

Nottingham technology gives Bond the edge

October 30 2008

(PhysOrg.com) -- Technology developed at The University of Nottingham will be giving James Bond the edge over his enemies when the latest high octane 007 adventure hits cinema screens later this week.

When Daniel Craig reprises the role of Fleming's iconic superspy in The Quantum of Solace, he will continue the franchise's special relationship with Aston Martin by taking the wheel of their flagship model, the DBS.

And a new lightweight but super strong material developed by researchers in the University's Polymer Composites Group, in collaboration with Aston Martin engineers, will be helping to ensure that any high-speed chases leave him stirred, but not shaken.

Underneath the cool, sleek exterior of the DBS is a highly engineered body structure which contains components made using a unique process, Directed Carbon Fibre Preforming (DCFP). During the process, carbon fibres are placed by a robot into a carefully controlled form and epoxy resin is injected around the fibres to create a carbon fibre composite component.

The DCFP process produces a material that is both light and incredibly strong and is able to withstand huge impacts in the event of a crash, making it ideal in the use of high performance cars like the DBS. In addition to this, the material is greener than many of its mainstream counterparts as it can be recycled in accordance with European vehicle end of life directives.

Professor Nick Warrior, in the University's Faculty of Engineering, said it was exciting to think that technology which originated in Nottingham would be seen by cinema-goers around the world.

He added: “The high strength and low weight characteristics of the DCFP have enabled the Aston Martin designers to increase the performance of the DBS reduce its fuel consumption and ultimately minimise 007's carbon footprint — we hope to be able to spin-out DCFP to more affordable vehicles in the near future.”

The DCFP process is part of a longstanding research collaboration between The University of Nottingham and Aston Martin. A unique carbon fibre 3-D braiding process, developed by the research group, was an integral component used in the windscreen pillar of the Aston Martin Vanquish, seen in the 20th James Bond film, Die Another Day.

The DCFP technology was also used in the Aston Martin DBSV12 car seen in Daniel Craig's first outing as Bond, Casino Royale. The car was seen in a spectacular crash in which stunt driver Adam Kirley used an air cannon behind the driver's seat to propel the car into a record seven rolls.

The DCFP process was developed during the ALBOS project (Affordable Lightweight Body Structures), government-funded Technology Strategy Board (TSB) programme through the Department for Business, Enterprise and Regulatory Reform (BERR). Aston Martin, The University of Nottingham and composites materials suppliers Hexcel and Toho Tenax formed the industrial partnership to create the new process. The project was managed by Qinetiq.

The University continues to work with Aston Martin in a new BERR TSB project, Advanced Structural Preforming.

Provided by University of Nottingham

Citation: Nottingham technology gives Bond the edge (2008, October 30) retrieved 30 April 2024 from <https://phys.org/news/2008-10-nottingham-technology-bond-edge.html>

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