



# 16<sup>th</sup> SGA BIENNIAL MEETING KEYNOTE SPEAKER



## Scott Halley

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### Estimation of gangue mineral percentages from routine drill hole analyses

Orebodies are not homogeneous. They have spatial variations in metal grades, but also variations in the percentages of silicate and sulfide gangue minerals. These variations influence crushing, grinding and mineral liberation characteristics, power consumption, mill throughput rates, flotation characteristics, recoveries and environmental management of waste rock. Modelling the gangue mineralogy in 3D is an important part of understanding orebodies and making investment decisions. Metallurgical testwork is expensive, and typically carried out on a small number of samples. CODES (University of Tasmania) has developed an excel-based program for converting whole rock analyses to estimated weight percent of minerals. This program can be applied to 4 acid digest ICP analyses obtained from commercial assay laboratories. Better understanding of ore type domains and 3D distribution of gangue minerals leads to better sample selection for metallurgical, test work. The estimated mineral percentages also provide a proxy for metallurgical properties, with a uniform distribution data points from every drill hole.

## Scott Halley

Scott received a BSc (Hons Class I) from the University of Tasmania (1982), and a PhD from Australian National University (1987). He worked as an exploration geologist for a number of Australian and international companies until 2006. Since then, he has run his own consulting business (Mineral Mapping Pty Ltd), specialising in exploration geochemistry, particularly in the use of multi-element ICP geochemistry and SWIR analysis to map alteration mineral zonation patterns around hydrothermal systems. In addition to this, Scott teaches an annual short course in geochemistry at the University of Tasmania and works part-time on CODES research projects.



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*Scott's keynote lecture at SGA 2022 is sponsored by AIG.*