

### Four New ME Faculty Members Hired

We are very pleased to announce that, beginning Fall Semester 2006, we will have four new faculty members join the tenure track in our department. They are: Xianghong Qian (pronounced Shanghong Chen), John Williams, Dan Olsen and V. (Mani) Manivannan. These new faculty additions will add measurably to the ME Department capability to teach and serve our students.

Dr. Qian received her Ph.D. in Chemistry from George Washington University in 1997. She has worked at the Max Planck Institute in Germany on thin film and magnetic nanomaterials, and at Seagate in Longmont, Colorado, working on the wear and friction properties of diamond-like-carbon coatings. She has been at the National Renewable Energy Laboratory in Golden, Colorado, where she is a principal investigator on a DOE grant on biomaterials. She has published 27 articles in journals and other refereed publications and has delivered 25 invited and other

presentations. She will contribute to our programs in biomaterials and will collaborate with the biomedical and materials faculty. This fall, she will teach our Introduction to Mechanical Engineering course to the incoming freshmen and a graduate biomedical engineering course.

Dr. Williams has been with our faculty since June, 2002, as a Research Scientist and Assistant Professor (see full story in ME News, Fall 2002). He is now joining the tenure track faculty and will continue his service to the department as Director of the Electric Propulsion and Plasma Engineering Laboratory. Since 2002, he has developed a funded research program resulting in \$1.2 million in contracts and \$1.0 million in equipment donations. Before joining CSU, he worked at Hughes Electronics on ion propulsion and plasma processing of materials. You may recall that John is "one of our own" in that he received all three of his degrees in Mechanical Engineering here at CSU.



Dr. V. Manivannan



Dr. Daniel Olsen



Dr. Xianghong Qian



Dr. John Williams

He will continue conducting research and working with ME Senior Design Practicum student teams.

Dr. Olsen received his B.S. in Physics at Eastern Oregon State College, his M.S. degree in ME at Oregon State University, and his Ph.D. (1999) in ME here at CSU. Since 1999, he has performed research on large bore natural gas engines at the CSU Engines and Energy Conversion Laboratory. He has served as Principal Investigator or Co-Principal Investigator on over thirty sponsored research projects, five of which are currently in progress. His industrial experience includes Ball Aerospace, Micro-pump Corp.,

Sterling Technology Co., Battelle Northwest and United Nuclear. He has published forty conference and journal articles and has been awarded two patents. He will continue his work at the Engines and Energy Conversion Laboratory with Drs. Willson and Mitchell and teach courses in the thermal sciences.

Dr. Manivannan comes to us from the General Electric Global Research Center in New York where he has served as a Research Scientist since 2001. He received his Ph.D. at the Indian Institute of Science in Bangalore in the area of high-temperature superconducting ceramics

*(continued on page 3)*

### Flow International Corporation Donates a Waterjet Cutting System



Mr. Stephen Light

Recently, the ME Department received an outstanding gift from Flow International Corp. in the form of a \$150,000 Waterjet CNC

cutting system. The CEO of Flow International is Stephen Light, a CSU alumnus (BSME 1968). Stephen says that waterjet cutting is a technology that is just starting to "come into its own" and that it has great potential for the future in the ground transportation industry. As fuel becomes more costly, it is likely that advanced materials will be used in construction of cars and trucks as they are now in airplane manufacturing. Waterjet cutting is a natural for cutting such

materials without causing delamination along the edges, a very important concern.

Waterjet cutting is rapidly becoming one of the most important ways in which metals and many other materials are cut these days. This machine fits in with the ME Department's efforts to provide educational opportunities for our students that are at the forefront of Mechanical Engineering practice.

Our new cutting system is installed and operating in the Engines and Energy Conversion Lab where it is being used to fabricate parts for the International Stove project. It is also being used to fabricate parts for algae pumps in support of the Algae-Based Bio-Diesel program at the lab.

Stephen fondly remembers his time in the CSU ME department although, he says, he was not a great student. He became aware early in

*(continued on page 3)*

# ME Senior Design Practicum Report

As in past years, our students have once again demonstrated great real-world engineering capability in the many ME Senior Design Practicum projects. Some of the noteworthy accomplishments of our students include the following.



## Multi-Axis Plasma Profiling System (MAPPS)

In ion propulsion systems, it is important to measure the ion current density in the exhaust plume of an ion engine. A three-degree of freedom, actuator-based system was designed and fabricated by a team of four senior design practicum students. The student team implemented full automatic computer control for positioning the probe, data collection and analysis, and to interface via communication ports to power supply and vacuum chamber control systems. The MAPPS project was sponsored by Veeco, Inc., of Fort Collins, who received a fully functional system at the conclusion of the project.



## FSAE Race Car

The Race Car team has continued the CSU tradition of pushing the state of the art by entering the only driveshaft driven car in the competition this year. Most cars use a chain driveshaft like that found on a motorcycle. Our team also continues to push the state of the

art with an advanced composite chassis design. This design approach does not automatically satisfy the competition design guidelines so the students must present a design analysis that proves to the judges' satisfaction that the car will meet the crash resistance and safety standards of the competition. The CSU car competed in the endurance race this year for the first time since we began this project several years ago. It completed 3 laps out of 22 before a brake heating problem required that they stop. That alone is a significant milestone. The CSU ME team placed 31st overall out of 71 teams from the western US, Canada, Japan, Brazil and Mexico.



## Robotics

One of the major applications of RoboCup technologies is a search and rescue task in a large scale disaster. Robots are designed and constructed to perform the required search and rescue tasks and they are tested against each other in a complicated course of obstacles. The Good Samaritan Team placed first at the U.S. open in Atlanta Georgia in late April. They placed fourth overall in Bremen, Germany, and received an award for the most realistic deployment.



## Human Powered Vehicle

The competition was held April 26-28 at Cal Poly, San Luis Obispo, California; and the CSU ME team

# From the Department Head



Dr. Allan T. Kirkpatrick

Fall greetings from the Mechanical Engineering Department! I hope that you have had a good summer. Classes are now in full swing; and again, we have a record number of new freshmen – 115! The increase is due to a large increase in out-of-state students, now up to 30% of our freshmen enrollment. This gives our department strong geographical diversity.

In this Fall newsletter, we have a variety of articles about events in the ME Department that I hope you find interesting. We were

successful in hiring four new faculty members this year, Dan Olsen, Xianghong Qian, Venkatesan Manivannan, and John Williams. These new faculty members bring additional energy, enthusiasm, and expertise to the department. They work in the energy, biomedical engineering, and advanced materials areas, respectively. More information about them is given in the accompanying article. Also, this spring, Professor Sue James won the 2006 CSU Jack Cermak Advising award for her outstanding work with our students.

In other news, our senior design teams performed at a very high level, winning two national competitions. Of particular note is the performance of the CSU RoboCup team, which took top honors among US teams at the RoboCup U.S. Open in Atlanta, and then finished fourth at the RoboCup World Championship in Germany. Your continuing support of our students, particularly the Senior Design program, makes our participation in these events possible. Thank you and best wishes for the Fall.

*Allan Kirkpatrick*

Dr. Allan T. Kirkpatrick

won first place in the utility class. The team placed first in both the design event and the endurance event. The team has again maintained the CSU ME tradition of winning the ASME HPV Competition.



## Radio Controlled Airplanes

The SAE sponsors AeroDesign West, a student competition in which student teams must design, build and test a radio controlled airplane that will carry the maximum payload possible. CSU ME placed

13th overall with a 7th place in their design presentation. Their airplane carried 13 pounds of payload in its first flight and it carried 18 pounds in the second.



## Cook Stoves

This project involves the development of a biomass cook stove that will not only cook, but through the use of thermo-electric generators, provide badly needed light and charge batteries as well. The developing world has a need for up to 500 million such stoves in the areas that do not have widely distributed electrical power.

# Judy Dorsey Receives the ME Distinguished Alumni Award

At the April 22, 2006, College of Engineering Alumni Dinner, Judy Dorsey (MSME 1992) received the ME Distinguished Alumni Award. Ms. Dorsey has been recognized for her accomplishments as founder and leader of a very successful engineering business that contributes widely to energy innovation, water conservation, pollution prevention and sustainable design. She is the president of the Brendle Group, an engineering consulting firm, which was founded shortly after completing her Master's degree in 1992.

Located in Fort Collins, the firm and its staff of engineers have conducted over 100 energy efficiency and pollution prevention assessments in small businesses, Colorado school districts, the Capital Complex facilities of the State of Colorado and other locations. They have recently

worked with the CSU Net Energy design team, Vail Resorts and the National Ski Association to develop renewable resources and energy storage for ski resorts. Wade Troxell, Associate Dean of the CSU College of Engineering says, "Judy is a leader in the application of sustainable management and joining energy and environmental opportunities based on sound business practices."

Judy continues to maintain strong ties to our department. She serves as an adjunct professor, has taught graduate courses and guest lectured as well, has served as a graduate student advisor, participated in Engineering Days and the Engineering Entrepreneurship seminar. She has collaborated with the Industrial Assessment Center in connection with energy efficiency improvement and is currently

working with Wade Troxell and Neil Grigg of CE on an NSF proposal for a partnership for innovative water technology involving hardware, software and information technology in water resources. She is also a participant in the Clean Energy Cluster of the CSU Economic Development Initiative.

The College of Engineering is accepting nominations for the 2007 Distinguished Alumni awards to be presented to an outstanding alumnus from each of the five academic departments as well as to one Engineering Science alumnus and one college-wide honoree. Recipients of these awards are former students who, by their distinguished career



Wade Troxell presents 2006 Alumni Award to Judy Dorsey.

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](http://www.SupportEngineering.colostate.edu) (click on "Alumni") by November 30, 2006.*

## Engineering Academic Village Under Development

The Engineering Academic Village will offer students an integrated academic and co-curricular experience with valuable opportunities for greater faculty-student interaction. The first phase of the Engineering Academic Village, a \$45 million dollar project that will house 245 engineering students and one faculty member, began in Summer 2005.

Support from private individuals will provide the measure of excellence that will enhance the Academic Village and allow the College to be successful in its mission of providing quality education. For more information on the Academic Village, please visit: [www.housing.colostate.edu/academic\\_village.htm](http://www.housing.colostate.edu/academic_village.htm).



Two renderings of the Academic Village which is set to open in the fall of 2007.

## New Faculty

(continued from page 1)

engineering. His current research is in the area of advanced materials synthesis and processing, with a focus on materials for energy and the environment. He has worked at the University of Caen, France, the National Institute of Standards and Technology, Maryland, the University of Texas, Austin, and Maxpower, Inc., New Jersey. His publication record includes over seventy articles and presentations. He will teach courses in materials science and thermodynamics, and will collaborate with Dr. Sampath. He looks forward to joining our department and will initiate research on solar cell fabrication.

## Flow Corporation

(continued from page 1)

his educational career that he wanted to pursue manufacturing areas and technical management in engineering rather than design.

Stephen says that the flexibility in the ME curriculum at the time was a great help and motivator and that it allowed him to pursue topics in business, electrical engineering and management on top of the traditional ME topics such as fluid dynamics, thermo and heat transfer.

The department is very excited about having received the waterjet cutting system and is busy using it well. Thanks very much to Flow International Corp. and to Stephen Light.

## Calendar of Events



### Student Competitions (dates/locations to be announced):

- SAE Aero Design West
- Human Powered Vehicle
- US & World Open RoboCup Rescue Robot League
- Formula SAE Race Car

### University (CSU) and College of Engineering (COE) Events:

12/16 Undergraduate Commencement  
Lory Student Main Ballroom

2/10 Distinguished Alumni Awards Dinner  
Fort Collins Marriott

3/29 Scholarship Recognition Luncheon  
Lory Student Center West Ballroom

3/31 Alumni & Friends Awards/Dinner  
Fort Collins Hilton

4/13 Engineering Days/ME Senior Design  
Practicum Project Demos

4/14 Alumni Green and Gold Gala  
Denver, Colo.

5/11 Undergraduate Commencement  
Moby Gym

## Class Notes

**Ed Denham ('67)** is in his 8th year as pastor of the Spirit of Joy United Methodist Church serving a large area of Pinal County, Arizona. He still practices as a licensed mechanical and electrical engineer in Colorado, Arizona and California. He and his wife, Jane, have 10 grandchildren, two of whom live with them.

**Stephen Light ('68)** along with his wife, Carolyn, and the Flow International Board of Directors, rang the closing bell of the NASDAQ stock exchange on April 11, 2006. This honor came as the result of Flow's turnaround during Mr. Light's tenure over the past three years. Additionally, Mr. Light was named an Ernst & Young Entrepreneur of the Year in the Pacific Northwest in November, 2005.

**Rodney Wickwar ('68)** currently lives in Leawood, Kansas, with his wife Susie and daughter Michelle. He is the co-owner of Finite Engineering Associates 3D, LLC (FEA3D) a consulting engineering firm with expertise in the design of mobile equipment providing engineering, design and drafting services.

**Donald Putzier, MD ('79)** continues to work as a pediatrician at the Mankato Clinic in Minnesota, and stays active in volunteer efforts with his wife, **Stephanie ('79)**, an internist at the Clinic. They have two children: Eddie (14) and Leslie (12).

**Darren Dasburg, PE ('81)** launched his own company, Cinteger LLC, an engineering management company, after twenty-five years at executive level positions. He also is a partner with Cerventis LLC, focused on cutting-edge electronic designs for niche needs such as infant monitoring, and a board member of the Tammy Lynn Center, a facility that supports developmentally disabled children and adults in Raleigh, North Carolina.

**Doug Finnefrock ('83)** resides in Littleton, Colorado, with his wife, Peggy, and their three sons: Devin (4), Braedon (2) and newborn Ethan. He is currently an IT project manager in J2EE object-oriented web application development, analysis and design for the Bureau of Reclamation in Denver, Colorado.

**William Brennan ('88)** presently manages a global water mutual fund based in Luxemburg and is the Managing Director of Equities for Boenning & Scattergood, located in Conshohocken, Pennsylvania.

**Robert Jones ('92)** lives in Austria with wife, Veronika, and their three children: Laura (8), Vincent (6) and Linda (3). He works at Stadler Altenrhein AG, a general contractor for rail vehicles, as a technical project engineer since 1997.

**David Chung-Ching Ng ('93)** is currently the business development manager of a new branch office in Beijing, China, that designs and manufactures hydrocyclones and slurry pumps.

**Jason Fender ('94)** and his wife, Kerri, live in Chandler, Arizona, with their two boys, Cayman (6) and Caleb (3). Jason works at Freescale Semiconductor, Inc., in the integration and yield enhancement engineering group at the GaAs lab located in Tempe, Arizona.

**Justin Caruso ('99)** is a mechanical engineer with the Department of Defense at the Pearl Harbor Naval Shipyard in the Nuclear Submarine and Surface Craft Maintenance Division.

**Cyndi Ketzenberger ('99)** is a value engineer in the Continuous Improvement Department for Johnson Controls Automotive Group located in Holland, Michigan. She and her husband, Brent, have three children: Reegan (4), Hadley (3) and Braden (1).

**Matthew Miceli ('99) and wife, Kari ('99)**, reside in Las Vegas, New Mexico, with their two children: Maci (2) and Braden (1). Matthew is a sales engineer and waterside manager with Engineered Equipment & Systems Company.

**Abdulrahman Ahmed Alansari, PE ('00)** is a supply chain planner for Equate Petrochemical company in Safat, Kuwait. His work involves feasibility studies of simulation modeling and his current interests include linear programming of economic evaluations.

**James Kulken ('00)** lives with wife, **Kristin (Andrud) ('99)**, in Farmington, Michigan, and works for DaimlerChrysler in suspension design for body-on-frame vehicles. He is also currently pursuing his Masters degree in product development from the University of Detroit at Mercy.

**Brad and Elizabeth Loyd ('00)** recently purchased the franchise rights to Taco Del Mar and opened two restaurants in Fort Collins. They have received tremendous local support and welcome all to stop by, say hello and try a fish taco!

**Jordan Smith ('01)** currently resides in Houston, Texas, with his wife, Lindsay. He received a recent promotion to Design Engineer III at Cameron Compression Systems and is now in charge of several new product developments as well as one of the Cooper Bessemer test engines at the Southwest Research Institute in San Antonio, Texas.

## 2006/2007 ME Scholarship Recipients

Scholarship Name	Recipient
George T. Abell	Brent H. Wilkins
Nicholas Angelopoulos	Eric J. Versluys
Douglas D. Dreher Memorial	Amy L. Hermundstad
Omnia El-Hakim Diversity	Elisa M. Guzman
Engineering College Scholars	Lucas J. Oehlerking
	Keri M. Schaffer
Engineering Freshman Scholar	Jung S. Yi
Ival V. Goslin Engineering	Matthew J. McDonnell
Graham W. Howard Memorial	Cole J. Emerson
Guire Family Memorial	Daniel B. Mastbergen
Frank Kimball Memorial	Jacob G. Barker
Kirkpatrick Family ME	Sarah M. Stansbury
ME Alumni/Faculty	Steven A. DeHerrera
Micromotion Engineering	Jeffrey H. Gabel
	Nicholas R. Gruber
	Joseph D. Pault
Robert Mock Memorial	Steven M. Tranby
	Adam D. York
Allen Porter Mowry Memorial	Steven A. DeHerrera
	Richard E. Ortecho
A. J. Parfet	Richard E. Ortecho
Delano F. Scott	Jonathan D. Woodworth
Walter Scott, Jr.	Joseph D. Gerdom
	James W. Howland
	Jonathan S. Robinson
	Zachary D. Simson
	Sachin Joshi
Shrake/Culler	Scott R. Domingue
J. T. Strate Educational	Ravi C. Singaraju
Tim and Esther Tong	Michael B. Peterson
Vorhees Family	Heather M. Menzer
Richard F. Walker	Caleb O. Brown
Robert L. & Bonnie J. Walker	Kelly D. Fagerstone
	Judd C. Nutting
	Ryan J. Slinger
C. Byron and Donna T. Winn	Bradley L. Walpole
Claude W. Wood	Laura J. Davis
	Caleb J. Dean
	Luke J. Jackson
	Austin L. Jurgensmeyer
	Geoffrey M. Lodall
	Beau M. Moore
	Rodney A. Pace
	Jay L. Waterman
	Elizabeth M. Williams
	Daniel L. Wilson
	Daniel J. Woldtvedt

**Leslie Beu (Siemens) ('03)** is an energy engineer with Siemens Building Technologies in Littleton, Colorado. Leslie married **Jason Beu ('03)** in November, 2005.

**Michael Schultze ('04)** is a material specialist in the Piping Department of Washington Group International located in Denver, Colorado.

**Dennis Schmitt ('05)** started a new job with EnCana Oil & Gas in January, 2006. As a reservoir engineer, Dennis is involved in the exploration and production of natural gas in Colorado within the South Rockies Business Unit.

**Sean Sullivan ('05)** lives in Colorado Springs, Colorado, and enjoys his work as a mechanical engineer at Plasmon LMS. His girlfriend of three years, Melissa Bittinger, also a CSU graduate (speech communication) resides in Colorado Springs as well.

**John Beck ('06)** is in Baltimore, Maryland, and after coursework at Johns Hopkins University, will teach high school math in a "high need" high school in Maryland this fall.

**Chris Grapsas ('06)** works as a product design engineer for the DATUM Turbo Products section of Dresser-Rand located in New York.