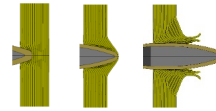


# Structural integrity under extreme loads



Topic: High fidelity models and machine learning

**TITLE: Numerical characterisation of blast loaded structures and development of machine learning-based surrogate models.**

## RESEARCH BACKGROUND:

Blast loading represents a critical extreme loading condition for several structures. Numerical simulations of such scenarios may be combined with state-of-the-art machine learning methods to improve computational efficiency and accuracy.

## RESEARCH ACTIVITIES:

1. Numerical characterisation of blast loaded structures. Numerical simulations can consist in the finite element method and computational fluid dynamics (prior knowledge of CFD basics is not required).
2. Development of machine learning methods to replace computationally expensive numerical simulations.
3. Testing of the methodology on experimental and numerical data.

**METHODOLOGY:** Numerical

**DURATION:** 6-9 months

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