The ARC Research Hub for Transforming the Mining Value Chain will make significant improvements to industry practices along the Mining Value Chain that will enhance ore deposit discovery, mineral processing, and environmental management of waste materials.

**Theme Two**

Our research group puts the ‘geo’ in geometallurgy, with a focus toward developing geological models and increasing ore body knowledge to inform quantitative predictions of processing performance.

Quantifying the texture, mineralogy and mineral chemistry of rocks in the mine environment contributes to the prediction of processing performance and value of mine products. In turn, this reduces operational risk and uncertainty through increased ore body knowledge. Element deportment significantly influences the grade and recovery of mine concentrates. The value of mining products is also affected by the presence of trace credit and/or penalty elements.

The Theme 2 research program is focused on developing new analytical techniques and protocols for rapidly determining bulk mineralogy and multi-element deportment. These techniques may be implemented at the mine planning stage and carried through to waste disposal and mine site rehabilitation (Theme 3). Our approach involves combining the existing capabilities of automated hyperspectral core logging and scanning electron microscopy, with the low detection limits of LA-ICPMS. Deposit studies, on a range of ore types, include detailed ore characterisation and extrapolation using widely available and routinely collected data (such as multi-element geochemistry) in order to define domains of variable processing response at the mine scale. By developing new techniques to increase the availability of bulk mineralogy and trace element deportment data, we aim to unlock value and mitigate risk for our industry partners.

**KEY PROJECTS**

- **Geometallurgy of West Dome, Telfer**
- **Geotechnical and geometallurgical assessment of the Cadia East deposit using Corescan automated core logging technology**
- **Characterising supergene copper mineralogy using hyperspectral techniques**

**CONTACT US FOR MORE INFORMATION**

Theme 2 Deputy Leader: Dr. Angela Escolme  
Phone: +61 3 6226 2664  
Email: angela.escolme@utas.edu.au  
Website: http://www.utas.edu.au/tmvc

**BENEFITS TO INDUSTRY**

- Increased ore body knowledge
- Realisation of value-add opportunities
- Reduced risk

**INDUSTRY PARTNERS**

[Logos of Newcrest Mining Limited, BHP, and others]