

LD001 Postdoc: Armour Mechanics Modelling

Location: Fishermans Bend, Victoria

Overview:

As member of DST's Land Division, you will carry out a diverse range of research and professional activities required to support the development and acquisition of Royal Australian Army vehicles, with an emphasis on physical protection against ballistic and blast threats. The Land Vehicle Survivability science capability provides support to Defence and National Security partners by providing balanced, impartial and timely advice that supports decisions about land capability, acquisition, support to operations, and future-proofing. This role will be expected to contribute in the following key areas:

- (a) Application of mathematical and numerical modelling tools to evaluate and predict the performance of armour systems against ballistic threats;
- (b) Plan, conduct, and perform analysis on experimental studies to measure the performance of current armour technologies and new protection concepts;
- (c) Formulate and conduct research to identify materials and armour concepts that offer enhanced protection to the mounted warfighter of the future;
- (d) Develop scientific methods and techniques to improve the prediction of armour system performance against ballistic threats.

The applicant will be expected to work effectively both under limited guidance and as a member of a research team on a number of simultaneous tasks, liaise and interact with other DST staff, members of the Australian Defence Organisation, and research partners.

Academic Requirement:

A PhD in one of the following areas:

- Mechanical Engineering
- Aerospace Engineering
- Materials Engineering
- Physics
- Materials Science

Other Role Specific Requirements:

Demonstrated experience, or ability, in any or all of the following areas:

- Mathematical modelling of material response under impact loading;
- Numerical modelling using explicit finite element methods;
- Penetration mechanics and vehicle survivability;
- Experimental design and analysis;
- Technical writing and publication;

Notes:

Appointees will be initially engaged on a **BASELINE** security clearance with an upgrade to a **Secret/Negative Vetting 1 Security Clearance** required upon commencement.

Written Application Position Specific Question: (400 words max)

The use of numerical and mathematical methods is critical in predicting and evaluating the performance of armour systems. Describe how these tools can be exploited, what their strengths and limitations are, and the role of experiments in their application.