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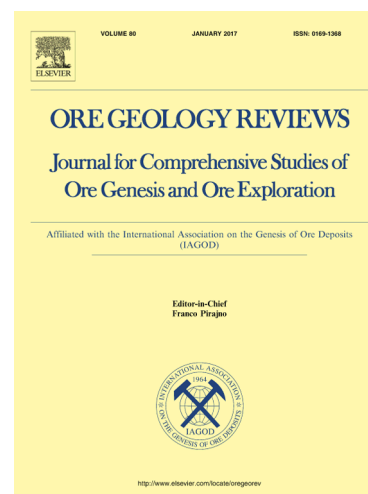
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Origin of Early Cretaceous A-type granite and related Sn mineralization in the Sanjiaowo deposit, eastern Guangdong, SE China and its tectonic implication

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ABSTRACT

The recently discovered Sanjiaowo Sn deposit is located in eastern Guangdong, SE China. The Sn mineralization, hosted in granite porphyry and the Lower Jurassic Jinji Formation low-grade metamorphic wall rocks, is considered to be granite-related. Zircon U–Pb dating of the granite porphyry yielded concordant ages of 140.5 ± 1.4 Ma, which is consistent with the cassiterite U–Pb age of 139.8 ± 5.0 Ma, indicating a temporal link between the emplacement of granitic plutons and Sn mineralization. The granite porphyry samples are weakly peraluminous and show an A-type geochemical signature with high $\text{Na}_2\text{O} + \text{K}_2\text{O}$ (7.19–8.51 wt.%), REE (261–308 ppm), $\text{Zr} + \text{Nb} + \text{Ce} + \text{Y}$ (353–476 ppm) contents, $\text{FeO}^{\text{T}}/\text{MgO}$ (0.93–0.99), and Ga/Al (2.65–3.42) ratios. They display bulk rock initial $^{87}\text{Sr}/^{86}\text{Sr}$ of 0.7110 to 0.7165, $\epsilon\text{Nd}(\text{t})$ of –5.90 to –4.04, and zircon $\epsilon\text{Hf}(\text{t})$ values from –8.36 to –4.16 with Mesoproterozoic T_{DM2} ages for both Nd and Hf isotopes. Detailed elemental and isotopic data suggest

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