrete uses 25% fly ash, a coal-burning waste product. Wood doors have an agrifiber core, a renewable resource. Office countertops and shelving are made from 100% post-consumer paper waste combined with resin. Lobby walls are clad in Dakota Burl, a biocomposite which uses the agricultural waste from sunflower hulls within the region.

## ENERGY

Energy-conserving features such as light fixtures with T-5 and T-8 fluorescent lamps, a central lighting control system, motion sensors, a super-insulated building skin, and windows with low-E glass save 25% in energy cost. The building is efficiently heated and cooled by the campus central plant, which creates steam to generate heat and chilled water to provide cooling.

## WATER

The building reduced its water waste by over 40% using fixtures such as high-efficiency toilets and urinals, and low-flow shower heads and faucets. Roof runoff is utilized for landscape irrigation to supplement precipitation. The bioretention area on the northwest side of the building manages stormwater runoff and provides a significant area of moist soil conditions for landscape plants.



# GOLD

## XERISCAPING

The landscaping around the facility is focused on native grasses, chosen for suitability to local soil and climatic conditions.

## BUILDING DOWNSIZING

A high-density mobile shelving storage system for the fossil collection reduced the building's footprint by 15 percent, in turn reducing the amount of energy required for operation.

## ALTERNATIVE TRANSPORTATION

Designated parking for fuel-efficient vehicles, bike racks, and showers are provided to encourage students and faculty members to reduce pollution.





**“If you give someone the right tools, you can spur the kind of innovation you cannot get anywhere else in the world...”**



# CHANGING THE FACE OF THE FUTURE

**P**rism Magazine, a publication of the American Society for Engineering Education, has ranked the South Dakota School of Mines and Technology third in the nation for percentage of engineering graduate degrees awarded to women. With 36.2 percent of these degrees going to female students in 2009, the School of Mines is positioned far ahead of the national average of 23 percent.

These statistics serve as a benchmark for two of the university's strategic foci: optimizing enrollment and growing graduate education.

Women and minorities have long been underrepresented in science, technology, engineering, and mathematics (STEM) fields, and an integral part of the School of Mines' vision is to increase the presence of these students on campus and in these professions as a whole.

The STEM fields represent a global community working to collectively impact the human experience, making it both a responsibility and a privilege to build a student body that reflects the diversity of the world around us. Growing graduate programs with a careful eye to this fact has the potential for a profound

impact on our society, according to Interim Dean of Graduate Education Dr. **Toni Logar** (CSc85).

"We have seen that the United States can't out-manufacture China and other countries. Our stock-in-trade is innovation, and the reason the U.S. is so good at it is because we really believe that if we work hard enough, we can do anything," Logar said. "If you give someone the right tools, you can spur the kind of innovation you cannot get anywhere else in the world. One of the best ways to get those tools is through graduate education."





## MINES MEDAL AWARDED TO STEVEN W. SQUYRES, PH.D.

Steven W. Squyres, Ph.D., has been named the 2010 recipient of the South Dakota School of Mines and Technology's prestigious Mines Medal. Squyres is the Goldwin Smith Professor of Astronomy at Cornell University and the principal investigator for the science payload on NASA's Mars Exploration Rover Project.

He received the Mines Medal during an award ceremony and dinner gala on October 28, 2010. During the event, he presented his work with the Mars rovers to a captivated audience. Squyres also met with students in the robotics and autonomous systems master's program and visited students at Dakota Middle School.

Squyres successfully conceived, organized, and led the exploration of the planet Mars with two small rovers, *Spirit* and *Opportunity*. He is also a co-investigator on the Mars Express mission and on the Mars Reconnaissance Orbiter's High Resolution Imaging Science Experiment.

Squyres' research focuses on the large, solid bodies of the solar system: the terrestrial planets and the satellites of the Jovian planets. His areas of particular interest include the tectonics of Venus, the history of water on Mars, and the geophysics of the icy satellites of the outer planets. He utilizes data analysis and theory together to examine the processes that have shaped the surfaces and interiors of these bodies.

Squyres has participated in a number of planetary spaceflight missions. From 1978 to 1981, he was an associate of the Voyager imaging science team, participating in analysis of imaging data from the encounters with Jupiter and Saturn. He was a radar investigator on the Magellan mission to Venus, a member of the Mars Observer gamma-ray spectrometer flight investigation team, and a co-investigator on the Russian Mars '96 mission.

He has served as the chair of the NASA Space Science Advisory Committee and as a member of the NASA Advisory Council. In addition, Squyres is a member of the imaging team for the Cassini mission to Saturn.

While much of Squyres' NASA work has centered on Mars, his ground-based research focuses on geophysical modeling of all of the planets, as well as some large moons, in an effort to understand the geological forces at work on these distant worlds. He has also conducted field work in Antarctica, working with the perennially ice-covered lakes.

Among his honors, Squyres has received the Harold C. Urey Prize, the Space Science Award of the American Institute of Aeronautics and Astronautics, the 2004 Carl Sagan Award of the American Astronomical Society, the 2005 Wired Rave Award, the 2006 Roy Chapman Andrews Society Distinguished Explorer Award, and the 2007 Benjamin Franklin Medal in Earth and Environmental Science.

Squyres has written numerous scientific articles in the field of planetary sciences and in 2005 published the popular book *Roving Mars: Spirit, Opportunity, and the Exploration of the Red Planet*.





Steven W. Squyres, Ph.D.

The Mines Medal program was established by the School of Mines to bring recognition and acknowledgement to a leader in engineering or science. The Mines Medal was designed by the university and includes an ounce of Black Hills gold. The award also includes a privately-funded honorarium. For more information, visit <http://mines-medal.sdsmt.edu>.

View Dr. Squyres' presentation online at: <http://mines-medal.sdsmt.edu/video/>

In addition to honoring a leader in science or engineering, the Mines Medal allows the university to assist the best and brightest students through the Mines Medal Graduate Student Fellowship.

**Erin Handberg** (CSci/MATH06) is the 2010 fellowship recipient. A native of Dell Rapids, South Dakota, she graduated from the School of Mines in December 2006 with bachelor's degrees in computer science and applied and computational mathematics. While working as a research assistant at the John T. Vucurevich Cancer Care Institute, she developed an interest in physics and decided to attend graduate school. She joined the doctoral program in nanoscience and nanoengineering at the School of Mines in the summer of 2007 and started the master's program in physics at its inception in 2009.

Handberg is working with her adviser, Andre Petukhov, Ph.D., and fellow graduate student, Luke Pendo, to develop a theoretical model for a quantum computer using lithium-doped silicon. Her Ph.D. research investigates two problems: the displacement of the lithium donor in the silicon lattice and its possible impact on the longevity of the spin qubit, and the effect of a static electric field on the lithium donor to develop a mechanism for controlling the qubit with an electric field. After receiving her doctorate, Handberg plans to seek a physics faculty position and to extend her research into other areas of quantum computation.



Erin Handberg





## Astronaut and Senator Takes Stage as Commencement Speaker

The School of Mines welcomed Harrison Schmitt, Ph.D., as speaker during the 161st Commencement on May 8. Schmitt – a geologist, pilot, astronaut, administrator, businessman, writer, and United States Senator – flew in space as lunar module pilot for Apollo 17, the last Apollo mission to the Moon. On December 11, 1972, he landed in the Valley of Taurus-Littrow as the only scientist and the last of 12 men to step onto the moon.

After two years managing NASA's Energy Program office, Schmitt served a six-year term in the U.S. Senate, beginning in 1977. He served as chairman of the NASA Advisory Council from 2005-2008 and is currently chair emeritus of The Annapolis Center and adjunct professor of engineering at the University of Wisconsin-Madison.

During the ceremony, **Evan Waddell** (ChE, Indianola, Iowa) represented the student body, and the university presented alumnus Dr. **Wayne F. Echelberger, Jr.** (CE56), with the **Guy E. March Medal**. More than 275 graduates received degrees and 26 alumni from the class of 1960 attended the ceremony to commemorate the 50-year anniversary of their graduation.





# FACULTY PROFILE



## **Molly M. Gribb, Ph.D.** **Department Head and Professor,** **Civil and Environmental Engineering**

Molly M. Gribb holds a doctoral degree in civil engineering from the University of Wisconsin-Milwaukee. She taught at the University of Wisconsin, the University of South Carolina, and Boise State University prior to joining the South Dakota School of Mines and Technology in 2010.

Funded by the National Science Foundation, the Environmental Protection Agency (EPA), the Departments of Defense and Energy, and NASA, among others, Gribb has conducted substantial environmental research in subsurface soil and ground water contamination, the flow and transport in unsaturated soils, characterization of soil hydraulic properties, and contaminant fate and transport.

As the principal investigator for an EPA-sponsored project, she developed a new sensor for detecting harmful chemicals below ground, substantially reducing the risk of worker exposure and sample loss and representing a significant advancement in the field of environmental sensing.

### **What drew you to the School of Mines?**

**MG:** I was really impressed with the department faculty and their interest in growing and developing the program. I have a strong interest in sustainability and global perspectives in engineering, and not only are they doing that here, they want to do more. That was one of the really exciting things about coming here.

### **Why are these principles important?**

**MG:** As a whole, the civil and environmental engineering field recognizes the need to infuse sustainability into design. It becomes more and more obvious that we have limited resources on this earth and that we need to try to decrease our footprint in terms of the resources we use personally and as a society. Civil and environmental engineers are the ones who will develop those solutions and infrastructure to meet future needs and we need to teach our students how to do that.

### **What do you want to do here?**

**MG:** I've worked almost exclusively on interdisciplinary research projects over the past 10 years. I see great opportunities for collaboration between departmental faculty and other programs on campus, and that is one of the reasons that I came here. Interdisciplinary work is so interesting to me because it means we can solve problems that can't be solved in a single discipline. That's why engineering as a whole has so much to gain from increasing participation of female and other underrepresented groups. The different points of view make the whole so much stronger and the possibility for solutions so much greater.

### **How would you describe yourself?**

**MG:** I find myself drawn to work that rests at disciplinary boundaries and physical boundaries in the natural world. There is a lot to be gained by exploring these interfaces.





Photo courtesy of Brad Blume

# ATHLETICS

## NCAA DIVISION II CANDIDACY

**T**he South Dakota School of Mines and Technology has been accepted by the National Collegiate Athletic Association (NCAA) into candidacy for an NCAA Division II institution. The Hardrockers applied to become NCAA-affiliated June 1, along with Black Hills State University and 10 other NAIA institutions.

“This is fantastic news for the Hardrockers,” said School of Mines President **Robert A. Wharton**, Ph.D. “Our student-athletes are incredible in the classroom and on the field, and this move allows us to pursue greater opportunities for growth and development of talent. This is a great benefit for the community and our alumni as well. It raises the stature of our athletic programs, and we anticipate much greater community interest and involvement.”

The Hardrockers now begin the three-year process of transferring to NCAA Division II affiliation from the National Association of Intercollegiate Athletics (NAIA). Mines will remain in the NAIA and the Dakota Athletic Conference for the 2010-11 season, followed by a two-year probationary period before gaining official NCAA Division II status.

“This is a very exciting day for the future of Hardrocker athletics,” said School of Mines Athletics Director **Richard Kaiser**, Ed.D. “It is the beginning of a new era that will open up all sorts of positive possibilities for our student-athletes and alumni.”

With NCAA Division II candidacy, the next task will be identifying an athletic conference to join. Currently the Hardrockers have received interest from the Rocky Mountain Athletic Conference (RMAC). The RMAC is looking to expand membership and talks have been ongoing with both the School of Mines and Black Hills State University.

“As an administration, we feel strongly that the philosophical similarities between South Dakota School of Mines and NCAA Division II are an excellent match as it relates to athletics, academics, and being a part of the student-body,” Kaiser said. “We are extremely delighted with the outcome and now will begin to move forward with the next step toward completing the three-year processes to becoming a full-fledged member of the NCAA.”



Athletics at the School of Mines got its start in 1895, when the first football team was organized. In the ensuing years, organized sports have become an important part of School of Mines traditions. Beginning with Nancy Ward Dunham (EE57), many students have left the stands to take an active role in encouraging the University’s athletes. Dunham served as the first and only drum majorette the School of Mines has ever had, leading the band in M-Day parades and at football games. By the 1960s, enough women were enrolled to support cheerleading squads, which existed on and off throughout the next few decades (even drawing a few men) before falling by the wayside. In 2010, this tradition was resurrected with a new generation of cheerleaders.



The School of Mines hosted one of the nation's three NASA SOLAR (Space Observation Learning and Research) Institutes, welcoming 19 high school juniors from across the country. The students spent two weeks on campus learning about space-related subjects. See video at <[http://youtu.be/38FYR\\_sCTw](http://youtu.be/38FYR_sCTw)>.

The Black Hills Natural Science Field Station has added a new field opportunity for students, the Geomorphology Field Camp. The camp, held in the Himalayas, provides students with essential skills in the field of geomorphology, including hill-slope processes, geomorphological mapping, glacial geology, and fluvial processes.

Dr. **Umesh Korde**, professor, mechanical engineering, has been named the first Pearson Professor of Sustainable Energy Systems. The Pearson Professor will focus on all areas of energy sustainability.

Concrete researchers, contractors, cement plant workers, consulting firms, builders, government agencies and others gathered at the School of Mines for the 46th annual Concrete Conference, "High-Performance Concrete."

**Graham Garner** has joined the School of Mines as the vice president for university advancement. Garner was previously the director of University Relations at Idaho State University.

In recognition of 125 years of serving the region, Black Hills Community Economic Development (BHCED) has recognized the School of Mines with the Black Hills Community Economic Development Award. "The school's economic impact across the state is huge," BHCED Executive Director Jim Doolittle said.

Dr. **Duane Hrnir** has assumed the position of provost and vice president for academic affairs. Hrnir previously served the School of Mines as dean of the College of Science and Letters.

**Deborah Mitchell**, director, Apex Gallery, and associate professor, humanities, was an invited juror for the 2010 Wyoming Arts Council Governor's Capitol Art Exhibition, a competition to recognize and promote Wyoming artists.

Dr. **Keith Whites** (EE86), professor and Steven P. Miller Chair, electrical and computer engineering, and Anthony Amert, research scientist III, electrical and computer engineering, co-authored the paper "Miniaturization of the Biconical Antenna for Ultrawideband Applications," for the journal *IEEE Transactions on Antennas and Propagation*.

The School of Mines has been named a Military Friendly School for 2011 by *G.I. Jobs* magazine, a publication providing information on education and job opportunities for those transitioning from the military. This honor ranks the School of Mines in the top 15 percent of all colleges, universities, and trade schools nationwide and recognizes the university as a leader in providing accessible and quality education to United States servicemen and women.

**Michael Janes** (Math/CSci10) was awarded first place in the School of Mines' Undergraduate Research Symposium for his project, "Mathematical Model for Friction Stir Welding."

**Amanda Grill** (M.S. ChE, Portland, Ore.), **Sam Papendick** (Ph.D. CBE, Rapid City), and **Tim Shenk** (Ph.D. CBE, Rapid City) were selected to participate in the East Asia and Pacific Summer Institute. The program, funded by the National Science Foundation, funds eight- to 10-week research experiences at laboratories in Australia, China, Japan, Korea, New Zealand, Singapore, or Taiwan.

The South Dakota College Personnel Association recently honored **Maureen "Reeny" Wilson**, director, Surbeck Center and residence life, with the Patrick Merrigan for Distinguished Service Award and **Michael Keegan**, director, Student Activities and Leadership Center, with the Marcus Boesen Outstanding Young Professional Award.

School of Mines students have elected **Christopher Weyer** (IE, Sturgis) president and **Derek Nordby** (MetE, Stanton, Neb.) vice president of the Student Association.

The School of Mines welcomed 90 participants to campus for the Green Energy: Leading Voices for Renewable Energies, Sustainability, and Self Reliance Conference, where the focus was green energy education for South Dakota.

**Tiara Mueller** (IE, Rapid City) was elected state chair of the South Dakota College Republicans at the organization's recent meeting in Pierre. The state chair position oversees all college chapters in the state.

More than 200 middle-school girls participated in the annual Girls Day event at the School of Mines. The special school-day campus event is designed to introduce young women in middle school to careers in science, technology, engineering, and mathematics (STEM).

**Lukasz Dubaj** (CE/IS, Poland), has been elected the South Dakota Student Federation Executive Director. The executive director serves as the point of contact between the student associations at each of the six regental institutions and the Board of Regents and state legislators.

In Summer 2010, School of Mines students participated in internships and co-ops with 127 employers in 29 states, earning an average of \$16.71 per hour. Organizations hiring School of Mines students include Bobcat, Cargill, Garmin, John Deere, Kiewit, Microsoft, Nucor, Peabody Energy, and others.

A summer fixture on the School of Mines campus, the SD GEAR UP Honors Program, returned for its 18th consecutive year. The program prepares American Indian students to be successful in the college setting. This year, the program attracted more than 220 students in grades 9-12 and several college students.

Dr. **Dimitris Anagnostou**, assistant professor, electrical and computer engineering, has been selected for the prestigious 2010 John Kraus Antenna Award by the Institute of Electrical and Electronics Engineers (IEEE) Antennas and Propagation Society. This award recognizes an individual or a group that has made an exceptional contribution to the field of antennas through innovation. Anagnostou has also been named an associate editor for the journal *IEEE Transactions on Antennas and Propagation*.

A newly-chartered Rotaract Club will give students the opportunity to engage in leadership, professional development, and community and international service. The School of Mines Rotaract Club is the first of its kind at a university in South Dakota and also the first in Rotary District #5610, which serves communities in South Dakota, northeastern Iowa, southwestern Minnesota, and northeastern Nebraska.

**Mark Olson** (EE, Hazen, N.Dak.), **Andrew Smith** (EE, Pierre), and **Ryan Ziegler** (ChE, Hudson) have been named Tau Beta Pi Scholars for the 2010-11 academic year. In addition, **Travis Walker** (ChE/Math08) has been named a Tau Beta Pi Fellow for 2010-11. Tau Beta Pi, the engineering honor society, selects recipients for high scholarship, campus leadership and service, and promise of future contributions to the engineering profession.

For the sixth consecutive year, the School of Mines is the recipient of the Dakota Athletic Conference Scholars award. Forty-seven percent of Hardrocker student-athletes earned DAC academic honors for the 2009-10 school year.

The Hardwokers team from the School of Mines helped the American Cancer Society raise more than \$110,000 through Relay For Life. Of the 61 teams that participated, the Hardwokers came in fourth place, raising more than \$4,700.

The South Dakota Chapter of the American Choral Directors Association (SDACDA) has awarded its Lifetime Achievement Award for 2010 to Dr. **James Feiszli**, director of music at the South Dakota School of Mines and Technology. The honor recognizes significant impact on the lives of students pursuing excellence in choral music throughout the recipient's teaching career.

**Aaron Baker** (ChE, Rapid City) is the recipient of the Armed Forces Communications and Electronics Association General Emmett Paige Scholarship, awarded to only eight students nationwide. Baker was selected for his academic achievements and his service to the United States Navy.

**Teneil Ryno** (M.S. MES, Wood) has been awarded the Mary R. Norton Memorial Scholarship by the ASTM International Committee E04 on Metallography. The award encourages female students to pursue the study of physical metallurgy or materials science.



# The Faces of BUILDING THE DREAM

**D**uring the Five-Year All-School Reunion, more than 700 alumni and friends of the School of Mines celebrated the launch of the public phase of the Building the Dream Capital Campaign. The campaign began its silent phase in 2005, shortly after the successful completion of the first campaign, Vision 2000. After meeting with alumni and friends of the university, the School of Mines set a goal of \$50 million to support four areas: \$20 million for scholarships, \$10 million for faculty support, \$15 million for the student experience, and \$5 million for capital improvements. More than \$38.6 million of the \$50 million target has been raised, with the goal of completing the campaign in 2012.

More than 6,000 individuals, groups, and corporations have contributed to the campaign so far. Gifts range from a few dollars to more than \$1 million. Each gift, regardless of its size, is vital to the future success of the School of Mines.



**Kurt Kost (MinE78), president, Alpha Natural Resources; Lynn Bell (MinE80), vice president, Kiewit Mining Group; Mark Rantapaa (Geol87), surface operations superintendent, Barrick Gold of North America; and Marc Le Vier, senior director of metallurgical research and development, Newmont Mining Corporation**  
**Gift level: Co-Chair Level (\$1 Million+)**

These four major mining companies have directed their gift to the Department of Mining Engineering and Management to create the Mining Center of Excellence, designed to enhance the department's curriculum and the overall educational experience of its students. During this initial phase, these companies stand out as being the major donor-investors with a combined total of \$1.25 million spread over five years to provide funding for student and faculty support plus laboratory and curriculum development within the center.

"It's about the quality of the individuals that the School of Mines produces," Le Vier said. "They match our company's foundation, values, and passions, and we are looking to advance our relationship with the university."



**Lorin (MetE75) and Mary (CE77) Brass**  
**Gift level: Co-Chair Level (\$1 Million+)**

The Brass' gift endows three scholarships: The Lorin and Mary Brass Metallurgical Engineering Scholarship, the Lorin and Mary Brass Civil and Environmental Engineering Scholarship, and the Brass LIFE Award, a \$15,000 scholarship providing support for three semesters, including at least one semester abroad.

"We choose to support the School of Mines because it is easy for us to recognize the impact the university had on our lives," they said. "We want to return that positive experience by creating opportunities for students to study overseas."



**Ralph O'Neill (CE36)**  
**Gift Level: Diplomat (\$5,000+)**

O'Neill has been a consistent contributor to the School of Mines and has established the Ralph S. O'Neill Endowed Scholarship to be awarded to a student in the civil engineering department. The award is geared toward South Dakota students working part time or during the summer. O'Neill is the university's oldest alumnus – he turned 103 on November 18, 2010. His son, Kenneth O'Neill (ChE64), is also a School of Mines graduate.



**Larry (ME72) and Linda Pearson**  
**Gift level: Co-Chair Level (\$1 Million+)**

The Pearsons' gift endowed the Pearson Chair in Mechanical Engineering, established to focus on all areas of energy sustainability including the availability of energy resources; technologies required to extract, process, distribute, and generate power from them; alternative and sustainable energy sources; and the best technologies and management practices for dealing with utilization efficiency and conservation of energy. The chair will begin as a Pearson Professor, the first of whom is **Dr. Umesh Korde**, professor, mechanical engineering.

"Reliable future energy initiatives need to be researched, developed, and promoted, starting today," the Pearsons said. "And we cannot think of a better place for this type of research and education to take place than at the School of Mines."



**Judy Carrington and Dick Millard (CE51)**  
**Gift level: Co-Chair (\$1 million+)**

*Depicted by Construction Management program coordinator Scott Amos, Ph.D., with student Brady Wiesner (CE09)*

Carrington and Millard made a generous gift of land to establish the Carrington Millard Fund to develop the Carrington Millard School of Construction Management (CM)<sup>2</sup>. While Millard passed away before seeing his school become a reality, their generosity has allowed for the creation of a master's degree in construction management at the School of Mines. After its first successful year, the program has already graduated three students, and five students have received their LEED Green Associate credentials. Fourteen students are currently enrolled in the program.

"Construction impacts every aspect of society," they said. "Our dream is to not only create a program that trains students to assume responsible roles in the construction industry, but that instills a passion for the industry as well."

**Melanie Jeppesen (IS09)**  
**Gift Level: New Contributor**

Jeppesen began giving after graduating in 2009. As a woman in science and engineering, she feels passionately about making an education in science and engineering possible for more women.

"The School of Mines is a top-notch university, and that is due by and large to the contributions from alumni. I was involved with Student Association, Alpha Delta Pi, and numerous other organizations on campus. I want the students of the future to have every opportunity that I did, plus an expanded campus, physically as well as academically."



# SDSM REUNION

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25<sup>th</sup>  
Anniversary  
2010

PRESIDENT  
HARTON, PH.D.

UMNI PRESIDENT  
AGNER (CE75)

N CO-CHAIRS  
LAHAN (ME70)  
IRKS (METE74)

NI DIRECTOR  
TERO (CHEM84)



The reunion plaque on M-Hill after being put in place on Saturday, July 10.



## 1930s

**Emiel Belzer** (CE34) proudly shared a three-generation photo of School of Mines civil engineering graduates. Emiel II sent the photo via e-mail, along with the comments, "There was something a little different that took place on this 125th anniversary that very likely may never happen again in the next 125 years. The photo below shows all graduates of SDSM&T, and all were present at the graduation, which was held on May 8, 2010. All are Tau Beta Pi (and Emiel II was Sigma Tau). Go for it again in the next 125-year run."



l to r: **Emiel E. "Brett" Belzer IV** (CE10), **Emiel E. "Bud" Belzer II** (CE34), and **Emiel E. "Buddy" Belzer III** (CE74).

## 1940s

**Gene Wingert** (ChE44) shares: "I was very successful at avoiding hospitals for 83 years, but two and a half years ago, I had a heart attack and a triple bypass operation. I recovered slowly and am now fine."

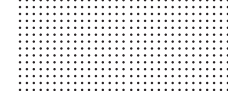
**Bob Annett** (ME56) updates that Linda has been diagnosed with lung cancer, but they still made it to the reunion and had a wonderful time.

## 1950s

**Roger Baird** (EE53) sends in: "Donna and I moved to a new continuing care retirement community (CCRC) called Acacia Creek in Union City, California, on June 19. This may be a surprise to many of you, as we have not been planning to make a move of this type. However, early this year we became aware of this new facility, checked it out, and decided it would be a good time for us to make a move. In other words, we are moving to a CCRC facility while we are still active and can enjoy the freedom from homeowner duties, security of a gated community, and many other amenities.

Actually, our new 150-unit apartment structure is located on the grounds of and adjacent to the Masonic Home for retired Masons that has been in operation for more than 100 years on the 305-acre hillside in Union City, which is just north of Fremont, California, on the east side of San Francisco Bay. It is about 28 miles northeast of our home in San Jose. Another attraction of the location is easy access to BART's Union City station for Bay Area travel and to the Fremont Amtrak station where we can catch the Capital Corridor trains for connection to the California Zephyr when we visit Andrea and family in Reno. So the last few months we have been busy preparing (decluttering) our home for sale and now getting ready for the move and finally moving. It is not a fun process after living there for almost 33 years, accumulating lots of stuff. We are moving from about 2,600-square feet with a three car garage to a 1,500-square-foot apartment consisting of two bedrooms and a den with two bathrooms and a living room. We have a southwest corner apartment on the fourth floor with two balconies, which provide spectacular views of South San Francisco Bay. The facility consists of four floors of apartments, the fifth floor houses dining, a game room, pub...and conference area. Garages are on the ground floor. In addition, there is an adjoining wellness facility with a large indoor swimming pool and fitness center. Assisted care and skilled nursing care are in adjacent facilities already in operation serving the existing Masonic retirement community. Acacia is for independent and active living."





**Lyle Clark** (ME52) shares that as of the 2010 reunion he was in bad health and was unable to attend, but sends his best regards to all.

**Bill Crawford** (GeolE51) says that he and Lois recently moved back to Rapid City from Arizona to be closer to their family. He says, "It will take us some time to get used to the cooler weather!"

**Warren Dowler** (ChE56) mentions that his wife Louise passed away in May 2008, and a few short months later his son Danny Dowler passed away in September.

**Fred Gerdes** (GenE51) updates that he and his wife Doris are enjoying the beautiful weather in Iowa. In the winter they have tried Texas, Florida, Arizona, and California but still love the snow and warmth of the folks in Iowa. "I am a hardcore Hawkeye fan," he writes. He heard from **Roger Baird** (EE53), **Jack Barger** (EE54), and **Fred Propp** (ME52) at Christmas time 2009.

**Jack Goth** (MetE50) states: "We continue to enjoy our new home at Hyatt Classic Residence. We attended the reunion in July, and to date I have missed only one in the last 50 years. We appreciate receiving correspondence from the Alumni Association."

**Bob Smith** (EE54) sent sad news of his wife Betty's passing early in the morning on September 28, 2010. Bob e-mailed, "She died peacefully at 2:15 a.m. this morning. I was in the lounge chair next to her." Betty had ALS (Lou Gehrig's disease).

**Ron Varilek** (CE57) shares: "Last year of any official business affiliation; I guess it's retirement. I worked security again at the Masters Golf Tournament. It was great golf and beautiful facilities. Carolyn helped and enjoyed the beauty. We will do it again next year for the seventh time. Anyone that comes to visit Sarasota, call, as we work at a great golf course and always

enjoy visiting with SDSM&T graduates."

## 1960s

**Doug Aldrich** (ChE62) shares that he comes to campus often, helping with renovations and new construction of the Chemical and Biological Engineering and Chemistry Building. "I passed a significant birthday with three days of family celebrations. Lots of fun times ..."

**Jon Anderson** (ME60) mentions: "We sincerely enjoyed the reunion of the class of 1960!"

**Ron Begier** (ME63) says: "We have nine children, 24 grandchildren, and nine great-grandchildren!"

**Vince Bertolotto** (ME67) says: "Full retirement from UTC is getting closer, as they do not subcontract as much work out in the economy. Without work, Liz and I will go to the Mexican Riviera Maya in January; Florida and Texas to visit and keep warm in March; and a few fishing trips up north in Wisconsin in the summer months."

**Bob Bottge** (GeolE62) sends in: "Full retirement began in December 1989. Twenty years without a hitch. I was released early from federal employment for good behavior. We are traditional grandparents via our son Paul. We are non-traditional step-great-grandparents via our daughter Mary. Life is great!"

**Harold Bross** (MetE68) announces that he retired from Shell in March 2006 after almost 38 years. He and Marge decided to remain in the New Orleans area. They have lived there since 1974 and have always enjoyed the area. "We are long-suffering Saints fans and are still celebrating their Super Bowl victory!"

**Dan Callahan** (ME67) recently relocated from New Hampshire to Colorado. He retired from HP in 2004. Their daughter Leslie is a teacher, and Sidney is in her



second year as an OB/GYN resident. They have two grandsons, Max and Ian.

**Dave Olson** (Math66) mentions: “I have been traveling heavily, including stops in Portugal, Estonia, and Finland so far this year. I was caught in the ash shutdown in May. I plan to retire in 11 years.”

**Jerry Pekarek** (ChE66) advises: “Judy and I did a fair amount of day hiking in New Mexico. We visited our grandson in Seattle a couple of times and are planning on getting more involved in volunteer activities.”

**Warren Satterlee** (ME65) shares that Summer 2010 consisted of a motorcycle trip from Minnesota to Alaska on his BMW R2100 GS Adventure.

**Dave Wagner** (ChE69) e-mailed: “I am in my 41st year with 3M. In July 2010, I relocated back to 3M in St. Paul, Minnesota, after spending three years in the Boston, Massachusetts area at Venture Tape Corp., a wholly-owned subsidiary of 3M Company. My wife, Vera, and I occasionally play golf with Nancy and **Larry Mohr** (Phys66), who are members of the same golf club.”

**Bernie Wilcox** (ME67) sends in “I retired from Texas Instruments Semiconductor Group, Dallas, Texas, in December 1996, after 27 ½ years of service. I was still too young to quit working, so I went to work for the Boeing Company Commercial Airplane Division in Irving, Texas, as a Supplier Quality Assurance Engineer in January 1997. In August 2004, Boeing declared the Irving facility was no longer a core competency and sold it to BAE Systems. With the start of a slowdown in the commercial airplane market, BAE started downsizing in 2007, and I was given the opportunity to take an early retirement in 2008. So after 11 ½ years at Boeing/BAE, I took advantage of the opportunity and retired (again) in April. During that time however, I took the training and got dual-verification by RAB/QSA as an ISO 9000 quality management systems auditor to do company audits for Honeywell Technical Services, Inc., Tempe, Arizona,

and certification audits with SGS systems and services certification out of Rutherford, New Jersey, keeping me active and involved in quality-related activities. My wife, Ginny, retired from Garland Independent School district in June 2008 after 24 years of service, so we are both enjoying the virtues of retirement. Both of our daughters are still in the Garland area and we have two granddaughters; the older one will be in high school as a senior this year and her younger sister will be a freshman. If anyone is passing through the area or transiting through the DFW airport, stop by or give us a call so we can have a good old sentimental visit. We plan on visiting our Black Hills home this year and hope to see many of you.”

## 1970s

**Mike Alley** (GeolE73) updates: “I married Deborah Kullerd, a family physician at Queen City Regional Clinic in Spearfish, South Dakota. I acquired step-daughters Megan, an architect, and Kate, a high school student. I have two grandsons, Jack Errea and Eric Errea.”

**Craig Eggerman** (GeolE73) e-mailed: “I have retired from the Wyoming Oil & Gas Commission and have moved from Casper, Wyoming, to Spokane, Washington, to be closer to the kids. No oil and gas out here, but something may turn up in the future. I might be looking for some part-time work for these that are harried by government agencies.”

**Paula Fairbank** (MetE77) says after raising a family of four children, she is back in school to become an RN. She works as a sleep technologist for Mercy Health System in Harvard, Illinois. Her husband, **David Fairbank** (MetE77) passed away last fall (10/12/2009) of pancreatitis.

**Terry Fiero** (ChE70) shares that after nearly 30 years with the Dow Chemical Company in a variety of technical and management positions and then running a Columbus, Ohio, consulting company as the COO,



he is now retired and “life is good.” He says, “Pam and I are lucky to have our two daughters and their families living close to us here in central Ohio. We are especially lucky and blessed to be able to spend time with our two grandsons and attend their games and special events as they grow up. It is enjoyable now to have the time for more exercise, golf, church, travel, and volunteer activities ... you really wonder how there was ever time for work!” Terry and Pam attended the 2010 All School Reunion in July. It was their first trip back in 40 years.

**Bob Heier** (ME73) shares: “Madonna and I still live in the New Orleans, Louisiana area. We are big Saints fans. We stay connected to many SDSM&T grads here in Louisiana and around the country. Thank you to **Ralph Wagner** (CE75) and **Ron Jeitz** (CE69) for visiting us in January.

**Jeff Hohle** (GeolE78) shares: “I recently married in 2007 and have three wonderful stepsons. The oldest is an ME working for Chevron, and the second is a sophomore ChE student. The youngest is an aspiring musician or engineer. I have been with BP/Amoco for 31 years, in Houston for the past seven years. I can be reached at <jhohle@earthlink.net>.”

**Dave Holmoe** (ME70) mentions that his son Luke recently received his B.S. in chemistry from SDSU. His daughter, Kendra, is a software engineer and Tracy, his oldest daughter, was a rocket scientist for Raytheon until illness forced her from work.

**Dave Knox** (ME75) updates: “Our wonderful experience in Japan is drawing to a close. We head back to the States for six to eight weeks, then on to Saudi Arabia.”

**Max Main** (ME73) was announced in a press release: “Max Main was elected president of the Rocky Mountain Mineral Law Foundation during the Foundation’s annual meeting in Banff, Alberta, July 21-24, 2010. Main is a partner in the Belle Fourche law firm of Bennett, Main, and Gubbrud. The

Foundation was established in 1955, and its mission is the scholarly and practical study of the law and regulations relating to domestic and international oil and gas, mining, water, land use, environmental protection...and related areas. Main has served as the South Dakota State Bar’s representative on the Trustees Council of the Foundation since 1987. He also served on the Board of Directors from 2003 to 2005 and as Treasurer from 2005 to 2007.



**Max Main** (ME73)

**Tom Ochsner** (MinE78) updates: “Hi all. I am back in the mining business, for more than two years already, thanks to my fellow alumni. I am with Strathmore Minerals in Riverton, Wyoming. We got our kids raised on the farm, and Bonnie and I are settling into our empty-nest lifestyles. We miss the Pierre tailgate reunions; I’ll try to make the next one at Casper. See you all soon.”



**Larry Pearson** (ME72) mentions: “since retiring at the end of 2008, Linda and I have been enjoying the kids and grandkids, travel, and winters in Arizona. Retirement also gives me more time for other important things, like fishing and golf. I often see **Randy Shaw** (EE70) and **Ed Olson** (ME61) at the golf course in Arizona.”

**Vasudevan Rajaram** (MinE72) says: “I am enjoying consulting on environmental projects in Illinois, Indiana, and in India, and opened an office in New Delhi, India, in 2008, focusing on municipal solid waste and wastewater management. I am also helping with green schools and rural development.”

**Lee Rice** (M.S. Geol70) was highlighted in a news release: “Lee brings significant geological expertise to IBC. He is currently serving as vice president and chief engineer of Data Technology Services, Inc., a private Colorado-based company, which he founded in 1993 and served as its president until 1995. Lee holds a B.S. degree in chemistry from Case Western Reserve University and a M.S. in geology from South Dakota School of Mines and Technology.”

**Ric Sorbo** (CE75) was also noted in a press release: “Ric Sorbo joins CH2M HILL, a global full-service consulting, design, construction, and operations firm, as senior vice president in its Energy and Chemicals Business Group, based in the firm’s Houston office. Sorbo has more than 30 years of experience in executing projects around the globe including large lump sum engineer, procure, and construct (EPC) projects. Sorbo received his bachelor’s degree in civil engineering from South Dakota School of Mines and Technology and his master’s degree in business administration from California State University in Stanislaus.”

**Donn Taylor** (EE71) advised that he retired in March 2009 from Seagate Technology after 36 years of combined service with Control Data, Magnetic Peripherals, Imprimus... and finally, Seagate.

**Larry Todd** (MetE78) e-mailed, “Jayne and I are still in Calama, Chile, working for Freeport McMoRan Copper and Gold.”

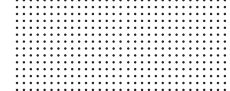
**Gary Veurink** (ChE72) began his second career in January 2010 as chief operating officer for IJM, a Washington, D.C.-based Christian human rights agency, which represents the poor in the developing world. He spent 35 years working for the Dow Chemical Co., retiring from Dow as corporate vice president, manufacturing and engineering. While at Dow, he held 17 different jobs and served on many boards of other organizations, including Dow Corning Corp. He spent 2.5 years with Dow Corning in an “advisor-to-CEO” role, after retirement from Dow. He and his high school sweetheart celebrated 40 years of marriage on Valentine’s Day 2010. Together they have three grown children: Tracey, Mike, and Ryan, who are all married and are busy raising their seven (soon to be eight) grandchildren. “Our three children selected professions of medicine and engineering and are active in their careers,” he says.

## 1980s

**Michael Black** (ME86) was named in an April 2010 news release from the Office of the Secretary for Indian Affairs as the Director of the Bureau of Indian Affairs. Black, an enrolled member of the Oglala Sioux Tribe in South Dakota, had been serving as the acting BIA Director since March 18, 2010. Black graduated from Aberdeen Central High School in 1982. He received a B.S. degree in mechanical engineering from the South Dakota School of Mines and Technology in 1986. (See p. 6.)

**Mike Boucher** (CSc91) shares: “Diane and I started a company named Dakota Legal Software to sell software to help lawyers write briefs and legal memoranda faster and more accurately. As with our first company, we are hiring only the very best – our first seven employees have been SDSM&T graduates, and the majority of the people working here today are





also graduates. We have started installing the software in law firms and we have recently begun working with in-house council at companies that want their outside attorneys to use our software to lower costs. We just finished our first campus-wide installation at The University of Colorado School of Law in Boulder, Colorado, and they are very pleased with the results. If any recent Mines graduate has gone on to law school, contact me at <mlboucher@gmail.com> and I will send you a free copy for you to use in your summer jobs, clerkships, and internships.”



**Michael Black (ME86)**

**Craig Brunson (ME83)** is proud to be the grandpa of six grandkids. Emilee is five, Meagan is three-and-a-half, Austyn is also three-and-a-half, Kaylee is two-and-a-half, Colton is two, and Lily is one.

**Dr. Sundar Christopher (M.S. Mtro89)**, professor of atmospheric science and associate director of the Earth System Science Center (ESSC) at the University of Alabama in Huntsville, has been named chair of the atmospheric science department beginning May 24, 2010. Christopher’s research interests include satellite remote sensing of clouds and aerosols, and using that data to study their effects on global and regional climate, air quality, health, and the environment.

Christopher received his Ph.D. in atmospheric sciences from Colorado State University in 1995. He also has an M.S. in atmospheric sciences from the South Dakota School of Mines and Technology, a B.E. from the P.S.G. College of Technology in India, and an M.A. in industrial and organizational psychology from the University of Alabama in Huntsville.



**Dr. Sundar Christopher (M.S. Mtro89)**

**John Gaska (ME84)** says: “A quick update note. After successive five year stints with Chrysler, Boeing, and Ingersoll Rand, I am working at SkoFlo Industries in Seattle as the engineering manager for a product development firm. Long hours and plenty of stress, but the development makes it worthwhile. The girl who put me through SDSM&T, my wife Michelle, graduated from the University of Washington and works for the state as a social worker. Son Matthew is a firefighter/EMT and is working on becoming a paramedic. Daughter Kayla exists to just have fun and currently plays roller derby for Seattle’s Rat City Rollergirls. As for me, on November 7, I will be running the 2010 New York City Marathon in order to



raise funds for the Thomas G. Labrecque Foundation. I encourage my fellow SDSM&T alums to both drop by my website <<http://www.active.com/donate/jgny>> to donate and drop me a line at <[jcgaska@earthlink.net](mailto:jcgaska@earthlink.net)> just to say hello."

**Chuck Gibbs** (ME88) shares: "I was finally able to move to the ranch to help take care of my father. We built him a cabin near the main house, which is our new home. It is great to be back in the country!"

**Barry Granger** (ChE81) was recognized in a news release: "Delaware State University's Board of Trustees unanimously approved the board nomination of DuPont executive Barry M. Granger to the board. Granger is the vice president for DuPont Government Marketing and Government Affairs, a company he has worked for since 1987. Prior to his arrival at DuPont, he held various positions with the Dow Chemical Company. Mr. Granger holds a bachelor of science in chemical engineering from South Dakota School of Mines and Technology and a master of business administration from Indiana University."

**Ray Greff** (MinE81) updates that after about 21 years with the great AG Edwards and Sons Inc., they got taken over by big banks. He is trying to avoid the "big bank syndrome" and their excessive client fees. He started an Ameriprise Financial Services office and is a financial advisor in Rapid City. He said it is going well and all alumni are welcome to call. Zane, his oldest son, will be a junior in electrical engineering this fall. He enjoys home cooking and the conveniences of living at home, yet still being able to attend a fine school like the School of Mines.

**Ezzedin Hamyouni** (Geol81) was recognized in a press release from Circle Oil: "Circle Oil announces the appointment of Mr. Ezzedin Hamyouni to the board as a non-executive director. Mr. Hamyouni is a geologist with more than 35 years of operational, technical, and managerial experience in upstream oil and gas and is currently the chairman of Libya Oil Holdings Limited (Libya Oil Holdings currently holds a 24.05

percent equity interest in the company). Prior to his chairmanship of Libya Oil Holdings Limited he was in charge of both upstream and downstream investments in Libya Investment Authority. Mr. Hamyouni holds a B.Sc. in geology from the University of Libya and an M.S. in geology from South Dakota School of Mines and Technology."

**Mike Harper** (CSc83) announces: "After 31 years of software with Rockwell and Boeing, I've retired and returned to the Black Hills. I am having a blast settling into my new home and connecting with old friends."

**Kevin Harris** (CE81) announces: "I am retiring after 28-plus years of service with Shell. It has been a lot of fun leading various project teams in the design of oil and gas facilities in the Gulf of Mexico and around the world. We are moving to South Carolina where Beth and I are looking forward to traveling, golf, volunteer work, and whatever else we feel like doing!"

**Deepak Malholtra** (EE86) mentions: "After three years of running my own patent law firm, I am finally getting into the swing of things. I have some prestigious clients, secretarial help, and even a bit of profit. My real estate investments are down in value, but net cash flow is holding up and is positive despite a high vacancy rate in Mexico. In 2009 we had some nice trips to France, Spain, Vietnam, Cambodia, and Thailand."

**James Roling** (ME88) announces that he is now living in the beautiful Black Hills and would love to hear from classmates at <[jkroling@rap.midco.net](mailto:jkroling@rap.midco.net)>!

"Taseko is pleased to announce the appointment of Mr. **David Rouleau** (MinE86) as vice president, operations. Rouleau will be responsible for overseeing all operational aspects of the Gibraltar Mine as well as the development and ultimate operation of the Prosperity Mine. Rouleau has more than two decades of experience in the mining and oil and gas industries. He holds a bachelor of science of mining engineering from the South Dakota School of Mines and a mining technology diploma from Haileybury School of



Mines. Rouleau's background also includes 17 years with Teck Cominco in various mine operations and engineering roles."

**Jackie Sargent** (EE89) advises "Don and I are doing well. I am still with Black Hills Corporation and Don is with West Plains Engineering in Rapid City. Ericka is with Bechtel in Houston, and Clark is with Structural Integrity in Denver. Clark recently got engaged to Jessica Rodriguez of Rapid City and they are planning to get married in April 2011."



Fire River Gold Corp. announced in July 2010 that "it has hired **Mr. Leonard Therrien** (MinE82) as its underground mine superintendent. Mr. Therrien will oversee mining operations at the Nixon Fork Gold Mine

**Leonard Therrien** (MinE82) situated in Alaska's Titina Gold Belt. Mr. Therrien has extensive mine management experience, primarily in the Marathon region of Ontario, where he has worked these past 24 years. Although mine production is Mr. Therrien's primary interest, he is a fully trained and registered Professional Mining Engineer (Ont), with a bachelor's degree from South Dakota School of Mines and Technology and a technical diploma from Haileybury School of Mines and Technology (Ont)."

**Janice Vosika** (ChE81) says: "I recently retired after 28 years with BP/Amoco and moved from Alaska back to Wyoming to be closer to family and friends. I am looking forward to more time for racquetball,

golf, skiing, camping, fishing, hunting, and many other hobbies."

## 1990s

**Steve Dykstra** (CE92) moved back to South Dakota in 2008 after living in Michigan for more than two years and then New Mexico for the previous 13. He continues to work with Indian Health Services but switched from water/sewer-type work to facilities work, mostly at the Pine Ridge IHS hospital. Moving was a huge adjustment for his family, but they are getting settled into schools, church, and so on in Rapid City.

**Corey Jacobs** (ME91) announces: "Well it's a little late, but Eli Lathon Jacobs was born May 28, 2010, at 6:30 p.m. He was 8lbs 13oz and 20 inches long. We're all doing well."

**Donald Lapp** (ME92) was mentioned in a news release in the *Bismarck Tribune*: "Don Lapp has joined Edgepath Technology, a division of Applied Engineering Inc., as a business development/technical sales consultant. Lapp received a B.S. degree in mechanical engineering from South Dakota School of Mines and Technology, Rapid City."

**John Lofberg** (M.S. TMgt98) was named in a Crazy Horse Memorial press release: "The Crazy Horse Memorial Foundation is working with the University of South Dakota at Vermillion to offer the first Summer University Program classes in the Memorial's new living and learning center. John Lofberg, a veteran teacher of mathematics and computer science at South Dakota School of Mines and Technology in Rapid City, will teach the algebra courses. He holds degrees from the School of Mines and Black Hills State University and is a retired U.S. Air Force senior master sergeant."



On June 4, 2010, Drs. Karim Muci and Umesh Korde, professors, mechanical engineering, and Mike Batchelder, chair and professor, electrical and computer engineering, had an Educator Orientation Visit aboard the USS Jefferson City ([www.ussjeffersoncity.net](http://www.ussjeffersoncity.net)), a Los Angeles class fast-attack submarine, courtesy of the Navy and Commander **G.L. "Tiger" Pittman III** (ChE94). "We spent a day out of San Diego on the Pacific and under the Pacific learning about life on a submarine and about the Nuclear Propulsion Officer Candidate Program (NUPOC)."



l to r: **"Tiger" Pittman** (ChE94), Karim Muci, Umesh Korde, and Mike Batchelder

Nadine Dake sent news of the 2010 Easter weekend wedding of her nephew **Dan Polenz** (CE90). According to Aunt Nadine's e-mail, "All the people in the photo are SDSM&T grads (or students) except for the bride. **Dan Dake** (CE55) is the little old man in the background. It was a wonderful wedding and family mini-reunion."



Hardrockers at Polenz wedding in Colorado



Curtis Dennis Gomulinski and Tricia Schwaller (EE98)

**Tricia Schwaller** (EE98) announced that she is engaged to Curtis Dennis Gomulinski of Ypsilanti, Michigan. The wedding was planned for December 31, 2010, in Michigan. Curt is a project engineer at the University of Michigan Plant IT department. Tricia is a software engineer at Raytheon in Aurora, Colorado.

## 2000s

**Genet Ide Duke** (Ph.D. GeolE05) sent news to campus that she "will be moving to Northeastern Illinois University (NEIU) over the summer (around July 6-10), having just accepted a position in the earth science department there. I will be teaching undergraduate petrology, structure, and tectonics, classes that I have wanted to teach but have been unable to because we have not had a full geology program at LSUA (only a geology minor). I hope to have a little more time for research at NEIU. Although it is primarily an undergraduate university, we hope to develop a master's program in the earth sciences in the next few years."



Christopher William Ellis

**Sarah (Center) Ellis** (IS02) e-mailed: "**LeRoy** (CSc00) and I welcomed a new little Hardrocker into our lives on April 16, 2010, of this year. Christopher William surprised us by turning up a bit earlier than expected, but now that he is here we are



enjoying every minute with him. As for LeRoy and I, we have both changed jobs in the past few years. Last year my company went through some major cutbacks and laid a bunch of folks off. Unfortunately, I was one of them. I have yet to find a job, but remain hopeful. LeRoy currently works for Prodea Systems out of Dallas, Texas. He is still a software engineer and works on a cutting-edge media system.”

Alumni **Kevin Heiberger** (ME07) and **Corinne Vottero** (IE08) were married on September 18, 2010, at the Rimrock Evangelical Free Church in Rapid City. Other alumni in attendance were the groom’s brothers **Mark Heiberger** (EE04) and **John Heiberger** (ME10); best man **Mark Sauder** (IE04); the bride’s sister and matron of honor **Breanne Lundin** (ChE06); the bride’s uncle **Dusty Gilyard** (CE81); family friends **Paul Gnirk** (MinE59) and **Jon Kellar** (MetE84); and father of the bride **Tim Vottero** (Chem84). The happy couple lives in Sandy, Utah.



**Corinne (IE08) and Kevin Heiberger (ME07)**



**Eleanor Kirby Lundin**

**Breanne Lundin** (ChE06) and husband Ian are proud to announce the arrival of their second child. Baby girl Eleanor Kirby Lundin made her arrival on March 30, 2010.

**Alexis Morlok** (CE08) was recently reconized in a press release from the *Bismarck Tribune*: “Six people recently joined the staff of Kadrmas, Lee and Jackson in Bismarck, including **Alexis Morlok** (CE08). Morlok is part of the airports group, and is a 2008 civil engineering graduate from South Dakota School of Mines and Technology.”

**Jaime Rathjen** (IE02) announces that on June 18, 2010, she married Josh McGillvrey and together they have three dogs – Harley (pug), Chopper (pug), and Rocky (boxer).

**Matt Sheldon** (Geol08) and Lindsay Kelley, a former geology student, bought a house together in Hampton, Minnesota. “She is working for MNDOT in the water resources department. My son James has turned four years old recently. Lindsay and I were recently married on June 19, 2010. My father **Thomas Sheldon** (ChE70) has been a great help with all recent and upcoming events.”

**Daniel Stanton** (CE01) and Ruth Stanton of Peoria, Illinois, are delighted to announce the arrival of Kayla MaryAnn Stanton on July 6, 2010.

**Renee Vevea** (IS00) completed her ALA-accredited M.S. in library and information science with advanced certificate in library management from the University of North Texas (Denton) in August 2009. She is the account services manager/interactive at Fingerhut Direct Marketing.



**Landon Cody Wenner**

**Justin Wenner** (ME06) and his wife Sara are proud to announce the arrival of their son, Landon Cody Wenner, born on April 29, 2010, at 5:25 a.m.



# AREA MEETINGS

1. Houston, Texas, alumni and guests (seated, l to r) **Dan Jackson** (MetE76), **Ron Jeitz** (CE69), **John Heinemann** (EE67), **Bob Miesen** (CE61), (standing, l to r) SDSM&T President **Robert A. Wharton**, Ph.D., **Dick Kaiser**, **Judd Hansen** (ME78), **Dave Jackson** (ME70), Ernest Anoma Jr., **Ken Juran** (ME75), **Zane Huffman** (MetE89), **Ernest Anoma** (MinE78), **Rod Pappel** (ME77), **Ralph Wagner** (CE75), **Gary Bertelson** (CE77)
2. Rapid City Alumni Weekend attendees Alumni President-Elect **Joe Corbett** (GeolE82), President **Ralph Wagner** (CE75), and Executive VP **Paul Gnirk** (MinE59)
3. Rapid City Alumni Weekend Hardrockers Cheerleaders with Alumni President **Ralph Wagner** (CE75)
4. Sioux Falls spring banquet group
5. Mitchell spring banquet (left table group)
6. Mitchell spring banquet (right table group)
7. Rapid City "Class of 1960" Reunion Alumni
8. Rapid City "Class of 1960" Reunion attendees **Paul Gnirk** (MinE59), SDSM&T President **Robert A. Wharton**, Ph. D., **Carl Coad** (Math60)
9. Rapid City "Class of 1960" Reunion attendees **Ron Jeitz** (CE69), **Del Zambon** (ME60), **C. J. DeLange** (ME60), **Wayne Echelberger** (CE56), **Howard Peterson** (GeolE50), **Rod Pappel** (ME77)
10. Kansas City, Missouri, gathering of ASME students, alumni, and guests (students, kneeling l to r) **Ty Stalcup** (ME, Gillette, Wyo.), **Carlos Beatty, Jr.** (IE, Rapid City), **Sean Hayes** (ME10), **Laddie Hickson III** (ME, Nemo), **Amanda McConnell** (ME, Santee, Calif.), **Terry Voigt** (ME10), **Ian Jensen** (ME10), and **Colter Burleson** (ME10), (alumni and guests, standing l to r) **Sara and Justin Wenner** (ME06), **Sarah and Mike Goodale** (ME03), **Meghan Solheid** and **Joe Farke** (ME08), **Michael Fischbach** (ME64), **Rosie (Schmidt) Bartels** (Math71) and **Terry Bartels** (ME71), **Jenny (Baker) Johnson** (ChE07) and **Wade Johnson** (EE07), **Tara and Chuck Cox** (ME00), **John Tines** (ME08)
11. Annapolis, Maryland, alumnus **Bill Pearson** (CE64) and Janet Richardson-Pearson host alumni and friends
12. Arlington, Virginia, alumnus **Bill Tucker** (GeolE56) and Nancy Tucker host alumni and friends
13. Wilmington, Delaware, visit with SDSM&T President **Robert A. Wharton**, Ph.D. and Dr. **Maynard Raasch** (ChE37)
14. Twin Cities, Minnesota, alumni (l to r) **Steve Newlin** (CE75), **Ron Feldhaus** (EE70), **Scott Fritz** (IE04), **Holly Maudsley** (ChE95) holding Asher, **Mathew Goeden** (CEng03), **Ralph Wagner** (CE75)
15. Rapid City "Spirit and Pride" picnic group
16. Denver, Colorado, Rockies game with Alumni President **Ralph Wagner** (CE75), alumni and friends
17. M-Week 2010 – Senior Plaque with **Ken Collins** (CE10) and **Robert "RC" Scull** (CE, Rapid City)



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# AREA MEETINGS

18. M-Week 2010 – Picnigoers (l to r) **Paul Gnirk** (MinE59), **Ralph Wagner** (CE75), **Ritch Larson** (ME75), **Mike Langerman** (ME72), **David Gnirk** (ME74), **Keld Ditlev** (CE06), **Pete Birrenkott** (ME71)

19. M-Week 2010 – M-Day Parade alumni (l to r) **Mike Langerman** (ME72), **Jim Green** (ME74), **Pete Birrenkott** (ME71), **Paul Gnirk** (MinE59)

20. M-Week 2010 – M-Day Muster (belated) in Kennebunkport, Maine, with **Ron Symens** (EE73) and **Ray Symens** (MetE73)

21. M-Week 2010 – M-Day Muster in Midland, Michigan, with (l to r) **Anne Putnam** (ChE05) holding **Larson**, **Dan Lacher** (CSc00) holding **Norah**, **Kelly** (ME98) and **Shawn Burgard** (ChE98), **Kirk Opella** (ChE94), **Erin Lacher** (ChE01) holding **Emily Lacher**, **Alivia Putnam**

22. M-Week 2010 – M-Day Muster in Rapid City at Thirsty's

23. M-Week 2010 – SAC Golf Tourney winning team of **Steph Bjstrom** (Chem, Rapid City), **Ariel Granillo** (IE, Chandler, Ariz.), **Robbie Fedor** (ME, Rapid City), **Jordan Schmitz** (IS, Williston, ND)

24. M-Week 2010 – M-Day Muster in Baku, Azerbaijan with **Dan Borling** (GeolE81) and **Gary Christman** (ChE74)



18.



19.

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Jerry Likewise (MEM07)  
O&M Manager - N Simpson, Black Hills  
Corporation (Black Hills Power)

Dory Batka  
Supervisor-Generation Dispatch & Power Marketing,  
Black Hills Corporation (Black Hills Power)

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20.



21.



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23.

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24.



### People:

- Nine decades of alumni represented (1936-2010)
- 100+ volunteers (alumni, campus and community)
- 1500+ people participating in the reunion

### Places:

- One brightly lit M-Hill
- Three foreign countries represented (Australia, Canada, Czech Republic)
- Six off-campus Class Luncheon locations
- 10+ hotels, homes, camp grounds, etc.
- 20+ campus buildings
- 46 U.S. states represented (missing Delaware, Hawaii, Maine, Mississippi)

### Things:

- Two tents (Tunnel Activities/Family Picnic/M-Hill Climb and ChE Picnic)
- Three vans (10 passengers) full with 40+ trips up/down (M-Hill Climb)
- Seven+ Power Point presentations
- Eight+ gallons of syrup (Pancake Breakfast)
- 10+ pounds of butter (Pancake Breakfast)
- 10+ gallons of juice (Pancake Breakfast)
- 10+ gallons of milk (Pancake Breakfast)
- 11 cakes (Family Picnic)
- 20+ gallons of coffee (Pancake Breakfast)
- 70+ cases of beer (Tunnel Activities and M-Hill Climb)
- 100+ out-of-state license plates (estimated)
- 110+ pounds of pasta salad (Family Picnic)
- 125+ pounds of potato salad (Family Picnic)
- 126+ pounds of baked beans (Family Picnic)
- 160+ pounds of ham (Pancake Breakfast)
- 480+ quarts of lemonade (Tunnel Activities)
- 500+ photographs (known; more to surface)
- 550+ pounds of fried and BBQ chicken (Family Picnic)
- 600+ hot dogs, buns, bags of chips (Tunnel Activities; compliments of Aramark)
- 700+ hamburgers and buns (Family Picnic)
- 1200+ corn bread muffins (Family Picnic)
- 1350+ sourdough pancakes (Pancake Breakfast)
- 1500+ e-mails (registration related only)
- 2000+ cans of soda (Tunnel Activities and Family Picnic)
- 4000+ bottles of water (Tunnel Activities, Family Picnic, M-Hill Climb and Harney Peak 125th Anniversary Hike)
- Fun had at the Reunion ... **priceless!!**





# ALUMNI REUNION



Reunion 2010 – Let's Do It Again!! spanned July 7-11, 2010, and included activities and fun for everyone. With more events than one person could attend, the schedule also offered a wide range for all interests and age groups. From the **Alumni Meetings to Tunnel Activities; All Class Socials to Family Picnics; Tours and Dedications to Greek and Non-Greek Banquets; the Pancake Breakfast to an M-Hill Climb and Reunion Plaque setting; Class Luncheons to the Gala Banquet;** and from a beautiful **sunrise service at Mount Rushmore** to a rainy finale **Harney Peak Climb** – this reunion offered it all.

So many people helped in so many ways to make this a memorable event. The SDSMT Alumni Association and our alma mater express our sincere gratitude to the hundred-plus individuals who volunteered and to the thousand-plus who traveled from 46 states and several foreign countries to join with families, friends, and alumni for this time-honored tradition. We welcome your comments and thoughts regarding the reunion, including ways to make it better in 2015, via <alumni@sdsmt.edu>. By any measure, it was a tremendous gathering of alumni and friends. It cannot be said enough – **THANK YOU** to all who participated and made this a memorable Reunion 2010 – *Let's Do It Again!!*



Reunion Co-Chairs **Gary Callahan (ME70)** and **Monte Dirks (MetE74)** with SDSMT President **Robert A. Wharton, Ph.D.** holding the reunion plaque.

For more reunion photos, please visit <<http://alumni.sdsmt.edu>>



Since 1934, the Alumni Association has played a vital role in connecting SDSM&T alumni with our alma mater and each other. Throughout the decades, alumni have generously supported the SDSM&T Alumni Association and its mission “to advance the interests, influence, and reputation of the South Dakota School of Mines and Technology by fostering and developing the continued interest and active support of its alumni and friends.”

Our association is sincerely grateful for the thousands of alumni and friends who support this mission each year. Your many annual gifts create the cornerstone funding for our activities and services. We extend a special note of appreciation to those Lifetime Contributors who have chosen to create a lasting legacy through a single gift of \$1,000 or more. Thanks go to the many contributions to our alma mater.

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**John Spahn** (M.S. Mtro76)  
**Jon Spargur** (ME61)  
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**Tor Tylden** (EE72)  
**Dominic Veronda** (MetE43)  
**Gary Veurink** (ChE72)  
**J. Fred Voigt** (CE51)  
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**Wm. Craig Willan** (MetE76)  
**Daniel Wynia** (ChE96)  
**Keith Zell** (ME65)  
**Thomas Zeller** (ME70)

\* Indicates multiple lifetime contributions





SDSMT NASA Solar Institute students from left to right:

Mukunda Satchindanand (Pembroke Pines, Fla.), Hannah Benedix (Omaha, Nebr.), Luke Wajrowski (Crystal Lake, Ill.), Anthony Vong (Alhambra, Calif.), Katherine Lau (Las Vegas, Nev.), Andrew Song (Dublin, Calif.), Hank Lin (Arcadia, Calif.), Brandon Gilmore (Burgettstown, Pa.), Michelle Lam (South Pasadena, Calif.), Elizabeth Worsham (Loveland, Colo.), Katherine Stone (Fort Walton Beach, Fla.), Maryam Amer (Yorktown, Va.), Ashley Funk (Mount Pleasant, Pa.), Keheira Henderson (Nashville, Tenn.), Adelyn Crabtree (Pierre, S.Dak.), Jordan Gegenhuber (Roseburg, Ore.), Cynthia Tong (Arcadia, Calif.), Pranava Raparla (Reston, Va.), and Michael Coates (Niles, Ohio).



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**SDSM&T BSEE '86**

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# Memorials

Sympathies and condolences go the family and friends of the following alumni for their loss. **Complete memorials may be found under the Class Notes section at <<http://alumni.sdsmt.edu>>.**

*An incomplete memorial for Donald Hanley was printed in the spring 2010 Hardrock. The below memorial includes Don's complete and distinguished military career, his work career, and his community service.*

## **DONALD JAMES HANLEY**

**Donald Hanley** (CE49) died at SunQuest Healthcare at the age of 86 years, six months, and 23 days. He was born May 24, 1923, at Hawarden, Iowa, to James and Laura Hanley. He graduated from Huron High School. During his high school, he was employed by F. W. Woolworth. He enlisted in the U.S. Air Force in 1942 and reported for duty at Superior, Wisconsin, for basic training and was a member of the Air Force Marching Band. He graduated from La Junta Flying School, Colorado, and was commissioned as lieutenant in 1944. He was assigned overseas to the 317th Troop Carrier Group and flew C-47's during WWII. He received three bronze stars on his Asiatic-Pacific Ribbon for participation in the New Guinea, Philippines, and Luzon campaigns and one bronze star on the Philippine Liberation Ribbon. After the war he graduated from South Dakota School of Mines and Technology with a degree in civil engineering and was employed by the Bureau of Reclamation. He was employed at Scott Engineering of Watertown, South Dakota, when he married Bernadine Simon of Hoven, South Dakota, on August, 30, 1950. In 1953 they moved to the Hanley Homestead at Broadland, South Dakota, where they farmed and ranched for 30 years. He and his wife were honored at the South Dakota State Fair for having a Century Farm in the same family for more than 100 years. They retired in Huron in 1986. He was a very active community leader, having served 20 years as a Fairfield Township clerk, past director of James Valley Co-op, a 4-H leader and past Kiwanis member, and secretary-treasurer of Broadland Cemetery Association for 43 years. He was nominated Outstanding Young Farmer in 1958. He belonged to Williams Reaves American Legion Post 7, color guard and past historian, Forrest McMillen VFW Post 1776, Fairfield Township election committeeman, Old Michigan Grange Master, assisted Salvation Army Christmas basket program, and 20 years activity member RSVP at Huron Nursing Home. He was a member of Holy Trinity Catholic Parish and St. Martins where he served as usher and council member. Hanley is survived by his wife, Bernadine; sons James Hanley of Rapid City and Michael Hanley of Lake Madison; seven grandchildren; and many nieces and nephews.

**Roswell Hamlin Aga** (EE43)  
**Keith Hans Anderson** (GeolE56)  
**Robert Dean Braden** (ME51)  
**Thomas Joseph Breuer** (CE91)  
**Dean A. Brown** (CE60)  
**John H. Buckingham** (ChE34)  
**Lorne Edward Cass** (GenE40)  
**Charles L. Child II** (CE72)  
**John Philip Christen** (ME56)  
**Patrick Joseph Coyne** (ChE66)  
**Earl Joseph Dailey** (ME51)  
**David Thomas Fairbank** (MetE77)  
**Kathleen Fastback** (former staff)  
**Clifford Gilliland Flittie** (MinE48)  
**Claude Elroy Francis** (EE67)  
**John Cornelius Groen** (MetE60)  
**Donald James Hanley** (CE49)  
**Gale Stewart Hanks** (MetE40)  
**James Roger Hawke** (MetE87)  
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**Helge Johannessen** (CE62)  
**Harry Paul Kautz** (MetE43)  
**Donald Clifford Kimball** (MetE42)  
**E. Boyd 'Butch' Klingler** (GeolE59)  
**Kasmier Dominic Kubik** (Geol44)  
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**Robert L. Morck** (Phys62)  
**Steven Martin Morgenstern** (ME83)  
**Lawrence Myers** (GeolE50)  
**James Newman** (EE61)  
**Arthur Langdon O'Toole** (ME51)  
**Gerald Eugene Peterson** (ME51)  
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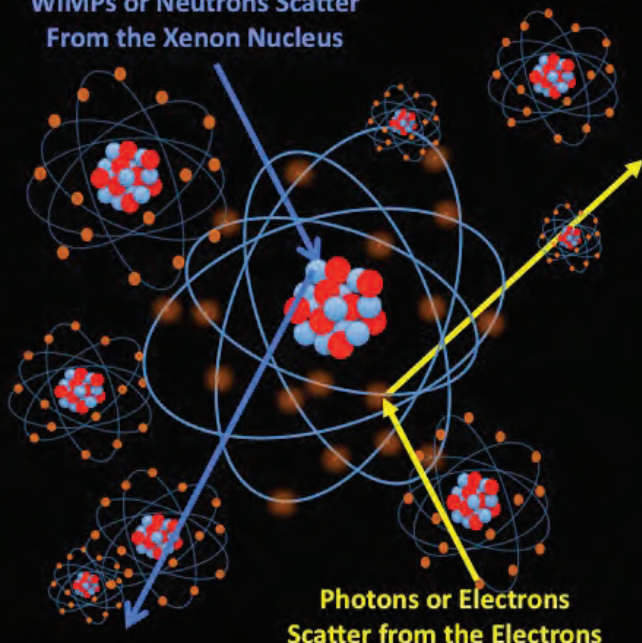
# ////HOW STUFF WORKS////

## //MEET THE EXPERT//

**Xinhua Bai, Ph.D., Assistant Professor, Physics** ◀.....

Bai earned a bachelor's degree in physics, a master's degree in experimental nuclear physics, and a Ph.D. in nuclear and particle physics from Peking University in Beijing, China. He has a substantial record of research in experimental cosmic ray physics and high-energy neutrino astronomy and has made contributions to a number of experiments, including the Pierre Auger Project, the South-Pole Air Shower Experiment II (SPASE2), and the Antarctica Muon and Neutrino Detector Array (AMANDA). He is currently a member of the Large Underground Xenon and Long-Baseline Neutrino Experiments. He is also an associate member of the high-energy neutrino astronomy project IceCube. Learn more about Bai at <http://odessa.phy.sdsmt.edu/~bai/>.

WIMPs or Neutrons Scatter  
From the Xenon Nucleus



Photons or Electrons  
Scatter from the Electrons

## DARK MATTER

"We believe dark matter has to exist, otherwise our knowledge about the universe does not make sense," Bai says.

### //WHAT IS DARK MATTER?//

Dark matter is a type of matter (any substance that occupies space and has mass) that has yet to be physically detected. First described in the 1930s, dark matter is believed to exist because it is the missing piece in the mechanics of the universe, including the orbital velocity and rotational speeds of galaxies. It does not emit or absorb light, but it does exert gravitational force.

### //HOW DO WE DETECT DARK MATTER?//

With the ongoing development of the Deep Underground Science and Engineering Laboratory (DUSEL) in Lead, South Dakota, research at the School of Mines is expanding into the areas related to dark matter search, neutrino physics, and other experiments requiring deep underground shielding. Directed by Bai, the School of Mines – along with Brown University, Case Western, Harvard, Lawrence Berkeley National Laboratory, and others – is a leading partner in the direct detection of dark matter through the Large Underground Xenon (LUX) experiment.

LUX will utilize 350 kg of liquid xenon and photomultiplier tubes to detect scintillation (flash of light from ionizing radiation) and ionization when particles – such as photons, neutrons, and hopefully dark matter – are detected. The ratio between scintillation and ionization identifies the type of particle. The leading dark matter contender, the Weakly Interacting Massive Particle (WIMP), is a candidate for this type of detection.

LUX will be installed in the site of the 1965 solar neutrino experiment conducted by Dr. Ray Davis, which earned the 2002 Nobel Prize. The laboratory is one of the deepest facilities available, with 4,850 feet of rock providing the cosmic shielding necessary to successfully study dark matter.





## SPECIAL NOTICE

### Proposed Changes to the Constitution of the SDSM&T Alumni Association

At the April 24, 2010, meeting of the Board of Directors, a motion was made, seconded, and passed unanimously to amend Sections 2, 6, and 7 of Article III-“Officers, Council, and Committees” of the Constitution of the Alumni Association. Implementation of the amended Sections requires ratification by the members of the Alumni Association. A vote for or against the following Sections as amended can be made by e-mail to [alumni@sdsmt.edu](mailto:alumni@sdsmt.edu) or by printing and mailing a ballot from the web page <http://alumni.sdsmt.edu> or by calling the Alumni Office at 1-800-394-2394 and requesting a ballot. Balloting shall end by March 15, 2011.

**Section 2. BOARD OF DIRECTORS.** {The requirement for nine of twelve Regular BOD members to reside in Rapid City or vicinity shall be eliminated.} Specifically, eliminate the existing paragraph “~~The twelve Regular Members of the Board of Directors shall consist of nine (9) members from Rapid City or vicinity and three (3) members at large~~” and revise the following paragraph as “There will be three Classes of Regular Members on the Board of Directors. Each Class will be composed of four (4) Regular Members: ~~three (3) from Rapid City or vicinity, and one (1) at large.~~” All other parts of Section 2 remain unchanged.

**Section 6. RELATIONSHIP COMMITTEE.** {The requirement for the Relationship Committee to be comprised of residents of South Dakota shall be eliminated.} Specifically, revise the following paragraph as “There shall be a Relationship Committee, ~~a majority of whom shall be residents of South Dakota.~~ It will be appointed on an annual basis by the Board of Directors from among Regular or Associate Members. The Board of Directors will designate the Chairman, who shall report to the Board of Directors.”

**Section 7. STUDENT COMMITTEE.** {The requirement for the Student Committee to be comprised solely of South Dakota residents and in the majority from Rapid City or vicinity shall be eliminated.} Specifically, revise the following paragraph as “There shall be a Student Committee, ~~all of whom shall be from South Dakota and the majority shall be from Rapid City or vicinity.~~ It will be appointed on an annual basis by the Board of Directors from among Regular or Associate Members. The Board of Directors will designate the Chairman, who shall report to the Board of Directors.”



**Margaret Puszynski**  
Broker Associate

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