

# SEG 2022 Conference: Minerals For Our Future

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## Sediment-hosted Gold Mineralization in the Gegalaw Deposit, Central Myanmar

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The Gegalaw is one of several gold deposits situated along the Sagaing Fault, which marks the boundary between the Central Myanmar Basin in the west and the Mogok metamorphic belt in the east. Gegalaw is hosted by Triassic calcareous sedimentary rocks, which are unconformably overlain by sandstone of the Tertiary Male Formation. The host calcareous shale contains quartz, kaolinite, chlorite, illite, and carbonaceous materials, with minor amounts of framboidal and aggregated pyrites. Ore-grade rocks (up to 2.4 g/t Au) are found in the breccia and strongly silicified zones. The ores are mainly composed of quartz, kaolinite, chlorite, illite, calcite, dolomite, ankerite, and sulfides (mainly pyrite). Based upon the textural and chemical composition classified pyrite into three types: 1) pyrite with porous core and compact rim zoning texture; 2) arsenopyrite pseudomorph; and 3) well-crystalline homogenous pyrite. EPMA identified the highest gold content up to 1080 ppm in the compact rim part of zoned pyrite, together with high As content up to 7 wt%.  $\delta^{34}\text{S}$  value of pyrite from both host and mineralized rocks yielded a range of -18.9 to -0.5‰, and the  $\delta^{34}\text{S}$  of the framboidal pyrite in the host rock (-17.3‰) is similar to the  $\delta^{34}\text{S}$  of pyrite of the highest Au-grade rock sample (-18.9‰). Suggesting that auriferous pyrite sulfur is sedimentary in origin. Nevertheless, the sulfur isotopic composition of two pyrite samples from the mineralized rock yielded heavier  $\delta^{34}\text{S}$  values (-4.9‰ and -0.5‰), which suggests a contribution hydrothermal fluid source. Illite in the vein of mineralized rock yielded a K-Ar age of  $40.26 \pm 0.91$  Ma. The research results indicate the Gegalaw gold mineralization occurred infiltration of hydrothermal fluid into the host rock. Furthermore, the age of illite suggests a link to the early stage of the Sagaing Fault activity that was related to the collision between Indian and Asian Plates.