

# DYNAMIC IMPACT AND FRAGMENTATION



THE UNIVERSITY OF  
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Dynamic impact and fragmentation are highly complex phenomena. Members of the Priority Research Centre for Geotechnical Science and Engineering have been conducting world-class research on the topic applied to rockfall engineering. Our team has developed sophisticated numerical models and advanced high-speed 3D tracking facilities over recent years to advance knowledge in this area.

## COMPETITIVE ADVANTAGE

- Unique impact and fragmentation testing facilities
- Access to customised CV-based 3D 6DoF tracking software
- Extensive expertise in developing advanced numerical models
- Expertise in conducting advanced full-scale and small-scale material testing
- Outstanding interdisciplinary research team with extensive industry engagement, including Australian Academy of Science medallist and postdoctoral fellows

## SUCCESSFUL APPLICATIONS OF RESEARCH

- Prediction of fragmentation probability from material properties
- Characterisation of the effect of fragment size on perforation energy of systems

## PARTNERS

- Road and Maritime Services
- Geobrugg AG
- Australian Coal Association Research Program
- Australian Research Council

## IMPACT

- Optimisation of rockfall protection systems and impacted structures
- Better assessment of the amount of energy dissipated in fragmentation
- Prediction of kinetic energy of fragments for better protection
- Understanding of the failure mechanics and fragmentation process of impacting objects

## CAPABILITIES AND FACILITIES

- Small-scale and full-scale testing facilities
- Advanced, synchronised high-speed multi-camera system
- Custom-build fragmentation cell
- High-speed pressure measurement sensor
- Computational codes (FEM, DEM) for simulating dynamic impacts and fragmentation