The Kitumba Iron Oxide Copper Gold deposit, Zambia: application of Automated Quantitative Mineralogy to assess a high grade oxidised supergene orebody

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The Kitumba deposit is one of several Iron Oxide Copper Gold (IOCG) deposits within the Mumbwa district of central Zambia. The deposit is associated with granites and syenites on the eastern margin of the Hook batholith. Hypogene ore is typical of many IOCG deposits, being dominated by pyrite and chalcopyrite with apatite. A thick supergene blanket is present, which has upgrades the deposit to consistently >2% Cu via a paragenesis that sees the hypogene ores converted first to chalcocite, then cuprite and native copper, then malachite, then brochantite. Here we use Automated Quantitative Mineralogy to determine textures, grades and mineral deportment of copper throughout the orebody, feeding into metallurgical considerations for the exploitation of the deposit.

Personal Statement

Associate Professor/Senior Lecturer in Applied and Environmental Geology at the University of Leicester, UK. Research areas include the nature and genesis of precious metal deposits, including magmatic nickel-copper-platinum group element and hydrothermal gold ores, and the geological concentration, extraction and processing of selenium and tellurium for the photovoltaics industry. This includes industry collaboration on Masters and PhD research projects. Specialism in applied research to tackle industry problems in the minerals sector through collaboration



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