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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A LOSS FOR THE PLANET: Remembering Alex Farrell

The news of Alex Farrell's death struck like a lightning bolt. As we prepared this issue of *e-news*, ITS-Davis and the greater transportation research and policy community grappled with the sudden, unexplained loss of a colleague, a friend, a guiding light. Because he worked so closely with many of us here at ITS-Davis, it feels like a death in the family.

Farrell, 46, was an associate professor in the <u>Energy and Resources</u> <u>Group</u> at UC Berkeley. He was recognized internationally as a leading expert on transportation fuels and the role of transportation in climate change. His research interests included biofuels, hybrid electric vehicles and hydrogen vehicles, the low-carbon fuel standard and transportation sustainability.

Farrell co-directed with ITS-Davis Director Dan Sperling the team that



Dan Sperling and Alex Farrell at January 2007 news conference when Gov. Arnold Schwarzenegger signed executive order creating the low carbon fuel standard.

worked on the state's <u>low carbon fuel standard study</u>. Even though they shared the title, Sperling says Farrell was truly the principal investigator.

"In addition to all he did, this effort was the first time in my memory where we formed a collaborative research team with another campus and it really turned into a full collaboration in every sense of the word. And that was because of Alex," Sperling said.

Farrell directed the ITS-Berkeley Transportation Sustainability Research Center. TSRC Research Directors Tim Lipman and Susan Shaheen, among his closest colleagues, wrote in an e-mail to colleagues, "Professor Alex Farrell was an inspirational leader, researcher, and teacher. We feel privileged to have worked so closely with him in launching the TSRC...The loss of his vision, energy, and enthusiasm is profound." (Lipman and Shaheen are both ITS-Davis grads. Shaheen also is the ITS-Davis Honda Distinguished Scholar.)

Farrell's death was widely reported in the media. Roland Hwang, director of vehicles policy at the Natural Resources Defense Council (and also a UC Davis grad), told the *Los Angeles Times*, "It's going to be very difficult to find anyone like him. His contributions were tremendous, not just scientifically, but as a person. He did so much to bring together different groups."

Among the many poignant remembrances that have circulated are these comments from UC Davis Professor Joan Ogden, Co-chair of the STEPS program:

"Alex was a brilliant energy analyst, and was emerging as one of the new generation's leaders in technology assessment and energy policy. He worked tirelessly to address the grand energy and climate challenges of our time, using his intellect, leadership and passion to help change the world. He was a highly creative person who was called to lead and educate, and participate in the public sphere.

"Today, I grieve not only for Alex's family, friends and colleagues, but also for his students, current and future, who will not have the benefit of his guidance and inspiration, and for the public, who will not have the benefit of his counsel. He had a brilliant future ahead of him, and his loss affects many, in ripples throughout the energy community. I feel like a fellow warrior has fallen. I will miss him."

Contributions in Farrell's memory may be made to the Alex Farrell Memorial Scholarship Fund. Please make checks out to "UC Berkeley Foundation" and mail to University of California, Energy and Resources Group, 310 Barrows Hall #3050, Berkeley, CA 94720-3050.

Sustainable Transportation Center Update

SUSTAINABLE STREETS: Greening Communities, Improving Mobility

STC Visiting Practitioner Ellen Greenberg, AICP, is finalizing her year-long STC-funded **Sustainable Streets Project**. The goals of the project are:

- To introduce a framework for street design that addresses the three themes of ecology, movement and community, and defines each of these relative to sustainability objectives to which street design can contribute.
- 2. To document built examples of designs that address some or all of the three themes in an exemplary way.
- To support and promote further research efforts by establishing a database of project information and identifying research that needs to be conducted and disseminated in order to order to promote design

and implementation.

Greenberg has developed an impressive and comprehensive package of materials including 250 PowerPoint slides that include a Sustainable Streets Album, a reference guide, and bibliography, all of which are available or will soon be available from the STC website.



Sustainable downtown revitalization: 1st St., Livermore, CA (Credit: Greg Tung, Freedman, Tung & Bottomley).

The album, for example, documents accomplishments in streets that have been built or are under construction in 28 American and Canadian case studies in 11 states and provinces. The album provides snapshots of each case, with descriptions, photographs, technical drawings, and insight from project sponsors. The examples are organized by four main topic areas: storm-water management; revitalization through infill development; neighborhood and tree preservation; larger roads that serve mobility. Additional material on the projects in the album is available for UC Davis students, researchers and faculty to use in their research.

The STC in partnership with U.S. EPA will host an online seminar series on sustainable streets starting in June. Check the STC website for details.

VISITORS AND MEETINGS: STC Welcomes Visitors to Campus

External Advisory Council

The UC Davis Sustainable Transportation Center welcomed members of its External Advisory Council to campus for its annual meeting in February. The external council comprises distinguished leaders from industry, government and academia with expertise that matches the STC's focus areas of regional transportation planning, environmental planning and review, and energy policy.

Two students gave presentations on their STC-funded graduate research. Catherine Emond, a Transportation Technology and Policy student, and Anthony Palmere, assistant general manager of Unitrans, presented results from a class project that evaluated the potential for a Downtown-Campus shuttle for Davis. Julia Silvis presented findings on her dissertation, which investigates the interactions between seniors' social networks and their travel behavior. Silvis hopes to shed light on how transportation-related carbon emissions are likely to change with the coming demographic shift, as well as on how seniors can maintain mobility, independence and quality of life as they age.

UC Davis Professors Yueyue Fan and Alison Berry presented updates on their STC-funded research. Fan's presentation focused on a new mathematical model to identify the optimal sequence of converting existing and under-construction high-occupancy vehicle (HOV) lanes to high-occupancy toll (HOT) lanes. Her model accounts for a wide range of factors, including social equity issues related to pricing strategies of toll lanes. Berry, who directs the Road Ecology Center, is expanding research on "road effect zones" to examine not only the extent of the zone, but also how various impacts are interrelated, and how these impacts could be minimized through pavement and roadside management activities.

The meeting also included an introduction to the STC's <u>Sustainable Streets Project</u>, an update on other ITS-Davis initiatives and a visit to the UC Davis Design Museum's Greenstop Exhibit, sponsored by the STC.



STC Welcomes RITA Administrator

Paul Brubaker, administrator of the U.S. Department of Transportation Research and Innovation Technology Administration (RITA), received a warm welcome from STC director Susan Handy, STC researchers, students and ITS-Davis staff during a recent visit to campus.

Researchers and students representing the varied research topics under study at the STC presented Brubaker with an overview of their work. Topics included the impact of the Internet on shopping behavior presented by Professor Pat Mokhtarian, an update on the ITS-Davis STEPS program by Professor Joan Ogden, and several student presentations on hydrogen research.

"This visit gave us a great opportunity to showcase the important research we are doing in key priority areas of the

federal research agenda," said STC Director Susan Handy.

Guiding State Policy

STC hosted a half-day meeting for Caltrans on the UC Davis research related to the agency's role in global warming policy efforts.

STC Distinguished Speakers

Two STC Distinguished Speakers recently gave presentations as part of the ITS-Davis weekly seminar series.

Genevieve Giuliano, Ph.D., Sr. Assoc. Dean, Research and Technology, Director, METRANS Transportation Center, School of Policy, Planning and Development, USC. Spoke April 25 on "Impacts of Port Gate Operations on the Highway System: A Case Study."

Martin Wachs, Ph.D. Director, Transportation, Space, and Technology, RAND Corporation, spoke February 29 on "Linking Transportation, Development and Habitat Conservation: A Case Study of Riverside County."

In addition, STC Visiting Practitioner **Ellen Greenberg**, AICP, spoke in January on "The Opposite of Traffic: A Work in Progress" and again May 2 on her Sustainable Streets Project.

The STC also sponsored a visit from **John Pucher**, Ph.D., professor in the Bloustein School of Planning and Public Policy at Rutgers University. A noted expert in bicycle planning, Dr. Pucher gave talks at the ITS-Davis seminar, for the City of Davis Climate Action Team, and for Breathe California in Sacramento.

WTS Reception a Success

Good food + good conversation + good contacts = successful event. The Sacramento Chapter of the Women's Transportation Seminar (WTS) teamed up recently with STC for a reception on campus for students, faculty, and working professionals. The purpose was to highlight transportation careers and opportunities. WTS-Sacramento is devoted to supporting professional success in the transportation field by promoting



The WTS reception gave ITS-Davis students the chance to interact with prominent community members.

Lauren Hilliard addresses the WTS attendees.

excellence, growth, opportunity, and recognition.

Research Results

SHAPING OUR ENERGY FUTURE: ITS-Davis Assists California and Federal Policymakers

As the State of California advances strategies for meeting its stringent air pollution, greenhouse gas and petroleum reduction goals, ITS-Davis researchers, students and recent grads are contributing technical expertise to strengthen the policymaking foundation. It's a natural role for ITS-Davis's interdisciplinary education and research approach, and it serves state policymakers and the people of California, as well as the university's students who gain valuable hands-on experience. Often, the Institute's work reaches beyond California, as well.

This issue of e-news touches on several events to which ITS-Davis is contributing research presentations, collaborative policy and organizational support, or both.

Reducing Greenhouse Gas Emissions from Passenger Vehicles – What's Next?

ITS-Davis recently co-hosted with the California Air Resources Board a symposium to examine what additional steps can be taken to address the shortfall between currently planned passenger vehicle greenhouse gas emission reduction programs and the requirements of California's Global Warming Solutions Act of 2006 (AB 32).

More than 100 policy makers, advocates, technical experts and academics came together to discuss current and coming technologies for cutting carbon from vehicles, as well as policy mechanisms such as pricing and market mechanisms.

"What we're doing here in California is somewhat of a model," ITS-Davis Director Dan Sperling said in opening remarks. He added, however, that Europe and Japan are way ahead of the U.S. in terms of fuel-efficient vehicles and policy instruments in place.

Morning presenters discussed drivetrain efficiencies, weight reduction techniques, and the potential for diesel, hybrid, battery-electric and fuel cell vehicles for reducing greenhouse gas emissions. The afternoon session tackled policy mechanisms such as feebates, driver behavior, congestion-pricing and vehicle-miles-traveled. ITS-Davis's Ken Kurani presented results of his recent work examining consumer response to fuel and vehicle prices—and the complicated signals that pricing represents.

ITS-Davis kudos go to STEPS Program Manager Joshua Cunningham, who organized and coordinated much of the symposium.

The symposium served as the first discussion of likely future vehicle policies in California, including revisions to the Zero-Emission Vehicle program and a follow-on to the vehicle greenhouse gas emission regulation, and the continuation of discussions already underway as part of the AB 32 scoping plan.

Global Warming Solutions for Caltrans

UC Davis pulled together some of its top researchers for a special half-day workshop designed to demonstrate to the state's transportation planning agency, Caltrans, the breadth of transportation and climate knowledge available on campus. Organized jointly by Civil Engineering Professor Debbie Niemeier and UC Davis Sustainable Transportation Center Director Susan Handy, and sponsored by the STC, the workshop featured presentations ranging from smart growth and regional planning strategies to 100-year pavement planning.

PHEV Research Center Crafts a Research Roadmap for California



UC Davis PHEV Research Center research roadmap workshop.

Approximately 45 people gathered on campus in late April for a workshop to refine a Plug-in Hybrid Electric Vehicle (PHEV) Research Roadmap for the State of California. When finalized, the roadmap will guide state-funded research efforts to develop. demonstrate and deploy PHEVs. The UC Davis Plug-in Hybrid Electric Vehicle Research Center is developing the roadmap with funding from the California Energy Commission PIER Program.

The PHEV Center sponsored the workshop to seek research stakeholder input on a draft roadmap document that examines the state of PHEV technology and research, regulatory drivers, automaker advances, infrastructure, consumer behavior research, certification issues, environmental benefits and lifetime costs.

The final roadmap will be refined and CEC will host a public workshop to take additional comment on the plan.

Low-Carbon Fuels

UC Davis and UC Berkeley researchers are continuing their technical analysis in support of the state's rulemaking on low-carbon fuels. Dan Sperling together with Alex Farrell co-directed the team that drafted the initial plan released last fall. The state is now developing the regulatory framework for the standard. ITS-Davis researcher Sonia Yeh is heading up the UC Davis team.



Several UC Davis faculty members serve on state and federal advisory committees.

- Cynthia Lin Controller's Council of Economic Advisors, to advise the state controller on economic trends, strengths and vulnerabilities in California's economy.
- Pat Mokhtarian National Research Council (NRC/NAS) Project on Relationships Among Development Patterns, Vehicle Miles Traveled, and Energy Consumption. Final report to be published in November 2009.
- Joan Ogden Economic Technology Advancement Advisory Committee (ETAAC), convened by the California Air Resources Board as part of the AB 32 implementation process.
- Joan Ogden National Research Council (NRC/NAS), Committee on Hydrogen and Fuel Cell Vehicles. Final report to be published in spring 2008
- Dan Sperling National Research Council (NRC/NAS), America's Energy Future: Technology Opportunities, Risks, and Tradeoffs; Panel on Energy Efficiency. Final report to be published in fall 2008.
- Dan Sperling American Physical Society (APS), Study Committee on Energy Efficiency. Final report to be published in fall 2008.
- Dan Sperling National Research Council (NRC/NAS), Potential Energy Savings and Greenhouse Gas Reductions from Transportation. Final report to be published in fall 2009.

ITS-Davis and ARB

For many years, ITS-Davis researchers have engaged on many levels with the California Air Resources Board. Last year, ITS-Davis Director Dan Sperling was appointed to the ARB board, a role that has raised Sperling's profile in the public policy arena. But there's also a sizeable contingent of extraordinary ITS-Davis students and graduates contributing their own expertise to California's air quality agency. The list below represents our best efforts to identify graduates and current students who are working at ARB.

Belinda Chen

Current Ph.D. student, Transportation Technology and Policy

Zhen Dai

M.S., Transportation Technology and Policy, 2002

Anthony Eggert

M.S., Transportation Technology and Policy, 2001

Kevin Eslinger

Current M.S. student, Transportation Technology and Policy

Siva Gunda

Current Ph.D. student, Mechanical Engineering

Doug Ito

M.S., Transportation Technology and Policy, 2000

Zhenhong Lin

Ph.D. Candidate, Civil and Environmental Engineering

Winardi Setiawan

M.S., Statistics, 1990

M.S., Engineering, 1988

Ben Sharpe

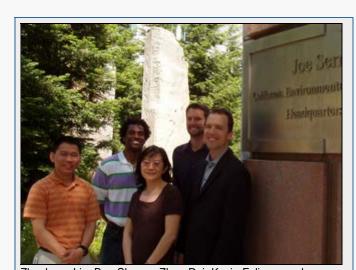
Current M.S. student, Civil and Environmental Engineering

Mimi Sogutlugil

Ph.D., Civil and Environmental Engineering, 2005

Elizabeth Yura

M.S., Civil and Environmental Engineering, 2006



Zhenhong Lin, Ben Sharpe, Zhen Dai, Kevin Eslinger and Anthony Eggert.

In addition, Nic Lutsey, a Ph.D. candidate in Transportation Technology and Policy, and Brent Riffel, a recent Transportation Technology and Policy M.S. recipient, have worked closely with ARB scientists in recent years on greenhouse gas emission modeling. Lutsey, who was an intern at ARB and will soon graduate, was recently the featured speaker as part of the ARB Chair's Air Pollution Seminar series. Lutsey

presented from his dissertation research on "Prioritizing Climate Change Mitigation Technologies by Cost-Effectiveness." Riffel is now working for Life Cycle Associates in Sacramento. Both remain engaged in policy and interact regularly with ARB.

AT YOUR FINGERTIPS: ITS-Davis Online Publications Ordering System

The ITS-Davis <u>online publications database</u> enables online searches by keyword, author, year and title. Each listing includes an abstract of the document; many are fully downloadable.

Publications also may be ordered by fax, e-mail or mail.

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Education Highlights

ACCOMPLISHMENTS: Awards and Fellowships

Eisenhower Fellowship David McCollum, a Transportation Technology and Policy Ph.D. student, has been awarded a 2008 Eisenhower Transportation Fellowship from the

Eno FellowshipsTwo ITS-Davis
graduate students have

U.S. Department of Transportation.



Wayne Leighty



Kristin Lovejoy

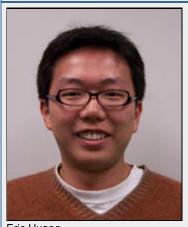


David McCollum

been selected as 2008 Eno Fellows, and an ITS-Davis board member has been invited to participate in the annual Eno Leadership Development Conference. Graduate students Kristin Lovejoy and Wayne Leighty, and Advisory Board Member Larry Orcutt, will attend the 16th annual Eno Leadership Development Conference in Washington, D.C. later this month. Lovejoy is a Ph.D. student in Transportation Technology and Policy. Leighty is pursuing joint Master's Degrees in TTP and in Agricultural and Resource Economics. Orcutt is Division Chief, Research and Innovation, at Caltrans.

Friends of ITS-Davis Competitive Research and Project Grants

Chien-Wei (Steven) Chen and Yongxi (Eric) Huang, both Ph.D. candidates, have been awarded 2008 *Friends of ITS-Davis* Competitive Research and Project Grants for their proposal to design a feedstock supply system of collecting and hauling waste oils from restaurants to deliver to biodiesel refineries in urban regions with the minimum cost.



Eric Huang

ITS-Davis and Campus Highlights



The future's just a short drive away, and you'll be able to learn all about it at the Plug-in
2008 Conference and Expo, July 22-24 in San Jose, Calif. Plug-in 2008 is a three-day international conference to showcase the latest technological advances, market research and policy initiatives shaping the future of plug-in hybrid electric vehicles (PHEVs). The UC
Davis Plug-In Hybrid Electric Vehicle Research Center is an event organizer and sponsor.

The timing is right for "a gathering with a focus on a technology that represents one of the most viable near-term ways to get to a greener future," said PHEV Center Director Tom Turrentine. Among the ITS-Davis speakers at the conference will be: Institute Director Dan Sperling and researchers Mark Delucchi, Ken Kurani and Chris Yang.

Plug-In 2008 will bring together automakers, component suppliers, electric utilities, government agencies, academics, advocates and others to get up to speed on the latest in PHEV advances. Topics will include technical research, the business case for PHEVs, the impact of current policies and regulations, and clean-tech entrepreneurs' ideas to enhance and expand the PHEV market. In addition, the exposition floor will feature the latest PHEV innovations and supporting electricity infrastructure.

Other Plug-In 2008 event organizers include the Electric Power Research Institute, Pacific Gas & Electric, San Diego Gas & Electric (a Sempra Energy utility), the Silicon Valley Leadership Group, the Sacramento Municipal Utility District and Southern California Edison.

The UC Davis PHEV Center is funded through grants from the California Energy Commission PIER Program with additional research funding from the California Air Resources Board.

OUT AND ABOUT: Spreading the Word about Plug-in Hybrids and Fuel Cells

The Institute's demonstration vehicles—a Toyota fuel cell hybrid vehicle (FCHV) and a converted plug-in hybrid electric (PHEV) Prius—are increasingly busy these days. Calls for their participation in public events are increasing due to public concern about rising gas prices and interest in alternative fuels.

PHEV Center Program Manager Dahlia Garas has been constantly out and about speaking at public forums, presenting to classrooms, attending events and showing off one of the PHEVs that are part of the PHEV Center's research and outreach program. The same is true for new FCHV Program Manager Peter Dempster.

Together they represented the Institute at UC Day at the State Capitol, an annual event to highlight to the state legislature the many UC System contributions. They also met with students at a recent "Dinner with a Scientist" event in Stockton.

"One of the teachers I met at that event brought 50-60 students from Lodi Middle School to meet us and see the vehicles on campus during a visit a few weeks later," Garas says.



Dahlia Garas at UC Day in Sacramento.

Garas also recently presented to 100 enthusiastic attendees of the Green Innovations for a Clean California symposium, sponsored by California Assembly Member Mary Hayashi at Las Positas Community College in Livermore.

Of course, the cars were popular attractions again at the annual UC Davis Picnic Day in April, and at an Earth Day event in San Francisco's Golden Gate Park.

WORLD TRAVELER: Conferences in India and the U.K.

Professor Pat Mokhtarian was in Assam, India, in February for the First Indo-U.S. Symposium on Advances in Mass Transit and Travel Behaviour Research. The conference was co-organized by another UC Davis alum, Professor Ram Pendyala of Arizona State University, together with Professor Ashish Verma of lavis IT Guwahati



Pat Mokhtarian and UCD alum Prof. Karthik Srinivasan of the Indian Institute of Technology (IIT), Madras, on the shore of the Brahmaputra River in India.

in Assam. Other UC Davisaffiliated attendees included alumnus Professor Kostas Goulias of UC Santa Barbara, and ITS- Det Malkharian with TTP Rh. D. student Wai Tana

Pat Mokhtarian with TTP Ph.D. student Wei Tang, at Bristol Coombe Lodge in the U.K.

University.

In March, Mokhtarian and her Ph.D. student Wei Tang participated in the <u>Third Specialist Meeting on ICT, Everyday Life and Urban Change</u>, at Coombe Lodge, Bristol, United Kingdom. Professor Ilan Salomon of the Hebrew University in Jerusalem, an ITS-Davis affiliated researcher, also participated.

WELCOME: ITS-Davis Announces New Staff and Researchers



Peter Dempster with the FCHV.



Hengbing Zhao

Hengbing Zhao has recently joined the ITS-Davis team as a Senior Development Engineer to assist in vehicle and battery modeling and testing projects for the Plug-in Hybrid Electric Vehicle (PHEV) Research Center and Sustainable Transportation Energy Pathways (STEPS) program. He most recently worked for E-Chem Clean Power in Vancouver, B.C. He has a Ph.D. from the Institute of Electrical Engineering, Zhejiang University, China.

Davis Board of Advisors member Professor Hani S. Mahmassani of Northwestern

Peter Dempster is the Institute's new Toyota Fuel Cell Hybrid Vehicle Demonstration Program Manager. He recently finished his M.S. in Biological Systems Engineering from UC Davis. Prior to that, he earned a B.S. in Aeronautical Science and Engineering, also from UC Davis. He has already gotten off to a running start, updating the program's website and coordinating the recent Picnic Day activities.

ACCOMPLISHMENTS: 35+ Years at UC Davis

ITS-Davis bids a warm farewell to retiring longtime administrator Susie O'Bryant. O'Bryant was the Institute's first management services officer, from 1993 to 1998.

Dan Sperling, who attended her retirement party, recognized her as "hugely important in setting up most of the processes and procedures of ITS-Davis, hiring all the initial staff, and basically being the 'founding MSO.'"



Susie O'Bryant and Director Dan Sperling

EXTRA! READ ALL ABOUT IT! ITS-Davis and UC Davis Researchers in the News

Dan Sperling, May 12, in Business Week on the biofuels vs. food controversy and low carbon fuels

Andy Frank, April 22, on PBS's NOVA, discussing plug-in hybrids for a special program on cars of the future.

Chris Knittel, April 22, on KQED Forum with Michael Krasny, on rising gas prices.

Dahlia Garas, April 20, on *KRON*, San Francisco, and April 18, in *Pleasanton Weekly*, during local news coverage of Earth Day events at which she **spoke and demonstrated the UC Davis PHEV**. (Warning: PDF)

Andy Frank, April 18, in The Sacramento Bee, on plug-in hybrids and promoting his upcoming interview on public television.

Dan Sperling, late-March and early-April, in numerous California papers and on National Public Radio, following the Air Resources Board vote on the California Zero-Emission Vehicle Program.

Tom Turrentine, March 19, in *Forbes*, in a special series that invited <u>commentary from a select group of leaders in alternative fuels and <u>transportation policy</u>.</u>

Yunshi Wang, March 9, an op-ed in The Sacramento Bee, on international factors affecting rising oil costs.

Pat Mokhtarian, February 12, MSN Money, on the social and economic costs of commuting.