FORESIGHT

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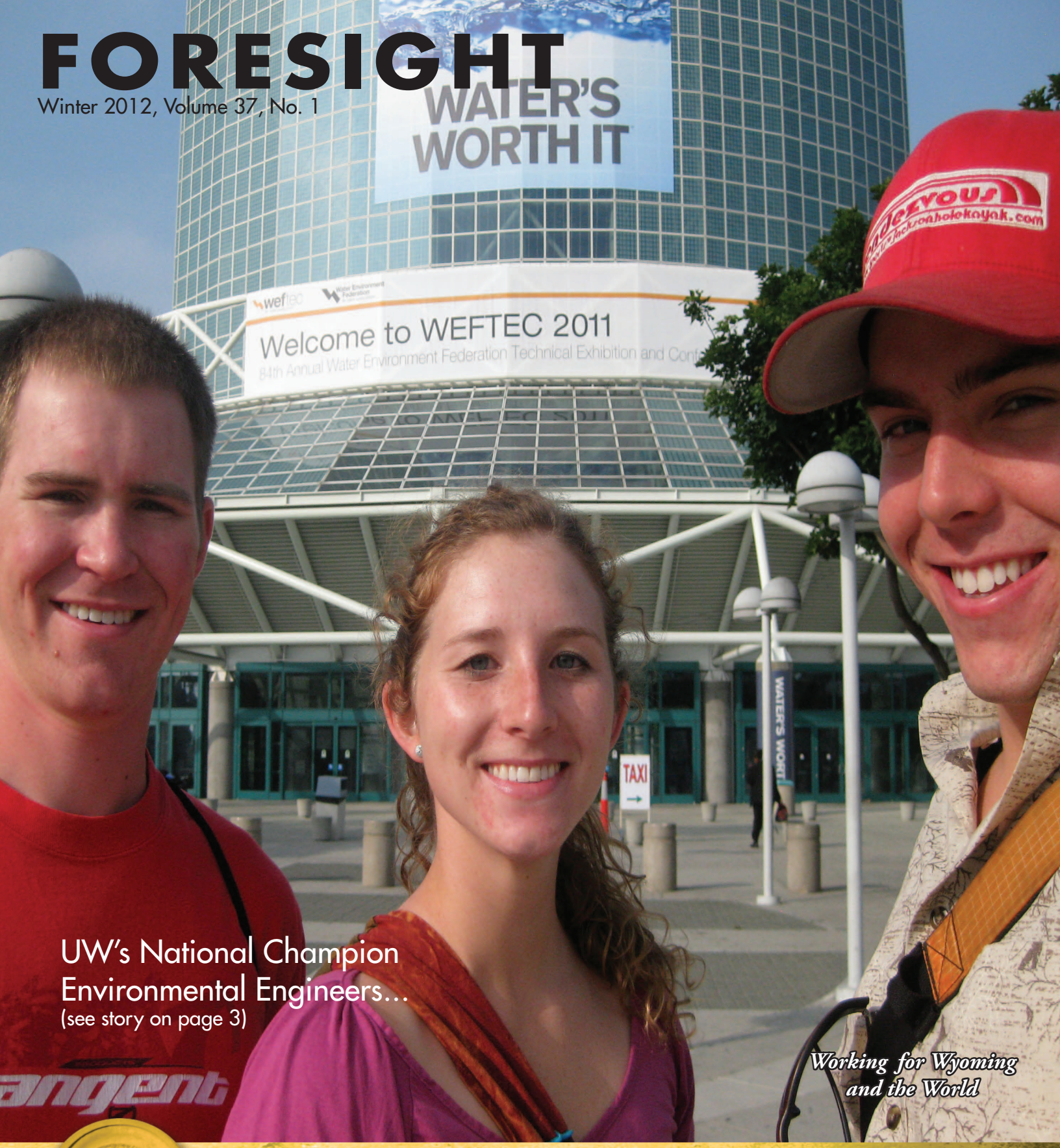

UW's National Champion Environmental Engineers...
(see story on page 3)

Working for Wyoming and the World

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Message From the Dean

This is the last issue of *Foresight* edited by Thyra Page, who has served the college superbly these past seven years in the capacity of Coordinator of Communications and Public Relations. An important part of her work has been leading the overall preparation and editing of the college's magazine, *Foresight* and managing college events such as the Hall of Fame and Tau Beta Pi banquets. Thyra is leaving the college to join a Laramie–based engineering consultancy, Trihydro Corporation, where she will be a technical editor/writer. My colleagues and I are very grateful for her work on our behalf, and wish her every success with her career move.

Few things stand still in a college like ours. The cover story of this issue of *Foresight* features the success of our environmental engineering student design team competing in the National Championship wastewater design division at the 2011 Water Environment Federation's national conference in Los Angeles, Calif. The senior design competition originates from the capstone design elective in the environmental engineering course (CE 4900) in the Department of Civil and Architectural Engineering. Team members were Darrin Harris of Louisville, Colo., Emily Huth of Salt Lake City, Utah, and Colin Reinert of Alpine, Wyo. The faculty advisor for this year's team was Dr. Jonathan Brant. Please take a look at page 3 for the full story on the accomplishments of these students.

We continue to make headway with a multi–year facility plan to upgrade and extend the college's building facilities. I believe the planning is gaining larger proportions in concept and scope and gaining visibility around the state. The plan calls for a significant investment in Wyoming's, and the nation's, ability to develop and utilize its resources, enable technological innovation, and develop the workforce it needs. Current planning is focusing on two principal projects, structured and (for the moment) titled as follows:

Project 1. "Engineering Wyoming" aims at substantially upgrading and expanding the college's building. This project will enhance the learning and career paths of 2,000 undergraduates and 500 graduate students (the college's design, on-campus enrollment capacity) in the thirteen fields of study the college offers.[1] It will strengthen the academic programs underpinning of the college's and UW's strategic initiatives; notably, energy, information technology, health technologies, water, and environment. Moreover, it will better position the college to compete for talented undergraduate students, graduate students, faculty, and staff.

Project 2. "Energy Engineering Research Facility" seeks to provide a building (likely located on the periphery of UW's campus) that will boost UW's research capacity in strategic energy areas. It will provide the necessary space and infrastructure to facilitate large-scale testing related to energy development, conversion, and conservation. Space will be flexibly designed, with early use configured for projects associated with the themes of Unconventional Reservoirs for Natural Gas and Oil, Adding Value to Wyoming Resources, and Improved Wind/Solar Energy Technologies, with further topical themes defined over time. The planning of this project links the college with UW's School of Energy Resources and Department of Geology and Geophysics.

As energy is a strategic theme for the college's programs, and given the intrinsic connection between engineering and energy, it is important that UW conduct these two projects in the framework of an overall planning effort.

continued on next page

[1] Engineering (Architectural, Chemical, Civil, Computer, Electrical, Energy Systems, Environmental, Mechanical, Petroleum), Surveying, Computer Science, Earth Systems Science, and Atmospheric Science

The first major phase of planning is nearing completion, and is being documented in what the state calls a Level I Report. It documents the college's foreseeable space needs, and outlines constraints such as building site availability. The next phase, Level II, entails the identification and preliminary design of a recommended building arrangement to meet the college's needs, and will indicate the building's estimated construction cost. Each project must undergo its own Level II effort. This phase requires the services of specialist engineering–architect expertise, and is fairly costly. In its two–yearly, capital facilities budget request submitted to the state, UW has requested $1.25M for use in completing the Level II planning effort for Project 1. UW's request presently is working its way through the corridors of state government, and will be considered this February by the state's Legislature.

Thyra Page says "goodbye" to the college. She recently joined the staff at Trihydro Corporation in Laramie following completion of her master's degree program at UW last December.

Stay tuned! I anticipate that our planning efforts during 2012 will be rather dynamic and the eventual building outcomes somewhat bolder than initially conceived.

Our students continue to chalk up notable accomplishments, as this issue of *Foresight* introduces. Two recent examples are illustrative:

- The National Championship environmental engineering design team.
- Civil engineering student Gretchen Heberling of Greensboro, Maryland was chosen to be one of ten promising civil engineering college students recognized by the American Society of Civil Engineers (ASCE) for its first annual "New Faces of Civil Engineering"—College Edition. Additional details about Gretchen's ASCE opportunity are included in this issue on page 9.

Thanks for your on-going interest in the college's programs of education and research. Thank you as well for your continued support of the college, students, faculty, and staff. Your donations make a significant difference in providing high–quality education and research opportunities for our future generations.

—Rob Ettema

CONTENTS

ON THE COVER: Winning team members of the 2011 Water Environment Federation environmental engineering senior design competition, wastewater division, include Colin Reinert, Emily Huth, and Darrin Harris, photo courtesy of Darrin Harris. See story on page 3.

Championship team advisor Jonathan Brant, team members Darrin Harris, Emily Huth, Colin Reinert, and Associate Professor Patricia Colberg at the Water Environment Federation national conference in Los Angeles, Calif., courtesy photo.

Environmental Engineers Seize National Championship

Courtesy of UW News

The environmental engineering senior design team recently won the National Championship in the wastewater design division at the 2011 Water Environment Federation's national conference (WEFTEC) in Los Angeles, CA. The senior design competition originates from the capstone design elective in environmental engineering course (CE 4900) in the Department of Civil and Architectural Engineering. Team members included Darrin Harris of Louisville, Colo., Emily Huth of Salt Lake City, Utah, and Colin Reinert of Alpine, Wyo. The advisor for this year's team from UW was Dr. Jonathan Brant.

The students are given a problem statement from the Rocky Mountain Section of the American Water Works Association and the Water Environment Association (RMSAWWA and WEA). Problem statements are supplied from municipalities and other professional organizations for consideration by representatives from the RMSAWWA and WEA sections for use as this year's problem statement. Each problem statement is a real-world engineering project that is, or will soon be, being competed by a professional firm. This year the University of Wyoming was charged with developing a preliminary design for upgrading the Littleton / Englewood Wastewater Treatment Plant in Littleton, CO for reducing the phosphorus concentration in their effluent down to 0.135 mg/L. As part of their project the students had to prepare a design binder that summarized their proposed design, the criteria that they considered in selecting their design, an economic analysis of the different design alternatives (3 alternatives were presented) that they considered, and an implementation plan for their design. Following the regional competition, which included teams from Colorado and Wyoming, the team from the University of Wyoming was selected to represent the Rocky Mountain Region at this year's national competition.

The national competition involved teams from seven other schools, each representing a different region from across the United States, and each with a unique problem statement, The University of Wyoming, which represents the Rocky Mountain Region, was joined by teams from Southern Methodist University, University of Guelph, University of North Dakota, University of North Florida, Utah State University, and Virginia Tech. The competition was made up of two components: i) the students had to prepare and submit a design binder and ii) present their design to a panel of judges in the form of a 20-min oral presentation followed by a 10-min question and answer period. The final standings from the national competition were as follows:

1. Wyoming
2. Utah State
3. Southern Methodist University (SMU)
4. University of Northern Florida

In addition to receiving a plaque commemorating their national championship the University of Wyoming team was awarded a cash prize of $2,500. The team would like to thank the College of Engineering and Applied Science and Department of Civil and Architectural Engineering for all of their support during the competition process. Specific thanks go to Dr. Patricia Colberg and Ryan Kobbe for their invaluable advice and support in preparing the oral presentations. Special thanks also go to Abigail Holmquist who was in charge of the regional design competition and for all of her assistance in preparing for the national competition. Finally, the team would also like to thank all of the staff from the Littleton / Englewood Wastewater Treatment Plant for preparing the problem statement and for all of their advice and suggestions during the competition process.

UW team members competing in the International Collegiate Programming Contest, photo courtesy of Computer Science.

Computer Science Students Compete at International Collegiate Programming Contest

Courtesy of UW Computer Science Department

The Computer Science Department sponsored four teams for the 36th annual Association for Computing Machinery International Collegiate Programming Contest. "The Battle of the Brains is the Olympics of the computer programming world," says Michael Karasick, vice president of strategy and technology at IBM Software Group. "These students push their minds to the limit, manipulating technologies such as analytics, system optimization and collaboration to effectively solve a semester's worth of computer programming in just five hours. The amount of talent that we have the opportunity to witness each year is truly impressive and a testament to the value of this competition." The contest challenges teams to use their programming skills and rely on their mental endurance to solve complex, real-world problems under a five-hour deadline.

UW competes in the Rocky Mountain Regional contest, which had four sites this year. At the Fort Collins site, UW teams competed directly against 19 teams from the Colorado School of Mines, University of Colorado - Colorado Springs Campus, Colorado State University, Mesa State University, Montana State University and the U.S. Air Force Academy. The regional contest covers the geographic area of Arizona, Utah, Colorado, Wyoming, Eastern Nevada, Idaho, Montana, Alberta, Saskatchewan, and New Mexico (excluding Dona Ana county). In all, there were 49 teams competing in the regionals for the top spot with the winner advancing to world finals in Poland.

The UW teams:

WyoGold: Zeb Fross (Lysite, Wyo.), Tom Pearce (Buffalo, Wyo.), Brett Riotto (Wilson, Wyo.)

WyoBown: Kira Lawrence (Laramie, Wyo.), Jon Duke (Denver, Colo.), Alex Wellock (Dallas, Ore.)

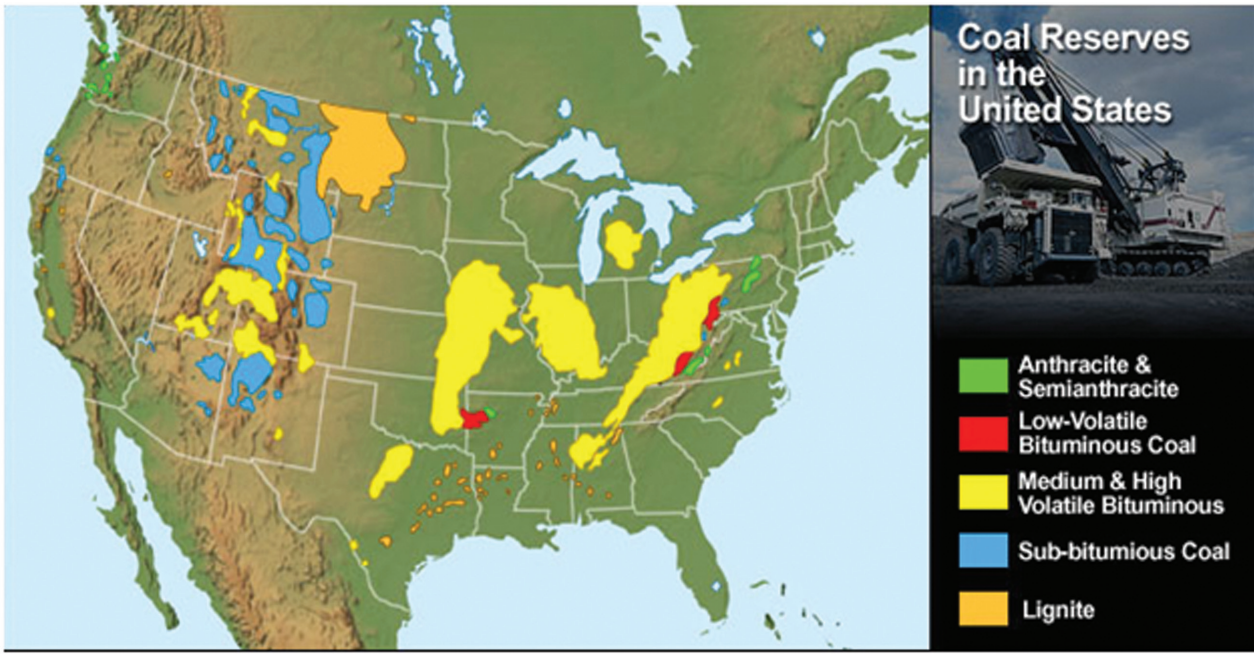
WyoCowboys: Chris Prosser (Thermopolis, Wyo.), Donovan Miller (Littleton, Colo.), Josh Herr (Cheyenne, Wyo.)

TheFreshness: Taylor Legg (Laramie, Wyo.), Jake Harper (Temecula, Calif.), Ian Hall (Spearfish, So. Dak.)

Teams Coach: UW Computer Science Lecturer Jim Ward

The UW teams would like to make a special thanks to Odion Oisamoje (our ACM chapter President), who worked very hard this year on grant proposals for all the travel and lodging funding for the teams. She secured funds from the ASUW Activities Council and the UW Enrichment Fund for Engineering.

Over the five hours of the competition, the four teams worked hard and submitted a number of programs. When the final results were counted, Wyoming's top team, WyoGold, had finished fourth in the Fort Collins site and 21st in the regional contest. Congratulations to all the UW teams, who did very well in the competition.



Biogenic Natural Gas Research Promises to Create New Energy Paradigm

Courtesy of Michael Urynowicz

An estimated 13% of the United States land mass is underlain by coal deposits, an immense energy resource. Not all the coal is mineable but much of it contains natural gas. One way that un-mineable coal resources have been exploited in the past is through the extraction of coal bed methane (CBM). Its simple chemical nature (it is composed primarily of methane) makes it cleaner burning than coal generating up to 50% less carbon dioxide per unit energy. Originally, CBM was thought to have formed millions of years ago when the coal itself was being created. However, recent scientific discoveries suggest that much of the gas was generated by indigenous anaerobic microbial systems within the coal seams long after the initial process of coalification. This type of natural gas, referred to as biogenic natural gas, relies on the active biological conversion of coal into methane by a complex consortium of microorganisms. Biogenic natural gas has also been shown to be produced in other types of unconventional gas deposits including tight sands and gas shales. Interest in biogenic natural gas has grown significantly in recent years with the realization of its vast potential and the significant benefits that this energy source has over traditional fossil fuels.

Professor Michael Urynowicz is the Director for the Center for Biogenic Natural Gas Research, one of the Centers of Excellence related to important energy research programs at the University of Wyoming sponsored by the School of Energy Resources (http://www.uwyo.edu/ser/centers-of-excellence/). The Center for Biogenic Natural Gas Research is focused on commercializing technologies that enhance the production of renewable, clean-burning biogenic natural gas. In the Department of Civil & Architectural Engineering, students in Professor Urynowicz's laboratory are developing new technologies for enhancing the production of biogenic natural gas from coal. "The realization that many of the world's fossil fuel reserves contain methane that is biogenic in origin promises to transform the way we view and manage these energy resources. Through the development of technologies that enhance the production of biogenic natural gas we now have the opportunity to extend the lifetime of these energy resources indefinitely," says Urynowicz. In places like Wyoming's Powder River Basin this could mean putting CBM related resources and infrastructure back into long-term economic production."

"There are several approaches for enhancing the production of biogenic natural gas in coal seams," Urynowicz explains. "The more conventional approach is to use nutrient amendments to stimulate microbial activity within the coal seams. At the Center for Biogenic Natural Gas Research we have focused primarily on physicochemical and enzymatic treatments that depolymerize/solubilize a fraction of the coal, making it more bioavailable. Another approach for stimulating the production of biogenic natural gas that shows great promise is the addition of a supplemental source of carbon such as biomass."

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Above, students in the Department of Civil and Architectural Engineering are developing new technologies for enhancing the production of biogenic natural gas, UW photo.

Researchers at the Center recently filed a patent to protect a technology referred to as Cellulosic Coal Bed Natural Gas. The approach uses locally grown perennial forage crops, such as Alfalfa, Switch grass or Miscanthus to supply monomers (simple sugars) as a supplemental food source for the methane-producing microorganisms. These simple sugars are delivered to the coal seam where they can be transformed into natural gas and recovered using the existing CBM infrastructure. Unlike cellulosic ethanol and other biofuel processes, which require capital-intensive production plants that are limited by the size of the fermentation reactor, the Cellulosic Coal Bed Natural Gas process utilizes vast coal seams and the indigenous microorganisms within to transform these simple sugars into natural gas. Because the Cellulosic Coal Bed Natural Gas process uses biomass instead of coal as the carbon source, the biogenic natural gas produced by the process is carbon neutral.

"The technology has the potential to create a new energy paradigm by changing the way we look at fossil fuels" says Professor Urynowicz.

This technology and others currently being developed at the Center for Biogenic Natural Gas Research promise to support and add value to Wyoming's abundant coal and biomass resources by keeping them viable in the energy economy of the future.

Civil Engineering Graduate Student Receives National Scholarship Award

Sarah Ebright, a graduate student in civil engineering, has been awarded the Clayford T. Grimm scholarship in the area of masonry. Nationally awarded, the Grimm Scholarship was established in 2007, to honor the memory of Clayford T. Grimm, and is awarded every year to a Master's level graduate student who is conducting research in masonry. The investigation can be in masonry materials, structures, construction, or architecture and must be performed under the direction of a member of The Masonry Society.

Sarah Ebright photo by Angie Jones.

"It is a pleasure to work with a highly skilled engineer such as Sarah, her combination of intelligence and diligence make her an ideal graduate student," says Jenny Tanner, Masonry Society mentor and UW Associate Professor in the Department of Civil and Architectural Engineering.

Sarah is investigating bond line delaminations in single-wythe CMU walls under varying environmental conditions. This type of construction is economical and architecturally pleasing. Unfortunately, if shrinkage cracks form in head joints, water infiltration occurs and remediation is incredibly costly. Furthermore, typical single-wythe structures include schools where the budgets are already small. The overall goal is to develop design recommendations for construction of this system. Research activities include construction of wall specimens in environmental chambers, where temperature, humidity, and wind are regulated. Delaminations are measured, recorded, and analyzed. Research is funded by the National Concrete Masonry Association (NCMA).

"In addition to masonry design, Sarah is well versed in both concrete and steel design," says Tanner. "This project has the potential to change the way school buildings are built and make these typical structures significantly more serviceable."

Spare time leads Sarah to her favorite outdoor sports of rock climbing, mountain biking, and backcountry skiing in the mountains of Wyoming. She has also helped teach a class in outdoor rescue training.

Sarah grew up in central Pennsylvania and attended Bucknell University as a civil engineering student and a Division 1 athlete in the sport of field hockey. While at Bucknell, she was captain for the 2010 AISC Student Steel Bridge Competition team and conducted summer research for Dr. Stephen Buonopane evaluating the structural aspects, construction practices, and effectiveness of truss designs for historic timber covered bridges.

Commencement

Fall commencement exercises were held December 2, 2011. Congratulations to the following graduates and good luck in your future endeavors!

Doctor of Philosophy

Seyed Hamidreza Ghazizadeh Behzadi, Petroleum Engineering
Mahesh Kovilakam, Atmospheric Science
Venkata Krishna Chaitanya Pakala, Mechanical Engineering

Master of Science

Abd ainasser A. Ali, Mechanical Engineering
Ashli Lari Babbitt, Mechanical Engineering
Namratha Bagali, Electrical Engineering
Laura Nicole Freeman, Petroleum Engineering
Florence Kothapalley, Civil Engineering
Yang Ning, Mechanical Engineering
Jeffrey A. Parkins, Electrical Engineering
Liran Peng, Atmospheric Science
Gregory James Ranft, Civil Engineering
Promothes Saha, Civil Engineering
Peter Haiming Wang, Electrical Engineering

Bachelor of Science

Civil Engineering
Alejandro David Barrientos Borjas
Pietro Colongo
Fangzhou Dai^*
Timothy P. Dolan
Sarah Nicole Dunne
Courtney Elise Ewell*
Zachary James Field
Elizabeth Ann Hollowed
Coleton Jones
Joshua James Kingston
Sean K. Langan
Marissa Larson
Philip D. Mann
Conrad Morgan
William Eric Nunn
Taylor Rolland Schriner
Jordan J. Sheets*
Elbert O. Sowerwine, V
Evgeniya Vladimirovna Tyson
Afiya Kemba Walker

Electrical Engineering
Anthony Allen
Mahmood Said Almoallem
Mohammad Said Almoallem
James Arthur Branscomb III
Ye Feng^
Jason Alden Johnson
Benjamin Ruhlig Lampe
Edward Aaron McComas
Clay Jeffrey Stocklin
Andrew Joseph Wlaschin

Chemical Engineering
Samantha Anne Chase
Maxine Maley Delgado
Kevin John Schilling, Jr.
Murtaza Shabbir-Hussain
Justin Randal Wilde^*

Computer Science
Zebulon Lee Fross^

Architectural Engineering
Brianna Bertelson
Tanner Alan Brown
Logan Scott Christensen
David Kelby Cole
Brett Michael Drake
Richard Taylor Edwards
Courtney Rose Gearhart
Keith M. Grzybowski
Christina Rae Hachmann
Jordan Dennis Hagemeyer
Amanda Rae Hansen
Joel Michael Helenbolt
Tyler J. Honey
Noriko Nozumi
Rochelle Tami Rice
Patrick C. Rudd
Timothy Adam Witt
Caryn Wynne Wykert^**

Computer Engineering
Andrew G. Adams

Earth System Science
Jesse William Dersham
Spencer Thomas Faber

Energy Systems Engineering
Joseph M. Jording^
David E. Klug

Energy Resource Science
Sabrina Katherine Forbis
Kyle Jeffrey McDonald

Mechanical Engineering
Thomas Daniel Benich
Kevin C. Brown
Jennifer Ann Daniel
Joshua Robert Parker
Cornelis Casey Valkenburg

Petroleum Engineering
Brett Dean Vandergon

^Honor Book Recipient
** magna cum laude
* cum laude

UW Engineering Alumnus Working Hard at 100

By Derek Johnson, P.E.

In 1935, Lloyd Baker, a young farm boy from Etna, Wyoming wanted to finish his education at the University of Wyoming. He had been discouraged by the registrars office because they said he wouldn't have enough money to attend. Lloyd would not be deterred, so with only $9.06 in his pocket and a 400 mile trip ahead of him, Lloyd set out for UW. He paid a dollar to catch a ride on a fuel truck from Afton to Kemmerer, Wyoming. At Kemmerer, Lloyd climbed on top of a freight train and rode it all the way to the outskirts of Laramie where he jumped off and walked the last few miles into town to avoid being caught by the railroad authorities. Arriving in Laramie, Lloyd had a face that was darkened with soot from the coal powered locomotive, but he was eager to work hard and receive an education.

Lloyd soon found a job building the LDS Institute that still stands at 12th Street and Grand Avenue. Lloyd cracks a smile when relating the story of finding the job. After hearing that the builder was seeking some help, Lloyd and a group of friends went to see if they could get hired. When they arrived Lloyd saw an empty wheelbarrow, so he grabbed it and went to work while the other boys went to find the boss. When the other boys found the boss he said something like "I only needed one man, and it looks like I got him out there." Lloyd was happy to have the job and worked for $0.50 per hour.

Lloyd started out studying business at UW but soon changed to the Civil Engineering. When asked about some of his favorite professors in the engineering department Lloyd said that, "HT Person, who was the head of the department at the time, and AJ McGaw were both terrific professors." Lloyd also wrestled for UW and graduated with a bachelor's degree in Civil Engineering in June of 1940.

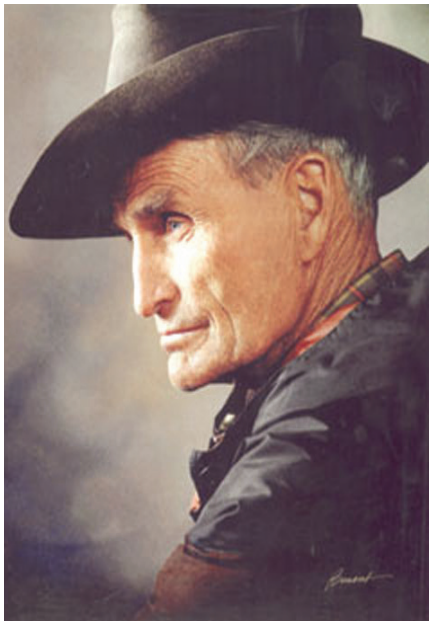

Photo by Busath Photography

Lloyd has had an amazing engineering and surveying career that has spanned 9 decades. His first surveying work was completed before his graduation in 1937 during the great depression. Lloyd's work included surveying crop land that was left out of production in exchange for government subsidies. After graduation from UW, Lloyd worked with the US Bureau of Reclamation (USBR) doing surveying and soil investigations for a proposed dam near Farson. He also worked for the USBR on a dam and canal system near Show Low, Arizona and on the Friant Dam on the San Joaquin River in California. Lloyd explains, "My main job at Friant was to locate the points for each pour of concrete and set line and grade for the faces and toe of the dam." The dam was the 4th largest concrete dam in the world at the time.

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"It's a great profession and I have gotten a lot of enjoyment out of the things I have been able to accomplish."
Lloyd Baker

Snowmobile photo of Lloyd Baker by Eko Paul

continued from previous page

When war broke out at Pearl Harbor defense jobs became very important, so Lloyd went to work for the Bechtel Corporation constructing a shipyard and associated buildings in the San Francisco Bay area. Later on during the war, Lloyd taught physics to US Air Force candidates at the Utah Agricultural College and then taught physics and engineering at Boise College. "They had called the head of the department into the service so they needed a substitute for him till the war was over. So that's what I did for the 1944-1945 school year," said Lloyd.

In the years after World War II, Lloyd worked at a variety of places including the Soil Conservation Service, Los Angeles County, the City of Hawthorne, California and the City of Mountain View, California. Later, Lloyd again worked for the Bechtel Corporation where he was chief surveyor and civil designer for the first Bay Area Rapid Transit (BART). He was also a surveyor and designer on the Carlin Gold Mine in Nevada and the Lucky Mac Mine near Lander, and Survey Supervisor for nuclear power plant construction projects at Plymouth Massachusetts, Lusby Maryland and Waterford, Connecticut.

In 1974, at the age of 63, Lloyd decided he wanted to return to his home in Star Valley, Wyoming. He opened up his land surveying and engineering business, Lloyd B. Baker and Associates, in Thayne and has been providing Engineering and Surveying services there since that time.

Lloyd celebrated his 100th birthday last year and is still working as hard as ever. On a typical day, Lloyd might be out in the field shoveling snow to find a section corner, or using GPS equipment to perform a topographic survey, or setting a new survey monument or attending a planning and zoning meeting.

In addition to his many accomplishments at work, Lloyd has 5 children, 17 grandchildren and 40 great-grandchildren. Lloyd also finds a lot of time to give back to the community. He is active in his church and has been a member of the Rotary Club for over 60 years. Nearly every Sunday, Lloyd drives 22 miles to Afton to sing to people in a nursing home. When asked about how he feels about his engineering and surveying career Lloyd said, "There's something about passing to the other side someday and knowing someone will come along and they will see your [survey] monument or the work you have done. If you go to the recorder's office in 2 or 3 counties in California and Wyoming or look at the first drawings for the Bay Area Rapid Transit system you will see my name. It's a great profession and I have gotten a lot of enjoyment out of the things I've been able to accomplish." Lloyd has truly accomplished many great things during his career, and we are proud that he is a graduate of UW.

About the writer: Derek Johnson grew up in Thayne, Wyoming. He graduated from UW with a B.S. in civil engineering in May of 2004. He now works for Sunrise Engineering in Cheyenne.

Retirement Announcements

Where's Fred?

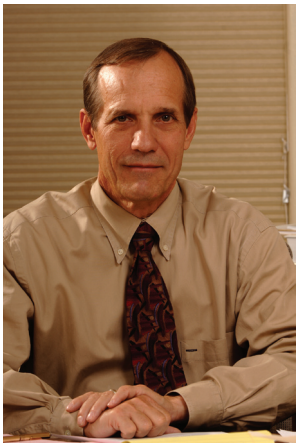
In response to the barrage of questions: where's Fred and is Fred on vacation? Fred Chapp is pleased to announce his retirement from UW as of December, 2011.

Fred was with UW for 15 years and served as the frontline contact for the College Dean's Office for seven of those years. He was a highly organized, calm, and very patient individual at the front desk – three attributes that were extremely important when dealing with engineering students, faculty, staff, and alumni. Along with his high level of service to the college, Fred was recipient of a Mortar Board "Tip of the Cap" award in 2003 and again in 2010. The "Tip of the Cap" award honors faculty and staff for their exceptional contributions and inspiration of students.

Fred obtained a B.S. in journalism from Kearney State College in Nebraska. In addition to his position at the College of Engineering and Applied Science, he served as advertising manager for the Wyoming Press Association and as advertising coordinator for the Branding Iron and UW Student Publications.

Fred and his wife Rosie have a son, Daniel; three daughters, Andra, Amanda and Katie; eight grandsons and a granddaughter. As many of you know, Fred is excited to work in the garden, gather eggs, raise pigs, and grow massive award-winning pumpkins on their new farm in Nebraska.

A well-known and constant presence on the UW campus, Fred is not only a friend to many, he is a top-notch colleague and we are going to miss his dedicated support! We wish Fred a pleasant retirement and all the best in the coming years to him and his wonderful family.



Former Dean Retires from UW

O.A. "Gus" Plumb, former Dean and Professor of the college retired in December, 2011. Gus served as the Dean of the College from 1999-2007. He received B.S. and M.S. degrees in mechanical engineering from Colorado State University and a Ph.D. in mechanical engineering from the State University of New York at Buffalo. He served on the mechanical and materials engineering faculty at Washington State University for 23 years prior to joining UW as Dean of this College in 1999.

After stepping down in 2007, from serving the college as Dean, Gus spent a year on sabbatical at the University of Queensland in Brisbane, Australia, where he collaborated with a research group working on underground coal gasification and taught in their mechanical engineering program. Following his sabbatical, Gus returned to UW to continue teaching and served as a professor in mechanical engineering and in the spring of 2010, he was named a Fullbright Scholar by the University of Gabarone in Botswana.

A tremendous asset to UW and the College, Gus will be greatly missed! An avid outdoorsman, many of you may have the opportunity to see Gus while skiing, hiking, or fishing. Congratulations Gus and thank you for your many years of dedicated service.

Foresight Editor Accepts Position with Trihydro Corporation

By Baillie Miller

With sadness, we are saying goodbye to our foresight editor of the last six years. Thyra Page has been an asset to the college, a good colleague, and friend. She will be misssed but we are all excited she is able to begin a new job and seek new opportunities at Trihydro Corporation in Laramie. After receiving her M.S. in communications in December 2011, Thyra began her duties as technical editor/writer for the Laramie based engineering and environmental firm. She has dedicated a lot of time and effort to our college and will be missed.

Thanks for all you have done for the college, *Foresight*, the alumni, and our communications and public relations efforts!

New Arrival to the College

Center for Students Services Welcomes Laurie Bonini

Laurie Bonini is a Wyoming native growing up in Rock Springs and graduating from UW with a BA in English. After working in the hospitality industry for 10 years, Laurie returned to UW as the University Studies Program manager and the Freshman Interest Group (FIG) coordinator for Academic Affairs. Before joining the Center for Student Services team at the College of Engineering and Applied Science, Laurie was the recruiting and retention coordinator in the College of Agriculture and Natural Resources.

Laurie is responsible for providing leadership in the college's recruiting program, including JETS/TEAMS competition, Engineering Summer Program, Math Counts, Campus Pass, Discovery Days, and meeting with potential students and their parents in broad range of settings. Laurie's additional duties include advising incoming freshman, managing the college's Student Ambassadors Program, supporting freshman orientation and developing advising and recruiting materials.

According to Susan McCormack, we are fortunate to have someone with Laurie's background and experience of student recruiting in the College of Agriculture move to the College of Engineering and Applied Science. Laurie brings a big, welcoming smile of experience and student support to our college.

Student Highlight

UW Student Recognized by ASCE

Gretchen Heberling of Laramie, Wyo., was selected as one of ASCE's collegiate New Faces of Civil Engineering. Gretchen is one of ten promising civil engineering college students recognized by the American Society of Civil Engineers (ASCE) through its first annual New Faces of Civil Engineering – College Edition. These students are being recognized for achieving the highest standards as college civil engineering students, whose academic success and extracurricular engagement point to a bright future as professionals in the field of civil engineering.

"These students are an inspiration to future generations of students seeking a career in which they can make a difference," said ASCE President Andrew Herrmann, P.E.

In addition to receiving this great honor, Gretchen joined two other recipients of New Faces who were recognized by the National Engineers Week Foundation (NEWF). Gretchen Heberling is an accomplished violinist who is interested in small business development and green building design and sustainability. Gretchen joins Danielle Antonellis – Worcester Polytechnic Institute, Worcester, Mass., and Steven Wong – Columbia University, New York, NY.

Founded in 1852, the American Society of Civil Engineers represents more than 140,000 civil engineers worldwide and is America's oldest national engineering society. For more information, visit www.asce.org.

Alumni Highlights

Donovan Buckman recently joined Rocky Mountain Power (RMP) as a distribution electrical engineer stationed in the Rock Springs, Wyo. office. Donovan is a 2010 graduate from UW with a B.S. in electrical engineering. Donovan received his associate's degree in engineering from Sheridan College before transferring to UW to complete his bachelor's degree. At UW he enrolled in electrical engineering courses, concentrating on those with a power emphasis, when possible. While he admits he still had to learn a lot about equipment and operation, the concepts he learned at UW and willingness to learn new skills on the job allowed him to step into his current position.

"I was a little nervous at first to be the only engineer in the Rock Springs office, but through training and communication with my manager and other field engineers, was able to jump right into the position," says Donovan. "My education at the University of Wyoming definitely made it possible for me to step right into my position with Rocky Mountain Power. The professors and courses at UW did such a wonderful job preparing me for my position now!"

Donovan practices engineering for RMP's distribution lines in the Hanna, Rawlins, Wamsutter, Rock Springs, Green River, and Jeffrey City areas. As a distribution engineer, he is responsible for the system between the substations and the end customer. He has been involved with many projects this year, including large added loads, system upgrades and projects, and studies to improve power quality. In the past year he has also worked with customers with poor power quality (mainly low voltage or voltage fluctuations) and made recommendations on improvements that can help the distribution system keep the power delivery within acceptable limits.

"It is great being the only engineer for the area, giving me the opportunity to work with all areas of the distribution systems, and feels so great to be able to do it independently," says Donovan. "I could not have asked for a better education for the job that I love so much!"

Curry Lashley, B.S. 2005, architectural engineering, joins the structural engineering department of Lochsa Engineering, in Idaho. He brings 14 years of structural engineering design and drafting experience and has designed a variety of projects including industrial, commercial, and residential. He is involved in the Amercian Society of Civil Engineers and Rocky Mountain Lift Association.

Patrick McKinney, B.S. 1982, petroleum engineering, has served as Rex Energy's Executive Vice President and COO since May 2010. Prior to joining Rex Energy, he served as senior vice president of engineering for CAno Petroleum beginning in 2006. Previously, he worked for Pioneer Natural Resourcs as Strategic Worldwide Portfolio Manager responsible for capital spending and resource recovery determinations related to exploration and development in Canada, Argentina, Tunisia, Alaska, West Africa, and Pioneer's domestic projects. he also holds an M.B.A. form Pepperdine University.

Kristine Rudkin, B.A., 1986, computer science, was a Lockheed Space Sciences programmer working on the Upper Atmosphere Research Satellite (UARS) that recently feell to earth. She received a commendation letter from NASA for her work. She is currently a software engineer/web developer consultant in the SF Bay area.

In Memoriam

Sadly since our last issue, we have lost the following alumni. Our sympathy goes to the families of our valued alumni friends.

Maj. George Adams	B.S.E.E. 1967	Wickenburg, AZ
C.W. "Bill" Angle	B.S.M.E. 1961, M.S.M.E. 1963	Kennesaw, GA
Kathie A. Baker	B.S.M.E. 1985	Fort Collins, CO
Harvey Carson	B.S.C.E. 1950	Georgetown, TX
Steven A. Griess	B.S.M.E. 1973	Gilbert, AZ
Charles Hallenbeck, Jr.,	B.S.C.E. 1954	Hotchkiss, Colorado
W. John Lairmore	B.S.E.E. 1949	Naperville, IL
Bruce L. Massey	B.S.C.E. 1952	Sacramento, CA
Gerald N. McDermott	B.S.C.E. 1943	Sedona, AZ
Charles E. Pugh	B.S.M.E. 1951	Alexandria, MN
Martin Rankin	B.S.M.E. 1953	Gillette, Wyoming
Davinder Seth	M.S.CHe 1970	Unavailable
Joe Glen Thomas	B.S.M.E. 1962	Pinedale, Wyoming
Per C. Vedeler	B.S.C.E. 1965, M.S.C.E. 1967	Unavailable
Maj. Richard Yarnot	B.S.M.E. 1965	Sacramento, CA
Michael Zwickl	B.S.M.E. 1969, M.S.Pete, J.D. 1975	Casper, Wyoming

John C. Bellamy, II, B.S. electrical engineering 1963, passed away September 3, 2011, after a battle with cancer. John was born August 5, 1941, in Rawlins, Wyo., he was the third generation of his family to receive an engineering degree from UW. John went on to receive his M.S. and Ph.D. from the University of Arizona. He was a member of Sigma Chi. He married Judith Darlyn Lippert in 1965. After receiving a master's and doctorate from the University of Arizona, he worked in the telecommunication and data communication fields. He wrote Digital Telephony, a worldwide publication also available in Japanese and Russian, which is considered the leading source on how digital telephone networks operate. In 2005, John was inducted into the UW College of Engineering and Applied Science Hall of Fame.

Survivors include his mother Josephine, of Laramie; wife Judy, of Saratoga; daughters, Michelle B. Hultz (husband Robert), of Santé Fe, N.M., Joy Bellamy, of Arlington, Texas, Kelly Bellamy (partner Marcia), of Arlington, and Cary Glick (husband Lee), of Wheatland; grandchildren: Kathleen, Wyatt, Morgan, Hailey and Tracy; two sisters, Louise Richardson and Mary Barbour and a brother, Bill Bellamy.

Memorials may be made in John's memory to Bellamy & Sons engineering scholarship fund, in care of "University of Wyoming Foundation, 1200 East Ivinson St., Laramie, WY 82070.

Lawrence Stuart Quealy, passed away August 20, 2011. He was born on May 20, 1919. Stuart was born to Lawrence (Lad) and Edith (Rouche) Quealy of Elk Mountain and Laramie on May 20, 1919.

A 1937 graduate of Laramie Senior High School, Stuart attended UW where he received his B.S. in mechanical engineering in 1941. During World War II, General Electric employed Stu in Fort Wayne, Ind. When economic conditions and the declining health of his father and uncles threatened the family ranch, Stu returned to the ranch at Elk Mountain and became a managing partner. He married Edna Maria (Mary) Rasmusson of Rawlins on Aug. 27, 1945. They lived at the home ranch of the Quealy Land and Livestock Company near the base of Elk Mountain. Mary and Stu's two children, Mike and Alice, were born while they lived in Elk Mountain.

The Quealy Land and Livestock Company was sold to the Palm Brothers of Albin in 1948. At that time, Mary, Stu, and family moved to Rawlins. Stu accepted the position of foreman for Rasmusson's Pine Grove Livestock Company. In the mid-1950s, Mary and Stu decided they wanted to be their own bosses. They purchased a part of the GL Sheep Company. When Art Rasmusson sold the Pine Grove Livestock Company, Mary and Stu exchanged their winter range for the Pine Grove property at Wamsutter. They continued to manage that property until 2005 when they turned over management to their daughter and son-in-law and moved to Spring Wind Assisted Living in Laramie.

Stuart was a member of the Rawlins Rotarians, a lifetime member of the Rawlins BPO of Elks, Carbon County and Wyoming Wool Growers Association, Wyoming Stock Growers Association, an alumnus of Phi Delta Theta Fraternity, the UW Alumni Association, and the UW Cowboy Joe Club. Stuart and his wife Mary have been generous supporters of the college through the H.T. Person Endowment Fund for many years.

He was preceded in death by his son, Mike; parents; infant sister, Neicle; sister, Anita Berge; and brothers, Kenneth and Herb. He is survived by his wife, Mary, of Spring Wind Assisted Living in Laramie; daughter, Alice (Carl) Shaffer of Rock River; granddaughter, Carol (Charles) Price of Ath, Belgium; and sister-in-law, Shirley Quealy, of Granby, Colo.

Courtesy of the Rawlins Daily Times

C. Lewis "Lew" Christensen departed to be with our Lord on December 24, 2011, in Colorado Springs, Colorado. Lew was born in Laramie, Wyo., on June 3, 1936, to his parents Raymond H. Christensen and Elizabeth Cady Christensen. He attended elementary school in Laramie until the age of ten when his family moved to Casper, Wyo. While attending Natrona County High School (Casper), Lew lettered in football and swimming, played the clarinet in the band, was a photographer for the school newspaper, and served as student body vice-president during his senior year, graduating in 1954.

Lew was a fourth generation graduate of UW, receiving a B.S. degree in engineering in 1958. His great-grandmother, Emma Howell Knight, was the first dean of women at the university. His great-grandfather, Wilbur C. Knight, was a professor of geology and curator of the UW Geology Museum and also served as state geologist. During Lew's university years, he served as president of Phi Delta Theta fraternity ; was active in student politics, Air Force ROTC and Arnold Air Society; was a photographer for the student newspaper and annual; and was a free-lance photographer for the Denver Post, Rocky Mountain News, and other newspapers.

After graduating from college, Lew was commissioned as a 2nd Lieutenant in the U.S. Air Force and served for three years at Malmstrom AFB, Great Falls, Montana. While serving in Montana, he met and married the love of his life, Sandra Stadheim. Sandi and Lew were a very special couple and a great example of what a solid marriage should be. They met and were engaged nine days later, and were married for forty two years until Sandi passed away in 2002. They had two children, Kim Wyse and Brett Christensen, both of Colorado Springs; and four grandchildren, Kylie Wyse, Keaton Wyse, Jacob Christensen, and Nicole Christensen, all of Colorado Springs.

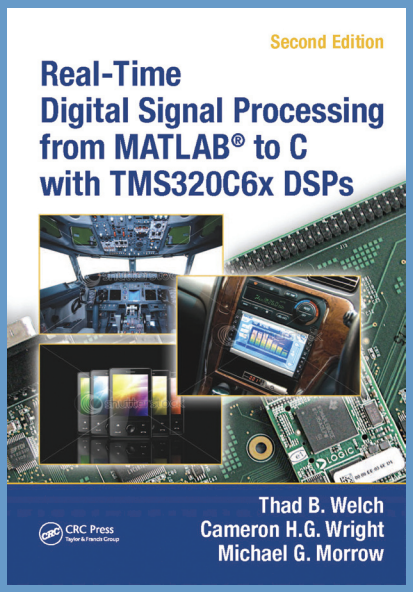
After finishing his military service, Lew went to work for Mountain States Telephone Company in 1962. For the next several years he worked for various AT&T companies in Helena, Montana; Phoenix, Arizona; Chicago, Illinois; and New York City, New York, before being transferred to Colorado Springs, Colorado, in 1970. In 1973, when he was to be transferred again, he resigned from the telephone company and entered the real estate business in Colorado Springs. In 1977, he was introduced to John Venezia who was in the process of beginning the Briargate Master Planned Community in Colorado Springs. John and Lew were partners in the development of the Briargate Community until John's death in 1992. Lew continued to operate the Briargate project until it was sold to the Gary & Dusty Loo Family in 1995. John and Lew had also been partners in the development of the Peregrine Master Planned Community and the construction and ownership of various commercial properties in the Colorado Springs area.

Lew served on the board of directors for the city's chamber of commerce, serving a stint as chairman; the Economic Development Corp., serving a stint as chairman; the Homebuilders Association; Penrose St. Francis Hospital, serving a stint as chairman; the Boy Scouts; and several other organizations. Lew was always a big supporter of his alma mater, UW, serving on both the Engineering Advisory Board and the UW Foundation Board.

Because of his hard work and dedication to the Colorado Springs community, Lew had been presented with numerous awards. The Chamber of Commerce selected him as the Business Citizen of the Year in 1993; the Economic Development Corp. awarded him with the distinguished service award in 1999; the Colorado Homebuilders Association selected him as the Citizen of the Year in 1991 and selected him for its prestigious "Founders Award" in 2009.

Lew's wife Sandi and his mother, father, and sister, Kay, predeceased him. He is survived by his significant other, Alina Carris, a true angel, of Colorado Springs; his two children and four grandchildren; his step-sister Donna Golden-Strube and his step-brother Michael Golden, both of Casper, Wyoming; his sister Kay's children Joy Greenlee-Wicker of Colorado Springs, Scott Greenlee and John Greenlee; his trusted friend Dr. Tim Wyse of Colorado Springs; and countless friends across the country. A celebration of Lew's life will be held at a later date. The family requests that, in lieu of flowers, contributions in Lew's memory be given to the American Cancer Society, Pikes Peak Hospice, or the University of Wyoming Foundation.

2nd Edition Text Available



Electrical and Computer Engineering Professor Cameron Wright, with co-authors Thad Welch and Michael Morrow have recently released a 2nd edition text entitled "Real-Time Digital Signal Processing from MATLAB to C with TMS320C6x DSPs."

The text provides practical education to engineering educators, industry engineers, or anyone else who wants a hands-on path to becoming proficient with real-time digital signal processing.

The text can be purchased directly from CRC Press or Amazon using the ISBN: 9781439883037.

Faculty and Staff Highlights

Trustees Appoint New Faculty

The UW Board of Trustees approved the following appointments during its November 2011 meeting.

Department of Chemical and Petroleum Engineering—Katie (Dongmei) Li as assistant professor. Katie received a B.S. (1994) from Shandong University of Technology in Jinan, China, an M.S. (1997) from Tianjin University in Tianjin, China, an M.S. (1999) and Ph.D. in 2003 from the University of Colorado, Boulder. Katie has years of experience working with polymer, metal, ceramic and composite materials. After several years of academic and industrial adventures (postdoc at CU-boulder, Sr. Engineer at Intel Corp. and DRC Metrigraphics), she joined UW faculty in fall 2011 in the Department of Chemical and Petroleum Engineering. Her research program at UW employs surface chemistry, engineering, and composite nanomaterials, to focus upon the following areas: 1) Advanced energy conversion of fossil and renewable fuels; 2) Water treatment in energy development/exploration activities; and 3) Biomedical device fabrication and self-cleaning surface development with special focus on implantable sensors for continuous glucose monitoring (CGM) for diabetes management.

Department of Mechanical Engineering—Ray Stuart Fertig, III as assistant professor. Ray received a B.S. (2001) and M.S. (2003) in mechanical engineering from UW and a Ph.D. (2010) in materials science from Cornell University.

Dolan Receives PCI Award

Civil and Architectural Engineering Professor Charles Dolan received the Precast/Prestressed Concrete Institute's (PCI) Martin P. Kom Award for 2011. The award recognizes Dolan's paper, published in the PCI Journal, as the "most worthy of special commendation for its merit as a contribution in design and research to the advancement of precase and prestressed concrete."

The full text of the paper, "Design of Cazaly Hangers in Shallow Members" was published with co-authors W.T. Joy and D.F. Meinheit, in Volume 55, No. 4, Fall 2010, on pages 100-125.

Top Professors Honored by Mortar Board

The following UW Engineering and Applied Science faculty members received "Top Prof" recognition at the recent Mortar Board Top Prof ceremony. Receiving recognition this year are Professors Yuan Zheng (mechanical engineering) who was nominated by Emily Beagle, Steve Barrett (electrical and computer engineering) who was nominated by Dana Schultz, and Gi-Hyeon Park (civil engineering) who was nominated by Stacia Slowey.

Top Prof's are selected by students who are members of the senior honor society, Mortar Board, and are nominated for making a positive impact on student lives at UW. These professors go beyond normal classroom expectations to help their students succeed, both in college and later in their careers.

Selection as a member of Mortar Board is one of the highest honors that a UW senior can achieve. Mortar Board recognizes students who have excelled in and out of the classroom, based on scholarship, leadership and service. Mortar Board members participate in many projects and activities throughout the year, both on campus and in the Laramie community. Congratulations to these outstanding professors!

I/we would like to make my/our gift to the College of Engineering and Applied Science:

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Please call (307) 766-7000 or e-mail wyoalumn@uwyo.edu if you have questions.

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College of Engineering and Applied Science
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Upcoming Events

February 18
Discovery Day
Wyoming Union, UW Campus
Laramie, Wyo.

March 12–16
Spring Break - No Classes

April 20
Tau Beta Pi Scholarship Banquet
UW Conference Center/Hilton Garden Inn
Laramie, Wyo.

May 2
Commencement
Laramie, Wyo.

Event questions? Call us at (307) 766-6433 or contact us by e-mail to engevents@uwyo.edu.

Photo courtesy of Margret Paul