

# Simple device which uses electrical field could boost gas efficiency

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With the high cost of gasoline and diesel fuel impacting costs for automobiles, trucks, buses and the overall economy, a Temple University physics professor has developed a simple device which could dramatically improve fuel efficiency as much as 20 percent.

According to Rongjia Tao, Chair of Temple's Physics Department, the small device consists of an electrically charged tube that can be attached to the fuel line of a car's engine near the fuel injector. With the use of a power supply from the vehicle's battery, the device creates an electric field that thins fuel, or reduces its viscosity, so that smaller droplets are injected into the engine. That leads to more efficient and cleaner combustion than a standard fuel injector, he says.

Six months of road testing in a diesel-powered Mercedes-Benz automobile showed that the device increased highway fuel from 32 miles per gallon to 38 mpg, a 20 percent boost, and a 12-15 percent gain in city driving.

The results of the laboratory and road tests verifying that this simple device can boost gas mileage was published in *Energy & Fuels*, a bi-monthly journal published by the American Chemical Society.

"We expect the device will have wide applications on all types of internal combustion engines, present ones and future ones," Tao wrote in the published study, "Electrorheology Leads to Efficient Combustion."

Further improvements in the device could lead to even better mileage, he suggests, and cited engines powered by gasoline, biodiesel, and kerosene as having potential use of the device.

Temple has applied for a patent on this technology, which has been licensed to California-based Save The World Air, Inc., an environmentally conscientious enterprise focused on the design, development, and commercialization of revolutionary technologies targeted at reducing emissions from internal combustion engines.

According to Joe Dell, Vice President of Marketing for STWA, the company is currently working with a trucking company near Reading, Pa., to test the device on diesel-powered trucks, where he estimates it could increase fuel efficiency as much as 6-12 percent.

Dell predicts this type of increased fuel efficiency could save tens of billions of dollars in the trucking industry and have a major impact on the economy through the lowering of costs to deliver goods and services.

"Temple University is very excited about the translation of this new important technology from the research laboratory to the marketplace," said Larry F. Lemanski, Senior Vice President for Research and Strategic Initiatives at Temple. "This discovery promises to significantly improve fuel efficiency in all types of internal combustion engine powered vehicles and at the same time will have far-reaching effects in reducing pollution of our environment."

Source: Temple University

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