

# Los Altos Academy of Engineering

*Building a cleaner, more fuel efficient tomorrow*

## NEWS RELEASE

**For Immediate Release: April 17, 2007**

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**HIGH SCHOOL WINS FIRST PLACE IN HYDROGEN FUEL CELL CATEGORY AT SHELL ECO-MARATHON AMERICAS**

LAAE competes with 22 other schools and finished top with fuel cell vehicle

On April 14, 2007 the Los Altos Academy of Engineering (LAAE) competed in the Shell Eco-marathon Americas at California Speedway in Fontana, California. The Shell Eco-marathon Americas is a competition in which the goal of all entries is to travel the farthest using the least amount of fuel. Team LAAE was among 20 college and 3 high schools, from North America to participate in this challenge. Team LAAE's vehicle, *Infusion*, was different from all the other vehicles participating in the Shell Eco-marathon in that it ran off the electricity produced by its hydrogen fuel cell rather than a combustion engine. *Infusion*, first developed in 2001, is the first high school designed and built hydrogen fuel cell vehicle in the United States. *Infusion* is designed to travel 40 miles per hour for one hour continuously. Fundraising for the project, which had a price tag of \$40,000 was completely managed by students. Students have dedicated countless hours to building the vehicle that has been the longest project the LAAE has worked on.

The Shell Eco-marathon Americas was *Infusion's* first competition. A team of 10 LAAE students from Los Altos High School, Hacienda Heights, CA, raced *Infusion* and set a world record for the best mileage attained by a hydrogen fuel cell vehicle with 1038.0 miles per gallon in the history of Shell Eco-marathon Americas. *Infusion* won first place in its category and a prize of \$1600 as well as 7<sup>th</sup> place overall. This year is the first time Shell hosted the Eco-marathon in North America after its success in Europe and the U.K. for the past 25 years. This competition allowed LAAE's students to be innovative in applying their knowledge and skills to the real world while under pressure.

"The Shell Eco-marathon Americas allowed LAAE to showcase its signature project. Not only was LAAE innovative in having one of the best designs, LAAE attracted great attention from

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Shell employees and representatives as well as the media. *Infusion's* intricate electrical and mechanical system, as well as the unique shape of the composites body really made a statement about LAAE's unique program," said Christopher Chang, Public Relations Team Leader.

*Infusion* was intended to be a vehicle innovative in every way. In addition to utilizing hydrogen fuel cell technology, the body of *Infusion* is unique in that it is modeled after the shape of a tear drop to minimize air resistance. Students utilized AutoCAD and Rhino to design the vehicle completely. *Infusion* uses a complex system of regulators and valves to store ultra-pure hydrogen to run the Ballard Nexa fuel cell. The fuel cell outputs 1200 watts of power, equivalent to that of a hair dryer. *Infusion* is a three-wheeled vehicle with a carbon-steel chassis and bulkheads made out of aluminum and Nomex honeycomb composite material. The front suspension of the vehicle is composed of dual A-arms wrapped around torsion bars while the rear suspension is composed of a swing-arm and single bicycle damper. The rear wheel of the vehicle is driven by a belt from the 12 horsepower motor. *Infusion's* body was constructed at Cerritos College by students of LAAE's composites team. The body was manufactured using an environmentally friendly, state of the art, technique called *infusion impregnation* to produce an extremely light and strong body. The body took four attempts and two years to complete a body that met the weight and structural requirements.

The LAAE at Los Altos High School is a joint program with the Hacienda La Puente Unified School District and La Puente Valley Regional Occupational Program. Founded in 1989, the LAAE is one of the remaining career and technical education program in California. LAAE has many notable achievements building electric and solar vehicles. The mission of the Los Altos Academy of Engineering is to establish opportunities in mathematics, science, computer science, and engineering for students who demonstrate an early interest in these career fields.

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*If you would like more information about Infusion, the Los Altos Academy of Engineering, or would like to schedule a visit, please call Chris Chang at 626-330-1096 or email Chris at [laae.pr@gmail.com](mailto:laae.pr@gmail.com)*

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