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SPE[®] TO HONOR FREEDOMCAR FUEL & PARTNERSHIP WITH EXECUTIVE LEADERSHIP TEAM AWARD

TROY, (DETROIT) MICH. – The Automotive Division of the Society of Plastics Engineers (SPE[®]) International today announced that it will honor the FreedomCAR and Fuel Partnership (FC&FP) with its **Executive Leadership Team Award** at the 38th-annual **SPE Automotive Innovation Awards Competition & Gala**, Thursday, Nov. 20, at Burton Manor in Livonia, Mich. The award recognizes the Partnership's leadership in sponsoring research on 'leapfrog' technologies in plastics and composites for automotive applications and its work in helping develop technologies for the next generation of vehicle transportation. The honor will be accepted by a team representing the U.S. Department of Energy (DOE) and the United States Council for Automotive Research LLC (USCAR), through which the three U.S. automakers – Chrysler LLC, Ford Motor Co. and General Motors Corp. – participate in the FC&FP.

Suzanne Cole, president, Cole & Associates and past chair of the SPE Automotive Division, who will present the award, said, "The U.S. government is committed to promoting the transformation of the transportation sector via development of lightweight, efficient and sustainable vehicles and an infrastructure to support them. Through USCAR, the Detroit automakers are advancing collaborative automotive research, which includes polymer composites technology, for future vehicle architectures. We, on the SPE Automotive Division Board of Directors, believe that plastics and composite materials will be key enablers for the development of safe and sustainable transportation, and we applaud the efforts of the FC&FP for ushering in polymer-based technologies for advanced-propulsion systems and lightweight, durable, safe vehicle structures."

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Maria Ciliberti, Global Automotive director, Ticona, and also the ***SPE Automotive Innovation Awards*** chair for 2008 added, "We selected FC&FP as the recipient of our 2008 ***Executive Leadership Team Award*** for the group's vision in making plastics and composites top research priorities within the materials arena. From lightweight, durable, sustainable materials for clean-sheet vehicle architectures to membrane separators for advanced batteries, and plastics for building the hydrogen infrastructure needed for a safe and convenient fuel-delivery system, plastics and polymer composites have already proven to be enabling technologies for alternative powertrains, ranging from gas-electric hybrids to advanced battery and hydrogen vehicle technologies."

Key areas of research by the FC&FP include the following:

- **Lightweight Structures / Low-Cost Carbon Fiber** – Current FC&FP composite materials efforts are focused in the development of large carbon fiber-reinforced composite structures, a technology offering the highest stiffness-to-weight ratio of any structural materials used in the automotive industry. One of the first tasks is to delineate the structural performance requirements and identify the best manufacturing technologies for producing composite components. The goal associated with this work is to achieve 60% or greater mass reduction vs. comparable steel body structures. This represents a major effort being carried out through several DOE projects aimed at reducing the cost of carbon fiber (a goal of producing fiber at US\$7-11/kg) and optimizing carbon fiber surface characteristics for compatibility with resins commonly used in the auto industry.
- **Lithium-Ion (Li-ion) Batteries** – Research over the last decade at DOE national laboratories and through USCAR's U.S. Advanced Battery Consortium has led to the development of solid-state, thin-film lithium and lithium-ion batteries. The batteries, which are less than 15- μ m thick, have important applications in batteries for plug-in electric and hybrid (gas-electric) vehicles. This research has subsequently enabled industry and supplier partners to develop advanced polymeric separator materials needed for automotive Li-ion batteries to reduce cost, and increase safety, durability and reliability to help overcome previous challenges of poor calendar life, particularly at elevated temperatures, and the poor cold-cranking and low-temperature charging characteristics that plague many Li-ion chemistries. Studies at the national laboratories have shown that the cost of the separator dominates the cost of the non-active materials in a high-power Li-ion battery. Research is focused on finding lower-cost materials and improved processing techniques with a goal to develop a replacement separator at half the cost of current materials (which can run \$2 USD/m² or more).
- **Hydrogen Fuel / Fuel-Cell Vehicles (FCVs)** – One of the most promising and greenest alternative power sources for ground transportation is the hydrogen fuel cell, whose only by-product is water. Plastics play many important roles in FCV technology – from the bi-polar plate where energy is stored to composite fuel tanks providing on-vehicle hydrogen storage to lightweight vehicle structures that help a given tank of fuel propel a vehicle further. The goal of providing hydrogen as a fuel on a significant scale requires a coordinated undertaking within all levels of government, the automotive industry, and energy companies. A hydrogen economy provides benefits through economic growth, job development, investment opportunities and a sustainable, secure energy supply. Additionally, hydrogen can directly address air pollution and provides many pathways to help reduce and eventually eliminate greenhouse gases. Although the three U.S. automakers already have 77 FCVs in the FC&FP technical demonstration fleet and approximately 500 test vehicles on the road, challenges remain. These include the continued development of FCV technologies reaching cost targets that would enable affordably priced FCVs to be mass produced. Commercialization will not be achievable without also developing effective refueling facilities and supply systems.

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SPE to Honor U.S. Dept. of Energy's FreedomCAR Fuel Partnership
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Those named on the FC&FP award include:

- **Joseph A. Carpenter, Jr.**, Technology Development manager for the U.S. DOE's Lightweighting Materials effort, part of the FreedomCAR and Fuels Partnership;
- **Charles David (Dave) Warren**, program manager - Transportation Composites at Oak Ridge National Laboratory and field technical manager - Composites in the Automotive Lightweighting Materials effort, a part of the FreedomCAR Initiative of the DOE's Office of Vehicle Technologies;
- **Libby Berger**, staff researcher – Materials & Processes Laboratory, R&D Center, General Motors Corp. and a member of the Automotive Composites Consortium's Processing Group, and Materials Group, of which she is a past chair;
- **Dan Houston**, technical specialist, Ford Motor Co. and chair - USCAR Advanced Composites Consortium Materials Work Group; and
- **Khaled Shahwan**, engineering specialist – Experimental & Computational Mechanics Department, Scientific Laboratories, Chrysler LLC and chair - USCAR Automotive Composites Consortium (ACC) Composites Energy Management Group.

Accepting the award at the ***SPE Automotive Innovation Awards Gala*** on behalf of USCAR will be Chrysler's Freedom CAR director and member of the USCAR Leadership Group, Ann Schlenker, Chrysler LLC director of Advance Vehicle Engineering & Alliances.

Continues Cole, "A national energy portfolio that includes significant use of hybrid powertrains, advanced battery technology including plug-in hybrids, hydrogen fuel, and fuel-cell applications will make lasting contributions to America's future mobility needs and reduce climate-change impacts through the significant reduction of CO₂. The DOE's funding and fuel-validation programs are extremely important technology-development efforts and therefore we felt worthy of recognition."

Established as the FreedomCAR Partnership in 2002 and expanded to include fuel companies in 2003, the **FreedomCAR and Fuel Partnership** is a public-private partnership between the U.S. DOE; five major energy producers – BP America, Chevron Corp., ConocoPhillips, ExxonMobil Corp., and Shell Hydrogen LLC; USCAR, whose members include Chrysler LLC, Ford Motor Co. and General Motors Corp.; and now, two major utilities: DTE Energy and Southern California Edison.

Founded in 1992, **USCAR** is the umbrella organization for collaborative research among Chrysler, Ford and GM. The goal of USCAR is to further strengthen the technology base of the U.S. auto industry through cooperative research and development. For more information, see USCAR's website at www.uscar.org.

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This year's **SPE Automotive Innovation Awards** gala will be held at Burton Manor (www.Burtonmanor.net) in Livonia, Mich. Key members of the FreedomCAR and Fuel Partnership will join other 2008 executive award winners – members of the Ford Flex vehicle team and Frank Macher – to be fêted by peers, media, and major sponsors at the VIP Reception starting approximately 5:00 p.m. At 5:30 p.m. the main exhibit area will open for general admission and guests can review this year's **Automotive Innovation Awards** part nominations, as well as enjoy the specialty and antique vehicles that are always a highlight of the show. Dinner will begin at 6:30 p.m. and the program itself begins at 7:00 p.m. For those who wish to extend merrymaking and networking activities, the ever-popular *Afterglow* – also sponsored by Ticona Engineering Polymers – will run from 9:00-11:00 p.m.

The mission of SPE International is to promote scientific and engineering knowledge relating to plastics worldwide and to educate industry, academia, and the public about these advances. SPE's Automotive Division is active in educating, promoting, recognizing, and communicating technical accomplishments for all phases of plastics and plastic based-composite developments in the global transportation industry. Topic areas include applications, materials, processing, equipment, tooling, design, and development.

For more information about the **Automotive Innovation Awards Competition and Gala** or to download nomination forms and rules, visit the SPE Automotive Division's website at www.speautomotive.com/inno.htm , or contact the group at +1.248.244.8993, or write SPE Automotive Division, 1800 Crooks Road, Suite A, Troy, MI 48084, USA. For more information on the Society of Plastics Engineers International or other SPE events, visit the SPE website at www.4spe.org, or call +1.203.775.0471.

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