# DAMAGE PROBABILITY OF DEEPLY BURIED PROTECTIVE STRUCTURES AGAINST EARTH PENETRATION WEAPONS

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Soil and rock formations are typically composed of layers of materials with varying strength, as well as joints and fractures. Our research is studying the damage probability of deeply buried protective structures against earth-penetration weapons based on random field theory, experimental studies and numerical simulations that consider the inherently heterogeneous nature of earth materials.

## COMPETITIVE ADVANTAGE

New design methods for deeply buried protective structures based on:

- Rigorous random field theory
- Cutting-edge numerical simulations
- Advanced experimental tests

## SUCCESSFUL APPLICATIONS OF RESEARCH

- Replacing current empirical design methods for deeply buried protective structures
- Understanding the failure of deeply buried protective structures under earth-penetration weapons
- Developing new deeply buried protective structures for specific needs
- Assisting the design of earth-penetration weapons

## PARTNERS

- Colorado School of Mines, USA
- Dalhousie University, Canada

## IMPACT

- Improve current empirical design methods
- Increase safety of protective structures
- Reduce construction cost of protective structures

## CAPABILITIES AND FACILITIES

- Simulation codes of random fields
- Advanced numerical codes for simulating failure of geomaterials under high-speed impacts
- Test facilities for physical and mechanical properties of soils and rocks

## MORE INFORMATION

**PROFESSOR JINSONG HUANG**
Priority Research Centre for Geotechnical Science and Engineering
**T:** +61 2 4921 5118
**E:** jinsong.huang@newcastle.edu.au

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