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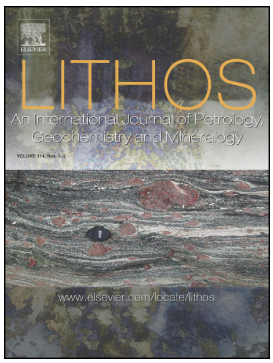

The formation and trace elements of garnet in the skarn zone from the Xinqiao Cu-S-Fe-Au deposit, Tongling ore district, Anhui Province, Eastern China

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The formation and trace elements of garnet in the skarn zone from the Xinqiao Cu-S-Fe-Au deposit, Tongling ore district, Anhui Province, Eastern China

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Abstract: Xinqiao is a large copper-gold deposit and consists of two major mineralization types: stratabound and skarn. The skarn occurs along the contact between a quartz diorite intrusion and Carboniferous-Triassic limestone. Xinqiao has a strongly developed skarn zone, including endoskarn and exoskarn; the exoskarn is divided into proximal and distal exoskarn. We present systematic major, trace and rare earth element (REE) concentrations for garnets from the skarn zone, discuss the factors controlling the incorporation of trace elements into the garnets, and constrain the formation and evolution of the garnet from skarn zone in Xinqiao deposit. Grossular ($Adr_{20-44}Grs_{56-80}$) mostly occurs in endoskarn and has typical HREE-enriched and LREE-depleted patterns, with small Eu anomalies and low $\sum$ REE. Garnets from the exoskarn show complex textures and chemical compositions. The composition of garnets range from Al-rich andradite ($Adr_{63-81}Grs_{19-47}$) to andradite