



e-news



ITS-Davis e-news is the electronic newsletter of the UC Davis Institute of Transportation Studies. Written for alumni and friends, *ITS-Davis e-news* reports information from ITS-Davis and affiliated campus departments that host transportation-related programs. For previous issues, see the [e-news archives](#).

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Research Results

WHAT WE THINK WE KNOW: Attitudes toward Fuel Economy

As this issue of e-news is published, world oil prices have briefly topped \$55 a barrel translating to gasoline prices near \$2 a gallon nationwide and upwards of \$2.39 a gallon in California. Daily news reports tell of pain at the pump, increasing costs of consumer goods, and strong consumer interest in more fuel-efficient cars such as hybrids due to the record high prices.

Are consumer attitudes toward fuel economy really shifting? How do consumers view fuel economy?

ITS-Davis researchers Ken Kurani and Tom Turrentine set out to examine this complex issue long before the latest spike in gas prices. They sought to help researchers and policy makers ground future work in the reality of how consumers think and behave relative to fuel economy and efficiency, both on a daily basis and when they purchase motor vehicles. The timing couldn't be better for the release of their new report, "Automobile Buyer Decisions about Fuel Economy and Fuel Efficiency."



Rising gas prices = pain at the pump

Over the last year, Kurani and Turrentine, with ITS-Davis students Thomas Barron, Reid Heffner, and Brett Williams, interviewed 57 households from ten differing lifestyle sectors. Although the sample was small, each interview lasted several hours and was very detailed. Interviewers started by letting automobile owners talk about the cars they have owned, just bought, and hope to buy. Only after owners told their stories in their own words did researchers ask about fuel economy, use, and costs in their daily life.

“Our strongest finding was that for the most part, households do not pay much attention to fuel cost over time or in their household budgets, unless they are severely constrained economically,” the researchers reported. Consumers do notice what they pay for a tank of gas and the price per gallon on the days they buy fuel. But they generally forget these details over the next few days.

Researchers also found that, with the exception of hybrid drivers whose instrument panels continually estimate fuel consumption, drivers seldom pay attention to how much fuel they’re using. As a result, consumers have difficulty making an economically rational decision when buying a car. Turrentine and Kurani found that when offered a choice to pay more up front for a car with better fuel economy, most households were unable to estimate potential savings, particularly over periods of time greater than one month. In the absence of such calculations, many households were overly optimistic about potential fuel savings, thinking they could recover an investment of several thousand dollars in a couple of years.

Turrentine and Kurani also learned that, to many consumers, terminology is important. They equate the term *fuel economy* with cheap cars, and *fuel efficiency* with resource conservation, advanced engineering, and high technology and quality.

Because the study occurred over a year with considerable gas price volatility in the last six months, researchers thought that they might hear more about the issue in the later interviews, but they did not. “We did not hear more people being more rational. Our later interviewees were not suddenly keeping track of monthly or annual fuel costs, driving less, or shopping for cheaper gasoline if these behaviors were not already part of their vehicle and fuel use behaviors,” they report.

Consumers attributed rising gas prices to factors ranging from market forces to conspiracy theories, and shared a common, somewhat fatalistic observation: “What are we going to do? We have to live our lives; we aren’t going to do anything differently” the researchers found.

Kurani and Turrentine posit that while sustained and even higher gasoline prices may prompt greater consumer attention to fuel economy in the future, they caution against the assumption that higher prices, alone, will prompt that attention to be more economically rational. “People may simply respond more in the non-rational ways they do now,” they said.



Toyota Prius



Honda Civic Hybrid

TRANSPORTATION PUBLICATIONS FROM UC DAVIS: Hot off the Presses

Following is a list of reprints and research reports published since June.

Papers, Books, and Book Chapters

Sperling, Daniel and James Cannon, eds. *The Hydrogen Energy Transition*, Elsevier Press. 2004. Publication No. UCD-ITS-RP-04-33. Available only from Elsevier.

Sperling, Daniel and Eileen Claussen. Motorization in the Developing World. *Access*. No. 24. 2004. Publication No. UCD-ITS-RP-04-32.

Navrotsky, Alexandra and Miaojun Wang. Enthalpy of Formation of LiNiO_2 , LiCoO_2 and their Solid Solution, $\text{LiNi}_{1-x}\text{Co}_x\text{O}_2$. *Solid State Ionics*. 2004. Publication No. UCD-ITS-RP-04-31.

Mokhtarian, Patricia L. and Sangho Choo. What Type of Vehicle Do People Drive? The Role of Attitude and Lifestyle in Influencing Vehicle Type Choice. *Transportation Research Part A*. 2004. Publication No. UCD-ITS-RP-04-30.

Mokhtarian, Patricia L. Reducing Road Congestion: A Reality Check – A Comment. *Transport Policy*. 2004. Publication No. UCD-ITS-RP-04-29.

Kleeman, Michael, Tony Held, Qi Ying, and Ajith Kaduwela. Modeling Particulate Matter in the San Joaquin Valley with a Source-Oriented Externally Mixed Three-Dimensional Photochemical Grid Model. *Atmospheric Environment*. 2004. Publication No. UCD-ITS-RP-04-28.

Zhang, Michael H., Debbie Niemeier, Yi Zheng, and Bo Wang. A New Gridding Method for Zonal Travel Activity and Emissions Using Bicubic Spline Interpolation. *Transportation Research Part B*. 2004. Publication No. UCD-ITS-RP-04-27.

Niemeier, Debbie, Anthony Held, and Daniel P.Y. Chang. UCD 2001: An improved Model to Simulate Pollutant Dispersion from Roadways. *Atmospheric Environment*. 2004. Publication No. UCD-ITS-RP-04-26.

Ashbaugh, Lowell L., Omar F. Cavacho, Michael S. Brown, and Robert G. Flocchini. Measurement of PM_{2.5} Emission Potential from Soil Using the UC Davis Resuspension Test Chamber. *Geomorphology*. 2004. Publication No. UCD-ITS-RP-04-25.

Research Reports

Mancio, M., J. T. Harvey, A. Ali, J. Zhang. Evaluation of the Maturity Method for Flexural Strength Estimation in Concrete Pavement. Report prepared for the California Department of Transportation by the Pavement Research Center. *ITS-Davis*. May 2004. UCD-ITS-RR-04-36.

Bejarano, Manuel O., John T. Harvey, Abdikarim Ali, David Mahama, Dave Hung, and Pitipat Preedonant. Performance of Drained and Undrained Flexible Pavement Structures under Wet Conditions Test Data from Accelerated Pavement Test Section 544-Undrained. Report prepared for the California Department of Transportation by the Pavement Research Center. *ITS-Davis*. May 2004. UCD-ITS-RR-04-35.

Zhang, J., J. T. Harvey, A. Ali, and J. Roesler. Goal 4 Long Life Pavement Rehabilitation Strategies — Rigid: Laboratory Strength, Shrinkage, and Thermal Expansion of Hydraulic Cement Concrete Mixes. Report prepared for California Department of Transportation by the Pavement Research Center. *ITS-Davis*. February 2004. UCD-ITS-RR-04-34.

Williams, Brett. Innovative Drivers for Hydrogen-Fuel-Cell Vehicle Commercialization: Establishing Vehicle-to-Grid Markets. *ITS-Davis*. April 2004. UCD-ITS-RR-04-33.

Lipman, Timothy, Daniel Kammen, Daniel Sperling, Joan Ogden. An Integrated Hydrogen Strategy for California . Prepared for the Kirsch Foundation, August 2004. *ITS-Davis*. Publication No. UCD-ITS-RR-04-32.

Ongel, Aybike and John T. Harvey. Analysis of 30 Years of Pavement Temperatures using the Enhanced Integrated Climate Model (EICM). Report prepared for the California Department of Transportation by the Pavement Research Center. *ITS-Davis*. August 2004. UCD-ITS-RR-04-30.

Shaheen, Susan, Kamill Wipyewski, Caroline Rodier, Linda Novick, Mollyanne Meyn, and John Wright. Carlink II: A Commuter Carsharing Pilot Program Final Report. *ITS-Davis*. August 2004. Publication No. UCD-ITS-RR-04-30.

Mokhtarian, Patricia L., Ilan Salomon, and Sangho Choo. Data and Measurement Issues in Transportation, with Telecommuting as a Case Study. *ITS-Davis*. August 2004. Publication No. UCD-ITS-RR-04-29.

Rodier, Caroline J. A Review of the Representation of Induced Highway Travel in Current Travel and Land-Use Models. *ITS-Davis*. July 2004. Publication No. UCD-ITS-RR-04-28.

Rodier, Caroline J., Susan A. Shaheen, and Amanda M. Eaken. Transit-Based Smart Parking in the San Francisco Bay Area: An Assessment of User Demand and Behavioral Effects. *ITS-Davis*. July 2004. Publication No. UCD-ITS-RR-04-27.

Shaheen, Susan A., Caroline J. Rodier, and Amanda M. Eaken. Improving Bay Area Rapid Transit (BART) District Connectivity and Access with the Segway Human Transporter and Other Low-Speed Mobility Devices. *ITS-Davis*. August 2004. Publication No. UCD-ITS-RR-04-26.

Rodier, Caroline J. A Multi-Objective Analysis of Regional Transportation and Land Development Policies. *ITS-Davis*. July 2004. Publication No.

UCD-ITS-RR-04-25.

Shaheen, Susan A., Cynthia McCormick, and Rachel Finson. California's Innovative Corridors Initiative: A New Model for Public-Private Partnerships in Transportation. *ITS-Davis*. August 2004. Publication No. UCD-ITS-RR-04-24.

Shaheen, Susan A. and Caroline J. Rodier. Travel Effects of a Suburban Commuter-Carsharing Service: A Carlink Case Study. *ITS-Davis*. July 2004. Publication No. UCD-ITS-RR-04-23.

Shaheen, Susan A. and Linda Novick. A Framework for Testing Innovative Transportation Solutions: A Case Study of Carlink – A Commuter Carsharing Program. *ITS-Davis*. August 2004. Publication No. UCD-ITS-RR-04-22.

Kurani, Kenneth S. and Thomas Turrentine. Analysis of Consumer Response to Automobile Regulation and Technological Change in Support of California Climate Change Rulemaking. *Prepared for the California Air Resources Board and the California Environmental Protection Agency*. *ITS-Davis*. June 2004. Publication No. UCD-ITS-RR-04-21.

Ory, David and Patricia L. Mohktarian. Who Likes Traveling? Models of the Individual's Affinity for Various Kinds of Travel. *ITS-Davis*. July 2004. Publication No. UCD-ITS-RR-04-20.

Finson, Rachel, Susan Shaheen, and Cynthia McCormick. Accelerating Deployment and Commercialization of ITS Technologies: California's Innovative Corridors Initiative. *2004 ITS World Congress*. Nagoya, Japan, October 18-24. Publication No. UCD-ITS-RR-04-19.

Shaheen, Susan A., Caroline Rodier, and Amanda Eaken. Applying Integrated ITS Technologies to Parking Management Systems: A Transit-Based Case Study in the San Francisco Bay Area. *2004 ITS World Congress*. Nagoya, Japan, October 18-24. Publication No. UCD-ITS-RR-04-18.

Sperling, Daniel, David Bunch, Andrew Burke, Ethan Abeles, Belinda Chen, Kenneth Kurani, and Thomas Turrentine. Analysis of Auto Industry and Consumer Response to Regulations and Technological Change, and Customization of Consumer Response Models in Support of AB 1493 Rulemaking. *Prepared for the California Air Resources Board and the California Environmental Protection Agency*. *ITS-Davis*. June 2004. Publication No. UCD-ITS-RR-04-17.

Grupp, David, Matthew Forrest, Pippin Mader, Christie-Joy Brodrick, Marshall Miller, and Harry Dwyer. Design Considerations for a PEM Fuel Cell Powered Truck APU. *ITS-Davis*. July 2004. Publication No. UCD-ITS-RR-04-16.

Abeles, Ethan. Analysis of Light-Duty Vehicle Price Trends in the U.S.: How Vehicle Prices Changed Relative to Consumers, Compliance Costs and a Baseline Measure for 1975 – 2001. *ITS-Davis*. June 2004. Publication No. UCD-ITS-RR-04-15.

Chen, Belinda and Daniel Sperling. Case Study of Light-Duty Diesel Vehicles in Europe. *Prepared for the California Air Resources Board and the California Environmental Protection Agency*. *ITS-Davis*. June 2004. Publication No. UCD-ITS-RR-04-14.

Publications can be ordered by fax, e-mail or mail. Some are now available online.

ITS-Davis is in the process of getting all research reports in downloadable pdf format online.

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Education Highlights

NEW ACADEMIC YEAR: ITS-Davis Builds Fuel Cell Science Capabilities

ITS-Davis is collaborating with faculty in chemistry, chemical engineering, and material sciences to form a center of excellence in fuel cell and hydrogen storage science.

An expanding group of UC Davis faculty, now numbering eight, is investigating various materials and phenomena related to low-temperature proton exchange membrane (PEM) fuel cells for propulsion, high-temperature solid oxide fuel cells for specialized applications, and innovative hydrogen storage approaches. Their research is generally devoted to better understanding of materials and the chemical structure of fuel cells and hydrogen.

Their research will guide development of durable, cost-effective fuel cells for both transportation and stationary power applications. They are addressing materials and processing issues with catalysts and fuel cell membranes, and characterizing their electrical and physical properties. Additionally, researchers are examining how these materials behave under various operating conditions by studying transport phenomena, effects of high temperatures, catalysis, and the chemical reactions that occur within the cells. Others are studying how to store hydrogen at ambient temperatures and pressures, a key technical challenge for fuel cell vehicles.



Alexandra Navrotsky, Edward Roesler Chair in Mathematical and Physical Sciences and Distinguished Interdisciplinary Professor of Ceramic, Earth, and Environmental Materials Chemistry

The newest faculty member is Sangtae Kim, Ph.D., an assistant professor in the Department of Chemical Engineering and Materials Science. Professor Kim comes to UC Davis from the Max Planck Institute for Solid State Research in Stuttgart, Germany, where he studied Electrical properties of nanostructured solid electrolyte materials. Other research faculty contributing to UC Davis's growing fuel cell and hydrogen storage science expertise are: Bruce Gates, Joanna Groza, Zuhair Munir, Alexandra Navrotsky, Pieter Stroeve, Ahmet Palazoglou, and Philip Power.

NEW ACADEMIC YEAR: Launching a New Curriculum



Professor Pat Mokhtarian talks with students during a class break

About half of the more than 80 graduate students affiliated with ITS-Davis are enrolled in the Transportation Technology and Policy (TTP) curriculum, which draws from 26 different UC Davis academic departments and graduate groups. Students enrolling this fall are the first to enjoy a new curriculum approved in June. Faculty and students worked diligently last year to update the curriculum to track changing needs in the field and to reflect the campus's broader faculty expertise.

The core subject areas have been expanded from five to six — three "knowledge" areas and three "skill" areas. At least one course is required from each area. Skill areas include transportation modeling and quantitative methods, economics, and research design. Knowledge areas include transportation technology, policy, and systems.

In addition to the skill and knowledge areas, a third area, "integration and breadth," is required. This area reflects the multidisciplinary approach of the TTP program and will feature faculty seminars and guest lecturers to broaden students' understanding

of the field.

NEW ACADEMIC YEAR: Welcome New ITS-Davis Students

Changzheng Liu	Carrie Ashendel
Kristin Lovejoy	Reed Benet
Sixin Ma	Timothy Clark
Shyam Menon	Bryan Jungers
Brent Riffel	Justin Kable
Darius Roberts	Sang Woo Kim
Wei Shen	David Kuperman
Matthew Solomon	Jeremy Lea
Zach Zoller	Yi-Ju Lee



Dan Sperling serves cake to students Cha Lee and Yi-Ju (Lulu) Lee

LAUNCHING ENTREPRENEURS: Students Awarded New GSM Program Fellowships



Jonathan Weinert

ITS-Davis graduate students Jonathan Weinert and Brett Williams are among nine UC Davis students awarded fellowships to participate in a new business development certificate program offered by the Graduate School of Management (GSM) in collaboration with the Office of Research – Technology and Industry Alliances (OR-TIA).

The new program, designed specifically for science and engineering students, provides hands-on experience in developing new business ventures designed to commercialize research. GSM Professor Andrew Hargadon, an ITS-Davis faculty affiliate, launched the program this year to help students develop the range of skills necessary to commercialize research, whether in new venture start-ups or in corporate research and development settings. These skills are intended to prepare graduating scientists and engineers for careers in entrepreneurial firms as well as industrial research and development.

“I’m excited to collaborate with the GSM students and the other eight fellows this year,” said Weinert, a Transportation Technology and Policy (TTP) Ph.D. student and this year’s TTP student representative. “They’re working on some really fascinating, important research; vastly different from my own field of study. It’ll be interesting to see what business venture ideas come out of our group once we get thrown into the GSM student mix.”

Williams adds that the GSM’s Business Development Program is a natural extension of the progression of his hydrogen research. “As an interdisciplinary hydrogen-energy researcher, my focus has evolved over the years from examining the *potential* of these technologies — for example, to contribute to a healthier, more secure, and more sustainable society — into the issues surrounding the *realization* of that potential. I look forward to thinking through the innovation process with others on a wide variety of topics, including fuel cell vehicle commercialization.”



Brett Williams

ALUMNI PROFILE: Erin L. Foresman, M.S., Ecology, 2001

Most of Erin Foresman’s research at school involved air quality in the San Joaquin Valley. Now an environmental scientist with the U.S. Environmental Protection Agency Region 9 office in San Francisco, she works on water quality issues; her section ensures that the necessary reviews are conducted and permits are in place before transportation projects can fill wetlands or streams, as required by the Clean Water Act.

Working with Deb Niemeier, Erin became involved in several air quality and transportation projects. Even though she wasn’t estimating travel demand or modeling traffic flow, she was exposed to these research fields through other students.

ITS-Davis’s multidisciplinary program also exposed her to different transportation subjects through activities such as the weekly seminar



Alumna Erin Foresman in the field

series. "I attended fuel cell seminars, and learned about modal choice and discrete choice modeling. It all really helps me in my job."

The big-picture perspective she was exposed to at UC Davis has helped her understand the myriad considerations that local planning agencies face

as they complete the environmental review process.

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New Initiatives

IT'S OFFICIAL: ITS-Davis Joins California Fuel Cell Partnership



ITS-Davis has become the first academic institution to join the California Fuel Cell Partnership (CaFCP), a public-private venture to demonstrate and promote fuel cell vehicles and fuel alternatives. The Partnership invited ITS-Davis to join as an "Associate Partner" in August.

In voting to include ITS-Davis in its membership, a move that has not been considered for other academic institutions, the CaFCP cited the institute's clear research leadership on issues that impact the future of transportation technology and fuels, and its practical experience in vehicle and fuels technology.

"The Partnership is the key group bringing industry and government together to guide the wise development of fuel cell vehicles — an essential element for tomorrow's transportation solutions," said the Institute's Dan Sperling. "Our research and outreach supports the mission of the CaFCP, and we are truly honored to begin working as a member of this collaborative organization."

ITS-Davis will participate in the CaFCP's technical programs to address vehicle and fueling station interoperability, or "common fit" protocols. UC Davis will also develop and implement educational materials for K-12, undergraduate, and graduate level courses, and conduct outreach and education activities that support the CaFCP's goal to increase public awareness of fuel cell vehicles.

CROSSING BORDERS: Collaborating with Researchers in Quebec

ITS-Davis and the Québec Advanced Transportation Institute (ITAQ) have entered into an agreement to collaborate on research projects that contribute to the development of advanced vehicle technologies. The collaboration will enhance research in greenhouse gas and criteria pollutant reduction, advanced vehicle drive systems, and standardized vehicle test platforms.

The collaboration will strengthen each institute's capabilities in the following areas:

- Advanced vehicle testing facilities and vehicle testing equipment
- Development of advanced vehicle evaluation standards and normalized vehicle test platforms
- Education and training for university students, future vehicle engineers and scientists
- Real world, extreme climate vehicle testing and validation



Hydrogen Pathways Program Manager Jonathan Hughes, second from right,

"ITAQ is an excellent partner that brings significant resources in vehicle testing and in the design of vehicle testing facilities," said Anthony Eggert, associate research director, ITS-Davis Hydrogen Pathways Program. "We look forward to working with ITAQ as we plan and construct new world-class vehicle research test-beds."

Based at Saint-Jerome College in St. Jerome, Québec, ITAQ provides product development, research and development, technology transfer, technological and strategic development and training, to national and international companies.

TIRE TECHNOLOGY: Stretching Tire Life and Saving Fuel

ITS-Davis has embarked on a new project to research, demonstrate, and evaluate various techniques and equipment designed to prolong the life of tires, increase energy efficiency, and reduce fuel consumption.

Graduate student Justin Regnier will coordinate the research effort under the direction of faculty and researchers Dan Sperling, Susan Handy, Ken Kurani, and Andy Burke. Together they will examine issues such as the effects of proper inflation, "smart tire" low-pressure alert and self-inflation systems, how low-rolling resistance tires wear in the real world, driver attitudes toward tire maintenance, and lifecycle manufacturing issues.

Funded by a grant from the California Integrated Waste Management Board, the project will help the state Department of General Services implement fleet policies designed to reduce the number of tires purchased and decrease fuel consumption.

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Development Update

FRIENDS OF ITS-DAVIS: 2004 Fundraising Underway

Friends of ITS-Davis kicked off its 2004 fundraising drive earlier this month. The Institute established *Friends* last year to organize and engage those interested in transportation research and education, and to build support for student aid and student projects.



"Gifts from alumni and friends tell current students that people care even if they're no longer on campus, and that there's a keen interest in their educational experience. Gifts also create an inspiring sense of community," notes Renee Pearl, associate director of development.

Last year, *Friends* raised \$45,000 to support competitive research and project grants, conference travel, computer resources, and awards to recognize outstanding papers and teaching assistants.

Building on the success of last year's General Hydrogen Corporation matching fund, two matching opportunities are available to donors for 2004.

- The McWick Technology Foundation and the Otto Family Foundation are sponsoring a 1-to-1 match for all gifts of \$100 or more to *Friends* made by the end of this year.
- The Joseph Beggs Foundation for Kinematics has issued a special matching challenge to student vehicle design competition alumni. The foundation will give the UC Davis *Challenge X* team \$7,500 if \$2,500 is raised from alumni by December 31, 2004. This is a 3-to-1 match on all gifts in support of the *Challenge X* team. *Challenge X* is a three-year student competition to re-engineer a sport utility vehicle to minimize energy consumption and reduce emissions.

To make a gift to *Friends*, simply use the [form](#) available on the Web site. For more information about *Friends*, please visit <http://www.its.ucdavis.edu/foits/>.

THANK YOU: Corporate Affiliate Program Sponsors

The Institute would like to thank Corporate Affiliate Program members for their 2004 support.

Patron Level: ExxonMobil, Nissan Technical Center North America, and Toyota Motor Sales U.S.A.

Other Corporate Affiliates: Aramco Service Company, Chevron Products Company, Fuji Heavy Industries/Subaru Technical Research Center, and Pacific Gas & Electric



Engineers from Nissan stopped by ITS-Davis recently with their newest X-Terra fuel cell vehicle. Pictured with ITS-Davis's Dan Sperling on the left side of the car are: Toshio Hirota, Yoshiki Sekiya, and Fuminori Yamanashi. On the right, Eiji Makino and ITS grads Brian Johnston and Thomas Dreumont, now working at Nissan, join members of the ITS-Davis faculty and staff.

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ITS-Davis and Campus Highlights

COMINGS AND GOINGS: New Faces and a Few Goodbyes



Nils Johnson

Nils Johnson connected with ITS-Davis through an open house at the California Fuel Cell Partnership and joined the Hydrogen Pathways Research Program as a program manager in June. As a geographic information systems analyst he contributed to numerous California projects, including watershed management plans, city and county general plans, and environmental impact reports for the new UC Merced campus and the proposed California High Speed Rail corridor. He has dual master's degrees in Forestry and in Environmental Management from Duke University.



Emily Winston

Emily Winston has joined the ITS-Davis staff to manage the Toyota Fuel Cell Hybrid Vehicle Outreach and Demonstration program. Emily received her master's degree in Transportation Technology and Policy this summer. She worked at General Motors for two years before returning to school at UC Davis in 2002. She replaces John Tillman, who accepted an offer with Hyundai at the California Fuel Cell Partnership. The FCHV Outreach and Demonstration program also welcomes grad student Matthew Forrest, who is providing program support to the research team.

Alexis Palecek is ITS-Davis's new events and outreach coordinator. She comes to the Institute from the Sacramento Sports Commission, host of the 2004 Olympic Track and Field Trials. Alexis replaces Marlynne Walker, who returned to school at CSU-Hayward seeking an advanced degree in public administration.



Alexis Palecek

ITS-Davis bids a fond farewell to both John and Marlynne, and a warm welcome to Nils, Emily, Matthew and Alexis.

AWARDS & ACCOMPLISHMENTS

Ph.D. student Nic Lutsey has been awarded this year's CH2M HILL Fellowship. The award from the international engineering, construction, and operations firm provides \$8,350 annually to a TTP student to offset fees and expenses. The fellowship was first established last year. UC Davis alumnus and Sacramento CH2M HILL civil engineer Hans Strandgaard was pivotal in establishing the fellowship.

MODELING HYDROGEN PATHWAYS: Workshop Looks to Future

Approximately 75 industry, government and research partners joined ITS-Davis students and faculty on campus in September for the Hydrogen Systems Modeling Workshop, another in a continuing series of forums presented by the Hydrogen Pathways Research Program. The purpose of the workshop was to review the latest modeling efforts involving hydrogen infrastructure, demand, and broader energy issues and to discuss the state of current modeling science and its ability to meet researchers' needs.

The group heard the latest news about federal efforts to assess and document the costs associated with various hydrogen pathways, about steady-state approaches to modeling hydrogen systems and components, and about recent efforts to model transitions to a hydrogen economy over time. On the latter, Hydrogen Pathways researcher Chris Yang presented the ongoing modeling efforts at UC Davis, while representatives of Imperial College London, TIAX, H2Gen, Oak Ridge and Argonne national labs discussed their own efforts at modeling transitions. Participants also heard about models that connect hydrogen with the larger energy market and the impacts on the environment and climate change.

Finally, three ITS-Davis groups demonstrated their own models: Chris Yang, Jason Ni, and Nils Johnson presented a case study from Ohio focusing on coal-produced hydrogen with carbon dioxide sequestration; Jonathan Weinert presented his CHREC database; and Mike Nicholas demonstrated a methodology for siting refueling stations using GIS.



Kristin Andrichik, Shell H2, Britta Gross, GM, and Graham Moore, ChevronTexaco, deep in conversation at the Hydrogen Systems Modeling Workshop

FREE THURSDAY SEMINARS: The Best Lunch Date on Campus

From aviation experts, to community planning gurus, to technical writing tips and pitfalls, the topics are broad and the conversation stimulating at the Institute's Thursday luncheon lecture series held most Thursdays from 12:05 – 1:00 p.m. in Room 1065, Kemper Hall. The lectures are free and open to the public. See the [fall quarter schedule](#).