



青年促进论坛第四十期

主讲题目：秦岭-大别造山带钼成矿机制的几点思考

主讲人：包志伟研究员

In the East Qinling orogenic belt, central China, there are numerous Mo deposits with over 6 Mt Mo metal. The giant Nannihu, Shangfanggou and Yuchiling porphyry Mo deposits are hosted in porphyry stocks associated with the Heyu batholith, whereas the giant Donggou porphyry Mo deposit is hosted in a stock associated with the Taishanmiao batholith. Zircon grains from the Heyu batholith have concordant $^{238}\text{U}/^{206}\text{Pb}$ ages scattered from 150 ± 3 to 130 ± 2 Ma with an age interval of nearly 20 m.y., whereas ore-hosting granitic porphyry stocks from the Nannihu, Shangfanggou and Yuchiling deposits have $^{206}\text{Pb}/^{238}\text{U}$ ages ranging from 151 ± 1 to 135 ± 1 Ma, 143 ± 1 to 132 ± 1 Ma, and 143 ± 5 to 131 ± 5 Ma, respectively. It is likely that the Heyu batholith has a prolonged history of incremental assembly and the ore-bearing granitic porphyry stocks may have originated from the same magma reservoir and emplaced in different stages. Likewise, zircon grains from the Taishanmiao batholith have concordant $^{238}\text{U}/^{206}\text{Pb}$ ages spanning in a period from 130 ± 2 to 111 ± 3 Ma, whereas those from the Donggou granitic porphyry stock have $^{238}\text{U}/^{206}\text{Pb}$ ages ranging from 125 ± 2 to 110 ± 3 Ma, nearly coeval with the Taishanmiao batholith. The molybdenite Re-Os model ages for each deposit are coincident with relatively young zircon $^{238}\text{U}/^{206}\text{Pb}$ ages of the host stock, indicating that Mo mineralization is likely related to late-stage magmatism. Zircon grains from the batholiths and granitic porphyry stocks have $\varepsilon\text{Hf}(t)$ ranging from -10 to -30, TDM 2 ages from 1.6 to 2.5 Ga and $\delta^{18}\text{O}$ from +5.0 to +8.7‰, which are taken to suggest the involvement of the subducted continental crust of the Yangtze Block in the source. We thus propose that the extensive Mo mineralization in the East Qinling porphyry Mo belt is genetically related to the prolonged granitic magmatism in the Late Mesozoic and a Mo-rich source that was related to the subducted continental crust of the Yangtze Block stagnating beneath the southern margin of the North China Craton.

时间：2018年3月22日下午15:00

地点：地化所标本楼503会议室

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