

# Structural integrity under extreme loads

Topic: High fidelity models of blast loading

**TITLE: Numerical assessment of military helmets subjected to blast load**

## RESEARCH BACKGROUND:

Blast loading is a critical scenario that pose a threat for the personnel that wear a helmet which may be involved in accidents that lead to explosions. Helmets are a complex device whose design is defined by multiple requirements and have several constraints.

## RESEARCH ACTIVITIES:

1. Literature review on the effect of blast waves on helmet and the head.
2. Numerical modelling of blast loading on a helmet  
(FE models of headform and helmet already developed from previous works)
3. Study of new concepts for blast effects mitigation
4. Numerical assessment of aforementioned new concepts

**METHODOLOGY:** Numerical

**DURATION:** 9 months

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