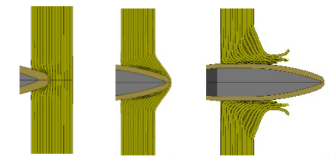


# Structural integrity under extreme load

Topic: In-depth investigations on composite materials



- **TITLE:** Double-Double, a new family of composite laminates

- **RESEARCH BACKGROUND:**

Recently a novel method to design UD composites has been proposed by Prof. Tsai, it is based on two pairs of angle-ply  $[\pm\Phi, \pm\Psi]$  and brings several advantages over “quad” laminates  $(0, \pm 45, 90)$ , such as easier tapering and homogenisation. The research on these materials involve other universities such as TU Delft and University of Southern California. Currently the activities focus on low velocity impacts, compression after impact and buckling of stiffened panels.

A proactive student will be encouraged to investigate further the application and design of this new class of materials.

- **RESEARCH ACTIVITIES:**

1. Experimental tests on composite laminates
2. In-depth analyses of experimental data to characterize composites behaviour, using analytical and numerical tools to enhance composite design.
3. Developing models to better understand the physics with a focus on failure models

- **METHODOLOGY:**

Experimental - Numerical - Analytical

- **DURATION:**

7-9 months

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