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EECL Researchers Develop Hydrogen Power for Use in Nepal



2004 International Hydrogen Team

Dr. Bryan Willson, Director of Research and founder of the Engines and Energy Conversion Laboratory (EECL), is leading CSU researchers in an international effort to develop hydrogen power systems to provide fuel and electricity in Nepal. Members of the research team include Dr. Willson, professor of mechanical engineering; Dr. Maury Albertson, emeritus professor of civil engineering; Dr. Jerome Bookin-Weiner, Executive Director of International Programs; and Dr. Chandra Joshi, engineering professor at Tribhuvan University.

Through the Fulbright Scholars Alumni Initiatives Award Program, this team is working with engineering students and faculty at Nepal's Tribhuvan University to develop and install small hydrogen fuel generators throughout the nation's countryside to meet energy needs. Nepal has few natural resources

other than hydropower, but because the mountainous topography makes electrical grids difficult to build, only 18 percent of Nepal's primarily rural population has access to electricity. One solution lies in hydrogen produced from small hydroelectric generators because it can be easily stored and transported.

The Fulbright Scholars Program awarded the collaborative team a grant in 2003. Engineering students from Tribhuvan and Colorado State will work together via the Internet to develop ways to make small-scale hydrogen production more efficient, develop rural hydrogen applications, and build a prototype hydrogen-fueled vehicle for the cities. CSU students will travel to Nepal in the summer of 2005 to work hand-in-hand with Tribhuvan and help test the technology in the field.

Two ME Senior Design Practi-

cum projects are implementing these collaborations in the fall of 2004: one team is exploring the approach taken by the City of Fort Collins on a fast-fill Compressed Natural Gas station while developing a small scale hydrogen fueling station that could be implemented in both Fort Collins and in Nepal. The second team is utilizing exist-

ing engines available at the EECL to develop a direct-injection two-stroke hydrogen engine, which will be tested at the EECL and also installed on a vehicle similar to that used in Nepal.

For more information regarding the EECL, please visit www.engr.colostate.edu/eecl or call (970) 491-4785.

Alumni and Donors Provide Support to ME Programs

Special thanks are due to **Mr. Brett Anderson ('87)** and his wife, **Danette**, for their pledge of \$100,000 in support of the Mechanical Engineering Senior Design Practicum. Mr. Anderson is an enthusiastic advocate of the unique educational experiences that our department provides to students. Specifically, he credits his experience in the Senior Design Practicum for preparing him for his career. He believes the program provided the rare opportunity to have one foot in the fast-paced world of industry while the other foot remained in the nurturing academic environment provided by the department's world-class faculty.

Since 2002, Mr. Anderson has been a managing partner at the Denver office of Accenture. In this position, he oversees more than 700 people and \$200 million in operations. Mrs. Anderson earned her degree in Human Nutrition & Dietetics from CSU; she is a dietician at St. Joseph's hospital working closely with acute care patients and cardiac patients. Mr. and Mrs. Anderson reside in Littleton, Colorado.

While a student here, Mr. Anderson was a member of the Student Chapter of the American Society of Mechanical Engineers, Tau Beta Pi, the Golden Key Honor Society, and Phi Beta Lambda. In addition, he played several intramural sports. He considers himself a "huge CSU fan", is a member of the Greater Ram Club, and has attended almost every bowl game in which CSU has played since he was born. Mr. Anderson's father, Dr. B. Harold Anderson, is an emeritus professor and alumnus of CSU, having worked at CSU for 32 years. Dr. Anderson served as the Department

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From the Department Head



Dr. Allan T. Kirkpatrick

This issue of the Mechanical Engineering newsletter includes special features that we hope are of interest to you. We have expanded the Class Notes section to include a greater number of updates and enclosed a Gift Form for your use in financially supporting our efforts.

Thanks to all who gathered in the Lory Student Center in April 2004 for the College of Engineering's Third Annual Dinner & Dance. At the event, Robert Walker ('56) was presented with the 2004 College of Engineering

Distinguished Alumni Award. Mr. Walker is currently the President of PNI, Inc. in Tempe, Arizona, and has been a very generous supporter of the ME Department and its programs. Brett Anderson ('87) was the recipient of the 2004 Mechanical Engineering Distinguished Alumni Award; more information about Mr. Anderson can be found on page 1. The college's Fourth Annual Dinner and Dance is scheduled for April 16, 2005.

The Senior Design Practicum is growing in terms of interest, energy, and involvement, and our goal is to ensure that this high-quality educational experience is offered for years to come. The support of our alumni and friends recognizes the tremendous role that the Practicum plays in the lives of our students now and in the future. Private funding is bringing us one step closer to funding this year's efforts and building the program's endowment.

In other news, Dr. Steven R. Abt, who served as ME's Interim Department Head in 2000-2001, has been appointed Interim Dean of the college. Dr. Wade Troxell ('80, '82, '87), ME's Associate Department Head, has been named the college's Acting Associate Dean.

The ME department continues to attract the "best and brightest" students: the average G.P.A. of our 113 new freshmen is 3.7, and 30% had perfect high school grades. We also have 43 new M.S. and Ph.D. students. With 563 undergraduate students currently enrolled in the department, we are the largest undergraduate engineering program in the Rocky Mountain region.

Allan Kirkpatrick

Dr. Allan T. Kirkpatrick

Mechanical Engineering Students Compete, Bring Home Honors

CSU mechanical engineering students fared very well in the Spring 2004 design competitions. Congratulations to all of these hard-working students, who are using these experiences to prepare for the real-world challenges they will encounter in the workplace.

AeroDesign West

The SAE AeroDesign West competition was held in Fort Worth, Texas. The CSU team that entered this new competition won the Most Innovative Design award; to meet the requirement of building a device capable of lifting eight pounds, they designed a plane with a wingspan of 15 feet. CSU finished 15th out of 37 teams.

Clean Snowmobile

The SAE Clean Snowmobile competition was held at Michigan Tech University in Houghton, Michigan. The CSU team finished 8th overall.



The SAE snowmobile at competition.

Formula SAE

The Formula SAE competition was held in Pontiac, Michigan. This year's team was the first in CSU history to complete the Endurance event. Brett Geifer ('00) was the Steward, with Josh Vetter ('00) and Lee Gates ('99) also in attendance. Of 134 teams, the CSU team finished 57th overall.

Human Powered Vehicle

The ASME Human Powered Vehicle competition was held at Oregon State University in Corvallis, Oregon. The CSU team finished 3rd overall.



The Human Powered Vehicle Team

Walking Robot

The SAE Walking Robot competition was held at Union College in Schenectady, New York. CSU was the first school ever to enter three teams with three different robots and to have each robot compete in at least one event. Overall, the three CSU teams finished 8th, 9th, and 10th out of 22 teams. Of the five papers to be published in the new competition journal, three will be from CSU.



B. Stanton, P. Sears, C. Kaiser, and K. McGilvray with Daisy, a jumping robot.

Calendar of Events



The Human Powered Vehicle at the ASME competition.

October 29, 2004	1870 Dinner
December 17, 2004	College of Engineering Fall Commencement
April 2, 2005	Green and Gold Gala
April 15, 2005	Engineering Days
April 16, 2005	Fourth Annual College of Engineering Dinner & Dance
April 23-25, 2005	Human Powered Vehicle Competition (Location TBD)
April 28, 2005	College of Engineering Scholarship Luncheon
May 6-8, 2005	Aero Design West Competition (Fort Worth, Texas)
May 14, 2005	College of Engineering Spring Commencement
May 18-22, 2005	Formula SAE Competition (Pontiac, Michigan)

Department of Mechanical Engineering
1374 Campus Delivery • Fort Collins, CO 80523-1374
(970) 491-6558; E-mail: mech@engr.colostate.edu

Submit Nominations for '05 Distinguished Alumni Awards Program

Each year the College of Engineering honors one outstanding alumnus from each of our five academic departments, as well as one alumnus who graduated with an Engineering Science degree and one college-wide honoree. Recipients of our Distinguished Alumni Awards are former students who, by their distinguished career and service to the college, university, state, nation, or world, have brought honor to the College of Engineering, Colorado State University, and themselves.

Submit your nomination for these awards online at www.SupportEngineering.colostate.edu (click on "Alumni").

You may also submit the following information by e-mail or

regular mail.

- Designate the department for which you submitting the nomination (Mechanical Engineering, Engineering Science, etc.)
- List the name of the nominee, along with his/her home address and phone number; business name, address, phone, and title; e-mail address; and a very brief statement regarding why you believe this nominee deserves this award.
- If you are nominating another individual (i.e. this is not a self nomination), please also include your name, home address and phone number; business name, address, phone, and title; and e-mail address.

Submission Deadline: October 29, 2004

College of Engineering Development Office
1301 Campus Delivery, Fort Collins, CO 80523-1301
E-mail: SupportEngineering@colostate.edu
Web: SupportEngineering.colostate.edu; Phone: (970) 491-7028

Alumni and Donors (continued from page 1)

Head in Vocational Education for ten years and as the Director of Graduate Programs for five years. Mr. Anderson's brother, Tod, also graduated from CSU; he earned a degree in Industrial Science & Technology Education.

Mr. Anderson has served for several years as a member of the Mechanical Engineering Advisory Panel (MEAP). His role has been a very active one, providing strong leadership toward continuing improvements in the department. He was named the 2004 Distinguished Alumni award winner for the Department of Mechanical Engineering.

Joe Marcus ('61) and his wife, **Carolyn**, have pledged \$25,000 in support of the Senior Design Practicum and the College of Engineering. Mr. Marcus is a retired vice president of Production Operations for Lockheed Martin Space Systems Company. Marcus credits the quality of education at Colorado State for much of his professional success. He states, "The academic elements have been special to me because they have served me in so many ways during my career." Mr. and Mrs. Marcus reside in Littleton, Colorado.



David Ferguson (Engineering Science '87) and his wife, **Ellen**, recently donated 631 shares of Apple Stock to the Mechanical Engineering SAE Infrastructure fund. The donation, worth more than \$20,000, is assisting the Motorsport Engineering program. Mr. Ferguson is employed by Apple Computer in Cupertino, California, where he is the manager of the USB Software team. Mr. and Mrs. Ferguson reside in Sunnyvale, California.



Photo by Jack Platt



Dr. Fred Smith with 2004 College of Engineering Distinguished Alumni award recipient Robert Walker.



Dr. Allan Kirkpatrick with 2004 ME Distinguished Alumni award recipient Brett Anderson.

Class Notes

Bob Hoshide ('57) resides in Montrose, Colorado. He retired in February 1994 and since that time has conducted 67 energy management workshops throughout the U.S. He is now fully retired.

Dr. Russell Elsberry ('63, '68) is a Distinguished Professor of Meteorology at the Naval Postgraduate School.

Marvin Giddings ('64) retired from Xcel Energy in 2001 and has since worked in the commercial construction industry. He and his wife have four children.

Jeff Zyburra ('65) and his wife, Lana, live on the shores of Netarts Bay, Oregon. He retired from Dow Chemical after 28 years of service, worked part-time for

Van Waters & Rogers in Denver, Colorado for eight years, and then fully retired in January 2001.

Jim Demlow ('67) earned his law degree in 1973 from Denver University. His career includes six years with Lockheed-Martin, four years practicing law, and since then he has served on the bench in Jefferson County, Colorado. He and his wife, Delsa, live in Evergreen, Colorado; they have 11 grandchildren.

Ed Denham ('67) is an ordained pastor in the United Methodist Church in Coolidge, Arizona. He maintains PE registrations in Colorado, Arizona, and California and does engineering
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Class Notes

work in his community as well as pro bono work for his church. He and his wife, Jane, are raising two grandchildren.

Stephen R. Light ('68) is President and CEO of Flow International Corporation, (NASDAQ: FLOW). He and his wife, Carolyn, relocated to Bellevue, Washington in the spring of 2003. They are proud grandparents of twin girls.

Rodney L. Wickwar ('68) and his wife, Susie, live in Leawood, Kansas, with their daughter. He has worked as a consulting engineer for approximately 20 years and is the co-owner of Finite Engineering Associates 3D, LLC.

Peter Haub ('70) works for Pacific Engineering Corporation in Portland, Oregon. He and his wife, Donna, live in Beaverton, Oregon, and have three children.

Pat Bremner ('76, '82) has been married for 26 years and has worked for Lockheed Martin for 25 years. In the fall of 2004 his oldest son transferred to CSU.

David Meredith ('78) is an associate professor of general engineering at PennState Fayette, the Eberly Campus in Uniontown, PA. He recently completed his 25th year as a faculty member.

Peter Armstrong ('80) completed his Ph.D. in building technology at MIT. He works at Pacific Northwest National Laboratory on climate change research (atmospheric radiation balance), self-configuring systems, various demonstrations of energy efficient technologies, and the DOE Nuclear Cities Initiative in Zheleznogorsk, Russia.

Pat Albert ('81) is the Vice President of Engineering at Deltak LLC in Plymouth, Minnesota.

Carol Dollard ('83, '90) works for the Facilities department at Colorado State and is also an adjunct professor in the Construction Management Department teaching Plumbing, Electrical, and HVAC. Dollard has been married for 21 years, has two daughters, and lives in Rist Canyon west of Fort Collins.

Doug Finnefrock ('83) is the Manager of Denver-Washington, D.C. IT Services for the Bureau of Reclamation. He and his wife have two daughters.

T. Daniel Lebel ('84) is a Mission Manager with the Atlas V program at Lockheed Martin Astronautics in Denver, Colorado. He and his wife, Karen, have two daughters.

Jeff Miks ('84) is the Product Director for Memory, Game and I/O card assembly and test services at Amkor Technology. He and his wife, Megan (CSU '84), live in Chandler, Arizona, and have three children.

P. McCoy Smith ('84) is a Senior Attorney, Intellectual Property, for Intel Corp. in Hillsboro, Oregon. He earned his Juris Doctor degree from the University of Virginia.

David Bailey ('87) is currently the Director of Science & Engineering at Rock Island Arsenal in Rock Island, Illinois.

Brian Herman ('87) lives in Idaho Falls, Idaho, and works as an advisory engineer with Bechtel BWXT Idaho, LLC. He will complete his MSME at the University of Idaho in the fall of 2004. He and his wife, K. Ellen Baxter, have two daughters.

Steven Longenecker ('89) is Managing Partner of Z M Management Group of Colorado, Inc. He earned his undergraduate degree in engineering from Purdue University and a graduate degree in telecommunications from the University of Denver. He and his wife, Gail, live in Longmont, Colorado.

Jonathan Walter ('90) and his wife, Jennifer, have a son and live in Jamesville, New York (Syracuse area). Jonathan is the IT Director for Advance / Newhouse Communications.

Nitant Mate ('90) is working in India, focusing on renewable energy (specifically solar), health, and energy for health. His work takes him to Africa, Europe, and some Asian countries.

David Soules ('92) is employed by NewTec as an Engineering Supervisor in White Sands Missile Range, New Mexico.

Thomas E. Miller ('92) resides in Freeland, Michigan and works at General Motors Powertrain in Saginaw as a process engineer for the Casting Development & Validation Center (CDVC). He and

his wife, Nancy (CSU '93), have four-year-old twins.

Todd deVall ('93) has been married for 20 years and has two children. He lives in Fort Collins and has been employed by Waterpik Technologies for seven years as a Manufacturing Engineer with the Outsourcing Group.

Jason Rogers ('93) has been a Test Engineer with Blue Bird Corporation in Ft. Valley, Georgia since June 2003. He and his wife, Elizabeth, have six children, including Berry Kathryn, born on September 21.

M. Blaine Buck ('94) and his wife of 10 years, Lori (CSU '94), live in Fruita, Colorado with their two children. In 2003 he opened Bighorn Consulting Engineers, Inc. in Grand Junction with business partner **Shawn Brill ('82)**.

Jason Fender ('94) lives in Chandler, Arizona with his wife, Kerri, and their two children. He works for Freescale Semiconductor as a Senior Staff Process Engineer.

Carl Carlson ('95) lives in Bakersfield, California, and is employed by Halliburton Energy Services. He and his fiancée, Lynell, are planning an October 23, 2004 wedding.

Edward Tuholske ('95) is a Manufacturing Engineer at Celestica of Colorado in Fort Collins. He is a Sergeant First Class (E-7) in the Colorado Army National Guard and has been activated for two missions. He and his wife, Lora, live in Loveland, Colorado.

Abdullah Al-Abdulqader ('97) works for Saudi Arabian Oil Company, where he is the head of the Contracting Unit in the company's Gas Plant.

Dave Olivero ('97) works at Seagate Technology in the Advanced Drive Development group. He and his wife, Margaret, live in Westminster, Colorado.

Roby DeManche ('98) lives in Hiroshima, Japan, and works for Ford Motor Company at Mazda.

Tim Rennick ('98) currently works as a Research Engineer for The University of Chicago. He and his wife, Kirstin, have a son, Avery, and daughter, Kiera.

David Burns ('99) works for Knolls Atomic Power Laboratory, a subsidiary of Lockheed Martin based in Schenectady, NY. David is currently at the field office in Pearl Harbor, Hawaii.

Kyle B. Carnahan, P.E., ('99) is an Engineering Supervisor for ExxonMobil US Production in Houston. He will earn an MBA from Arizona State University in December 2004. He and his wife, Ana, have three children.

James ("Jake") D. Crine III ('99) works for Starsys Research in Boulder, Colorado, as a Mechanical Design engineer. He and his wife, Kimberly (CSU '99), have a two-year-old son.

Canaan Manley ('99) is a Quality Engineer at Volunteer Automotive in Manchester, Tennessee. He and his wife, Nikki, have been married for two years.

Aaron Pankonin ('99) lives in Miami, Florida, and works for Austin Commercial, a Texas-based construction management company.

Abdulrahman Al-Ansari ('00) works for Equate Petrochemical Company (Dow & PIC Joint Venture) as a Polyethylene Supply Chain Planner. He is married and has one daughter.

Joslyn Bollinger ('02) lives in Gainesville, Florida, and works at a small consulting firm (www.perc.com). She is enjoying the warmer weather, loves the beach, and is trying to learn how to surf.

Michael Gardner ('02) worked with Dr. Wilbur and Dr. Williams at the Plasma Engineering Research Laboratory after graduation, and then secured an Engineer I contractor position with QSS Group, Inc. at NASA Glenn Research Center in Cleveland. He married Letia Frandina (CSU '02) in July 2004; his name is now Michael Frandina.

Ryan Phillips ('02) is a Sales Engineer for John Crane Inc., providing engineered sealing solutions for New Mexico and southern Colorado. He lives in Albuquerque, New Mexico.

Cesar E. Moreno Jr. ('03) is an Assistant Design Engineer at Ethicon Endo-Surgery, a Johnson & Johnson company in Cincinnati, Ohio.