

News - Fall 2002

CE-CERT Study Shows New Generation of Gasoline Vehicles Contributes to Cleaner Air

IT WAS NATIONAL NEWS IN SEPTEMBER WHEN CE-CERT RELEASED preliminary results of the program for the Study of Extremely Low Emission Vehicles (SELEV) showing that the newest generation of gasoline-powered automobiles is capable of achieving near-zero emission levels.

On September 4, CE-CERT and partners in the SELEV program held the first "UCR Clean Mobility Symposium" to release the latest significant findings from the study. Engine technology combined with the low-sulfur fuel available in California and the advances made in emission control technology have resulted in dramatic improvements in the emissions performance of gasoline-fueled vehicles.

Reporters, industry representatives and members of the local community flocked to UC Riverside to hear about the preliminary results of the program. The information was then shared at a national level through media coverage of the event and program, including articles in the LA Times and USA Today, and as a lead story on the CBS Evening News with Dan Rather.



Low emission vehicle equipped with measurement equipment.



CARB Chairman Alan Lloyd and Steve Welstand from ChevronTexaco take a ride in a Honda low emission vehicle.

CE-CERT established the SELEV program in partnership with industry and government agencies in June 2000 with the purpose of understanding, via direct measurements and modeling, the impact that new-generation vehicles with extremely low emissions have on overall air quality.

"This study is designed specifically to determine how engine technology can continue to decrease emissions while delivering the performance consumers expect from their cars," said CE-CERT's Director, Joe Norbeck. Additionally, the capability to measure emissions at extremely low levels is applicable to alternative fuel and hybrid vehicles.

SELEV, a three-year research project, is co-sponsored by the U.S. Environmental Protection Agency, the California Air Resources Board, Honda R&D Americas, Inc., ChevronTexaco North America Products, and the Manufacturers of Emission Controls Association.

Announcement of CE-CERT 2002-03 Student Awards

Graduate Fellowships

- *Esther F. Hays Graduate Student Fellowship*: Sandip D. Shah, Chemical and Environmental Engineering Ph.D. Program. "Real-time Measurement of Particle Size from Diesel Engines."
- *William R. Pierson/Ford Motor Company Graduate Student Fellowship*: Aniket Sawant, Chemical and Environmental Engineering M.S. Program. "Source Apportionment of Fine Particulate Matter in an Urban Airshed."

Undergraduate Scholarships

- *Ford Motor Company Scholarship*: Daniel J. Pound, Mechanical Engineering major.
- *Jim Guthrie Research Award*: Carlos Gaeta, Chemical Engineering major. "Performance Analysis of Various Sections of the Heavy-Duty Diesel Mobile Lab."
- *Jim Guthrie Research Award*: Sheraz K. Butt, Chemistry major. "The Mira Loma Air Quality Study."

RAP 2001/02: Undergraduate Fellows Report on a Year of Learning

SIX FRESHMEN FROM THE BOURNS COLLEGE OF ENGINEERING WERE THE FIRST TO BENEFIT FROM A PROGRAM DESIGNED TO PROVIDE intensive opportunities to learn by doing research at CE-CERT.

The Research Advancement Program (RAP) offers research fellowships to about half a dozen freshmen per year. The students -- who are selected based on their grades, test scores, and interviews -- are paired with mentors early in the academic year and given research projects to carry out in conjunction with CE-CERT projects involving air quality, energy efficiency, and transportation. The students are paid while they work, and they are given the opportunity to for paid student research assistant positions after the fellowships end.

"UCR emphasizes learning by doing. Hands-on experience is very important," says Joe Norbeck, CE-CERT's Director and the Yeager Families Professor of Environmental Engineering. "Almost every one of our contracts and grants has funding in it to pay for undergraduate student research assistants, and we're one of the largest employers of undergrads in research at UCR. But the RAP program lets us give some promising students extra flexibility in tailoring research projects to their interests and their educational goals. Some of them even get to go to conferences or publishing papers."

For example, freshman Kevin Carpenter earned a second-place award from the Society of Automotive Engineers for his report on a project involving exhaust gas recirculation in a hydrogen-fueled internal combustion engine.

Donors Thanked at UCR Evening of Recognition

ON OCTOBER 11, 2002, UC RIVERSIDE HELD ITS ANNUAL "EVENING OF RECOGNITION," HONORING DONORS AND THEIR generosity to the campus. Donors of over \$1,000,000 were recognized as Laureates to the University. J. Wayne Miller, Director of CE-CERT's Emissions and Fuels Research Laboratory, accepted the honor on behalf of the Electric Power Research Institute. EPRI's most recent gift through CE-CERT funded the development of an analyzer to measure ammonia in coal-fired power plants. Past CE-CERT supporter Dupont was also recognized as a Laureate. DuPont funds have been used to support research at CE-CERT, the Air Pollution Research Center, and a number of other programs and departments across the campus.

Other attendees who have provided support for the Bourns College of Engineering were Cadence Design Systems, Inc., whose advanced software is used to instruct Electrical Engineering students in digital and analog integrated circuit layout and design; Conexant Systems, Inc. who donated specialized equipment for the College's Center for Nanoscale Science and Engineering; and the Energy Foundation, USA Waste of California Inc., Yamaha Motor Corporation and Valero Energy Company, who have all supported research projects at CE-CERT.

UCR Student Takes Second Place at SAE Competition

MECCHANICAL ENGINEERING UNDERGRADUATE KEVIN CARPENTER TOOK SECOND PLACE AT THE MAC SHORT ENGINEERING PAPER Competition. This competition is sponsored annually by the Southern California section of the Society of Automotive Engineers and recognizes individual engineering efforts by undergraduate engineering students. All work presented must be the work of the entering student. On May 4, Kevin gave an oral presentation to the judges, along with a written engineering paper on the same topic as the presentation. Both were titled, "The Effects of EGR on a Hydrogen Internal Combustion Engine and the Measurement of Ultra-Low NOx Emissions." Kevin will receive \$400 for his second place finish. He worked under the direction of Jim Heffel at CE-CERT on the project.

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