



MCLAREN AUTOMOTIVE KEYNOTE AT SPE® ACCE TO DISCUSS CFRP-INTENSIVE “MONOCELL” ON NEW MP4-12C SUPERCAR

Automaker that Pioneered Carbon Composites in Formula 1, Street-Legal Supercars Will Use CFRP Again in New Vehicle Launching in 2011

TROY (DETROIT), MICH. – Claudio Santoni, function group manager-Body Structures & Body Systems, at McLaren Automotive Ltd. (Woking, Surrey, U.K.) will give a luncheon keynote entitled “*The McLaren MP4-12C Carbon Fibre ‘MonoCell’*” Wednesday afternoon, **September 15, 2010** at the tenth-annual ***SPE Automotive Composites Conference & Exhibition (ACCE)***, here. McLaren – renowned for its motor racing successes in Formula 1, IndyCar, Can-Am, and Le Mans – is gearing up for the 2011 launch of its new street-legal, two-passenger, mid-engine *MP4-12C* supercar. A unique feature of this aluminum- and composites-intensive vehicle – and the subject of the SPE ACCE keynote – is its single-piece, 176-pound / 80-kg carbon fiber-reinforced-plastic (CFRP) monocoque / safety cell, which the company calls a “*MonoCell*.” The automaker claims this is the first time a carbon-composite chassis has been offered on a performance vehicle in the target price range of £125,000 to £175,000, and that the vehicle will set new standards for fuel economy and CO₂ emissions thanks to Formula 1 (F1) technology and processes.

The *MonoCell* not only holds and protects passengers, but also responds to loads from front and rear



aluminum subassemblies, which, in turn, act as crash structures that can be unbolted and replaced in the event of collision damage. The *MonoCell* itself is bolted to the windshield surround, which is comprised of a cast-aluminum base and a stamped-aluminum windshield frame, plus 40-mm boron-steel tubes that provide front roll bar functionality. The front fenders, hood, and roof, plus the rear roll bar, which are not subject to as severe loading as the front roll bars, are aluminum. The rest of the vehicle’s lightweight, aerodynamically efficient, highly complex exterior body panels are sheet-molding compound (SMC) composite.

McLaren has pioneered the use of carbon composites in race cars and passenger vehicles. The company's first venture into CFRP was on its 1981 F1 *MP4/1* race car, which ended up setting a trend that all Formula 1 race cars have followed since. In 1993, McLaren introduced CFRP to street cars on its 1993 *McLaren F1* supercar, and then used its experience for a joint-development project with Daimler AG in 2003 for the higher volume *Mercedes-Benz SLR McLaren* supercar, which ended production in late 2009. With its new, in-house designed *MP4-12C* supercar, CFRP was again a key material thanks to its unparalleled ability to offer light weight, high strength, torsional rigidity, and longevity.

Santoni joined McLaren in 2006, where he led the development of the *MP4-12C MonoCell* project from concept through to production on the new supercar that will launch in 2011. For the past 10 years, he has focused his career on concept design, engineering, and development of lightweight, high-performance automotive body structures. Previously, he was the engineering manager at ATR Composites (Colonnella, Italy), and before that a member of the engineering team at Ferrari S.p.A. (Maranello, Italy) that developed the aluminum-alloy space frame for the 2004MY 612 *Scaglietti* grand-touring sedan. During his career, Santoni has held a number of positions in the automotive sector in functional areas ranging from engine design, to finite-element structural analysis, to noise and vibration analysis. He holds a Master's degree in Mechanical Engineering, Industrial Automation, and Robotics from University of L'Aquila (L'Aquila, Italy).

The ACCE typically draws over 400 speakers, exhibitors, sponsors, and attendees from 14 countries on five continents with fully one-third indicating they work for a transportation OEM involved in automotive, heavy-truck, agricultural, off-road, or aerospace/aviation. Held annually in suburban Detroit, the SPE ACCE provides an environment dedicated solely to discussion and networking about advances in the automotive composites industry. Its global appeal is evident in the diversity of exhibitors, speakers, and attendees who come to the conference from Europe, the Middle East, Africa, and Asia / Pacific as well as North America and who represent transportation OEMs and tier suppliers; composite materials, processing equipment, additives and reinforcement suppliers; trade associations, consultants, university and government labs; media; and investment bankers. The show is sponsored jointly by the SPE Automotive and Composites Divisions.

For more information about the SPE Automotive Composites Conference, visit the Automotive Division's website at www.speautomotive.com/comp.htm, or the Composites' Division website at www.compositeshelp.com/, 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 or other SPE events, visit the SPE website at www.4spe.org, or call +1.203.775.0471.

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