

New Faculty Join Department

We are very pleased that two new ME faculty members have joined us this year. They are Anthony Marchese, who joined us from Rowan University, and Ketul Popat who came to us from the University of California at San Francisco.

Anthony earned his B.S. and M.S. in mechanical engineering at Rensselaer (RPI) and his Ph.D. in mechanical and aerospace engineering at Princeton. During and after his baccalaureate work, he worked at the NASA Lewis Research Center. Then, for five years, he worked at United Technologies on compressor technology and has two patents issued from that work. After completing his Ph.D. in 1996, he joined the inaugural ME faculty at Rowan in their newly created College of Engineering. During his time there, he demon-

strated outstanding leadership and entrepreneurship in developing their undergraduate curriculum in the thermal sciences, their engines laboratory, and in establishing a funded research and education program in thermal sciences, combustion, and chemical kinetics with applications to diesel and biodiesel engines. For the past four years, he served as the project director of the South Jersey Technology Park, where he was responsible for management of the operation as well as raising more than \$7 million in funding.

He has been a very active researcher with many publications in journals such as the *Journal of Propulsion and Power*, *Combustion Science and Technology*, *Combustion and Flame*, and others. He is not only a researcher of combustion technology but also is published in the



Professor Anthony Marchese



Professor Ketul Popat

Engineering Education journals on a venture capital fund he established at Rowan. This fund is used for undergraduate engineering student projects to be commercialized, as well as for multidisciplinary design and communication.

He is working to move his National Science Foundation research funding to CSU to set up his lab for fundamental research on gas-biodiesel combustion chemistry. He

is collaborating with ME department faculty Azer Yalin and Dan Olsen on pollutant formation in biofuel drop-let combustion and the effect of fuel additives on emissions in heavy-duty diesel engines, respectively.

Ketul Popat came to us from the University of California at San Francisco, where he had been conducting research on therapeutic microtechnology since fall 2005. *(continued on Page 3)*

ME Students Supported by the Parfet Scholarship

Mr. Kevin Walters is an extremely busy, single dad with two children, pursuing a B.S.M.E. degree full time while raising his kids and working part time to make ends meet. He is also the 2007-2008 recipient of the Jim and Barbara Parfet Scholarship.



Kevin Walters

Kevin is a bit older than the usual ME student, having worked in industry for about 15 years as a machinist. Before deciding to pursue an ME undergraduate degree in 2004, he had worked for the Wrangler Jeans Co. as a machinist, a CNC programmer, and in assembly of production equipment; earned an Airframe license; and worked in machine shops in Texas and in Colorado. He has extensive experience in prototype fabrication, preproduction and final production procedures, and tooling design.

This experience is serving him well in his ME program. He is a work-study student in our Manufacturing Instructional Laboratory (the ME Shop), where he works closely with Doc Schaeffer helping students learn about machining, CNC processes, casting, welding, etc., as they work on their ME Practicum projects. Not only that, he was drafted to be the Manufacturing Director for the 2008 Formula SAE Race Car project. He works with the team of seniors, advising them on fabrication and design issues. One of the parts they

are fabricating for the car is a set of four spindles and hubs that are anything but ordinary. They are thin-walled castings to be made from 17-4 PH stainless steel. He has designed the molds and is working with a molding firm in Wisconsin that will cast the parts. Of course, after the parts are received from casting they will be heat-treated. This is very sophisticated for an undergraduate project, and it clearly shows how much Kevin is bringing to the program. *(continued on Page 3)*

Vicki Jensen Retires



Ms. Vicki Jensen

Vicki Jensen, who has played the role of mom to all of our undergraduate students for the last 11 years, will be retiring on June 30. But if you know Vicki, you know that she will not really retire. She plans to come back part-time in the summer to help with the training of a new adviser.

Vicki first started at CSU in 1979 working with the ERG (Engineering Renewal and Growth) program located in a double-wide trailer at the Engineering Research Center. She worked in the ERG program office for six years and then came to the Engineering Development Office for three years during formative years of development efforts on the CSU campus.

She arrived at the ME department in fall 1989 and served as the ME department lead secretary working with Byron Winn until summer 1991. She took a leave from Fort Collins to try out Florida – lasting only six weeks – something about humidity, bugs, hurricanes, etc. She

came back to CSU and worked for the Department of Civil Engineering for two years and then the Engineering Dean's Office. In August 1994, she came home to the ME department to be the graduate student coordinator. In March 1997, she was named the undergraduate adviser for our students.

Vicki is surrounded by a zillion photos and postcards from her students posted on the walls of her office. Also posted there are pictures of the Caribbean. She says that if she can't be there, she might as well

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Students interact with company representatives at the Engineering Career and Internship Fair. (See story on Page 4.)

From the Department Head



Dr. Allan T. Kirkpatrick

Welcome to the Spring 2008 edition of *The Mechanical Engineer*. The Department of Mechanical Engineering at Colorado State University continues to be a vibrant and exciting place to be a student (or faculty member!). This issue contains articles about two new faculty hires, Tony Marchese and Ketul Popat, who started their CSU careers this spring. Professor Marchese will add to our expertise in the energy and combustion area, and Professor Popat will strengthen the biomaterials area. We are pleased to have added them to our faculty ranks.

In this edition of the newsletter, we are also profiling alumni and friends who are involved with supporting our undergraduate and graduate scholarship program. One of the department's priorities is making sure that highly qualified students have the ability to attend CSU and can obtain financial assistance as needed. With your assistance and support, we have increased the number of scholarships that we award to our students.

There are also articles about some of the faculty accomplishments, as evidenced by national awards, such as ASME Fellow, that our faculty have received. We are sorry to note the passing of mechanical engineering Professor Charlie Mitchell, who taught and performed research in the thermal/fluid sciences area in the Department since 1967. He was a dedicated classroom teacher and an internationally respected expert in combustion stability, and he will be missed.

We hope that 2008 is going well for you. If you are in the Fort Collins area, please stop by and say hello.

Allan Kirkpatrick

Dr. Allan T. Kirkpatrick

Calendar of Events



Student Competitions:

- 4/4-6 SAE Aero Design West
Fort Worth, Texas
- 4/18-20 ASME Human Powered Vehicle Challenge
Reno, Nevada
- 5/14-18 Formula SAE Race Car Competition
Michigan International Speedway
- 5/24-27 RoboCup Rescue Robot League U.S. Open
Pittsburgh, Pennsylvania
- 7/14-20 RoboCup Rescue Robot League World Open
Suzhou, China

ME/College of Engineering/University Events:

- 4/17-18 E-Days and ME Senior Design Practicum
Project Demos
- 4/18 MEAP Board Meeting
LSC 214-216
- 5/2 ME Adviser Vicki Jensen Retirement
Reception; LSC University Club and
Cherokee Park Balloom
- 5/10 Alumni Green and Gold Gala
Grand Hyatt, Denver
- 5/16 Undergraduate Commencement
Moby Arena

New Faculty

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Before that, he was at Boston University for two years, conducting similar research. Ketul received a B.E. in chemical engineering in Baroda, India, in 1998. He came to the United States and received his master's degree in chemical engineering at the Illinois Institute of Technology in 2000 and his Ph.D. in bioengineering at the University of Illinois in 2002.

He has been very active in research and publication with his work appearing in journals such as the *Journal of Biomedical Materials Research*, *Journal of Orthopaedic Research*, *Biomaterials*, *Langmuir*, and several others. His research has dealt with making nanostructured materials for biomedical applications.

An example of such an application is creating titanium nanotubes on orthopedic implant surfaces for enhanced biointegration. Further, the nanotubes may be filled with drugs, and those drugs can be released at a

slow and controllable rate as needed for the medical circumstances.

Other applications include the potential to make replacement cartilage from polymer nanostructures and treat the surface of cardiovascular stents to improve their performance. Ketul has several research proposals pending, and he plans to work with ME faculty Sue James, Christian Puttlitz, and Mani Manivannan.

In the past, Ketul has worked with senior undergraduate students on projects related to his research. He hopes to do the same here in our Senior Design Practicum, and he will be active in teaching other undergraduate and graduate courses as well. He is currently teaching ME 531, our graduate materials engineering course, and he hopes to teach the undergraduate version of that course, ME 331, as well as initiate a graduate course in cell and tissue engineering.

Vicki Jensen Retires

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have pictures of those places on her walls. On her walls are a number of awards that she has received from CSU for her outstanding work. They include the College of Engineering Lead-by-Example Award, Staff Award of Excellence, plus the CSU Outstanding Honors Adviser Award. And rather than sitting on an office chair, she is sitting in front of her computer on an inflatable exercise ball. Why an exercise ball? It is to help her back after the many years of hunching over the computer to keep the student records in order.

Of all her jobs, she says that this one has been by far the most rewarding. She has seen more than 1,000 B.S.M.E. graduates receive their degrees and has played a significant role in their accomplishments. She has worked with a lot of great students who are very thankful and appreciative of her contributions to their successes. Her students stay in touch – she receives e-mails from

all over the world telling of their activities. They send photos and, best of all, she says, “They have been my kids all these years.”

What are Vicki's plans after retirement? She hopes to work part-time, to help get the new adviser up to speed. Vicki has two children of her own and two grandchildren and hopes to spend more time with them. So far, she has no travel plans, but she does plan to work on home improvement projects. She says she needs to wind down from so many years of being on the treadmill, but she says, “I just can't go cold-turkey from the students.” We expect to see her around from time to time, at least for a while.

We will all miss Vicki. The Department will hold a retirement reception for Vicki at 3:30 p.m. May 2 in the Lory Student Center's University Club. Please stop by and wish her the best in her post-full-time-work activities.

Parfet Scholarship

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He is pursuing the areas of materials, manufacturing, and control systems in his B.S.M.E. studies. Once graduated, he is hoping to find ME employment in Northern Colorado. In fact, he just interviewed for a summer internship with Seagate and would love to find permanent employment there if the internship were to work out well. He plans to graduate in May 2009.

So how does Kevin do it all? “It is a struggle, but the scholarship helps tremendously,” he says. Kevin still carries a well-above-average GPA, takes his children (Kody, age 10, and Allie, age 8) to the school bus at 6:45 a.m. and meets them again at 3 p.m. each day. Kevin represents the kind of student that Jim and Barbara Parfet like to see supported by the Parfet Scholarship.

About three years ago, the Parfets began supporting undergraduate student scholarships in the ME department. As Jim says, “Barbara and I support the scholarship program strictly for the student's benefit and the engineering progress of our industries, plus, the recipients have been neat kids.” They supported the students in the Department of Industrial Sciences for many years, beginning in the early 1980s. When the manufacturing program there was discontinued and parts of it moved to the ME department, the scholarship was moved to the ME department.

The industries that the scholarship supports through the student scholars are U.S. industries. They are broad in scope with the general

theme of manufacturing processes. As Jim sees it, manufacturing processes are present in many endeavors beyond what is traditionally thought of as manufacturing.

In addition to fabrication processes, of equal or greater importance are the processes involved in design and the communication among the people involved. Accordingly, the scholarship has supported students in a variety of areas, sometimes outside of the traditional manufacturing arena.

Jim recalls some of the scholars they have supported through the years. One is now at Rohr Aerospace as an assistant manager of manufacturing in charge of new product development. Another has been working in the oil industry

of Texas and Oklahoma for more than 12 years. Another has become an agricultural loan manager in the financial industry, and another is a product development manager in the biomedical manufacturing industry. The scholars tend to be the hands-on kinds of people with practical get-the-job-done attitudes. They are the kind one thinks of in the context of skinned knuckles and dirty fingernails.

Jim worked in product development at Woodward Governor in Fort Collins from 1956 until his retirement in January 1995. We are very appreciative of the long-term and steady support he and his wife have provided for CSU students.

Thanks very much, Jim and Barbara.

ME Faculty Awards



Professor Dave Alciatore becomes ASME Fellow.



Professor Wade Troxell becomes ASME Fellow.

Over the past year, members of the ME faculty have received a number of awards recognizing their continued outstanding contributions to the engineering profession.

The awardees include Dave Alciatore and Wade Troxell who were recently named Fellows of the American Society of Mechanical Engineers. Paul Wilbur received the Medal of Outstanding Achievement from the Electric Propulsion Society, and Bryan Willson and his colleagues at the engines laboratory and Envirofit received the World Clean Energy Award.

Only about 2 percent of members of the American Society of Mechanical Engineers (ASME) are recognized by elevation to the Fellow grade. Wade and Dave are among those few so recognized.

Dave Alciatore was named a Fellow of ASME for his active leadership in ASME and the engineering profession for more than 20 years; for his service as an ASME Distinguished Lecturer; for his active research and publication record in the modeling, simulation, and mechatronics areas including a widely used textbook in mechatronics; and for his service

as an award-winning teacher. As an ASME Distinguished Lecturer, he has been one of the most popular lecturers in the history of the ASME lecturer program, speaking on the subject of another of his books titled *The Illustrated Principles of Pool and Billiards*.

Wade Troxell was recognized for the combination of his service with distinction as an engineering educator; his long-standing leadership in the engineering profession; his research on intelligent robotics and intelligent control of distributed power systems; entrepreneurship in establishing and leading the Manufacturing Excellence Center at CSU; founding a private-sector company serving the power industry; and directing the



Professor Paul Wilbur (right) receives the Medal of Outstanding Achievement in Electric Propulsion from the Electric Propulsion Society.

Center for Networked Distributed Energy at CSU. He currently serves on the Fort Collins City Council and is currently associate dean for research and economic development in the College of Engineering.

Through four decades of research and the countless lives he has touched along the way, **Paul Wilbur** has impacted the field of ion propulsion and space exploration as a phenomenal researcher and world-class educator. Paul was recently recognized for his lifetime achievements with one of the most prestigious awards in this field, the Medal of Outstanding Achievement in Electric Propulsion. One of only a few recipients worldwide, Paul was honored by the Electric Propulsion Society at the International Electric Propulsion Conference held in September 2007, in Florence, Italy, for his seminal work, his many classic contributions to ion propulsion, and his invaluable role in electric propulsion education.

Bryan Willson, director of the ME department's Engines and Energy Conversion Laboratory, accepted one of the inaugural World Clean Energy Awards at a June 2007 ceremony held in Basel, Switzerland. He accepted



Professor Bryan Willson, director of the Engines and Energy Conversion Lab where Envirofit originated.

the award on behalf of Envirofit International, Ltd., a nonprofit corporation that originated at the engines lab and was founded by Bryan and others at CSU. Envirofit won the Transport and Mobility award for its project to retrofit thousands of dirty, inefficient two-stroke motorcycles across the Philippines with fuel-efficient engines that dramatically reduce emissions. Commonly used on motorcycle taxis throughout Third World countries, carbureted two-stroke engines represent one of the largest sources of vehicular emissions in the world. The pollution from these vehicles kills thousands of people annually in Asia, Africa, and South America. Each of the nearly 100 million two-stroke vehicles in Asia produces the pollution equivalent of 50 modern automobiles. The retrofit system is low in cost, easy to install, and very effective in reducing emissions.

2008 COE Career Fair

The Department of Mechanical Engineering joined the College of Engineering for the COE Sixth Annual Career and Internship Fair held February 13-14 at CSU.

More than 1,000 Colorado State engineering students made first contact and chatted with prospective employers across all engineering career fields. The fair offered a great opportunity for students to explore career choices and discuss the sort of course work and research companies require. It's also a time for students to interview the companies. While mostly juniors and seniors attend the career fair, freshman and sophomore engineering students are encouraged to attend, so they are prepared when the time comes to apply for jobs.

If your company is interested in attending the 2009 COE Career and Internship Fair, please contact John Haines, Engineering Career Liaison, at (970) 491-6220 or e-mail John.Haines@ColoState.Edu.

We are very sad to announce that Professor Charles Mitchell passed away suddenly on March 8, 2008. In lieu of flowers, his family requests that donations be made to the American Heart Association at www.americanheart.org. If you wish to share a personal remembrance, a tribute page is available through Professor Mitchell's obituary at www.goesfuneralcare.com. We will provide more information in the next ME newsletter.

Class Notes will be featured in a future issue of
The Mechanical Engineer.

Share Your News!

We enjoy hearing from our alumni. Please help us celebrate your personal and professional accomplishments. Send your update to:

E-mail: SupportEngineering@colostate.edu

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