

## **Late-Variscan Sn-polymetallic overprinting of the Pöhla- Hämmerlein skarn zone, Erzgebirge, Germany**

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The Pöhla-Hämmerlein Sn-polymetallic deposit recently became a promising exploration target [1]. As part of deciphering the complex mineralogy, we developed an updated paragenetic model based on [2, 3, 4], focusing on the rare metal mineralization. Field work was conducted in underground outcrops of the former SDAG Wismut uranium mining company. Up to now, 60 samples were analyzed by optical microscopy, SEM-EDS, MLA, and bulk rock geochemistry (e.g., ICP-MS, ICP-AES, XRF).

Skarn formation is characterized by calcic silicates like early garnet (andradite-grossular series) and pyroxene, and later amphibole and epidote. The late silicates typically occur as metasomatic replacement of earlier ones. Probably the late skarnization is also characterized by conformably emplaced massive magnetite lenses with strike lengths of at least 50 m and thicknesses of up to 5 m. It is followed by the main sphalerite mineralization stage (Sp I) that partly replaces magnetite. The conditions of Sp I deposition are under investigation.

Strictly confined to skarn lithologies is the overprinting (crosscutting, impregnation, replacement) by two post-skarn mineralization stages: (1) cassiterite, native Bi, arsenopyrite, fluorite, chlorite, quartz, and minor sphalerite with chalcopyrite diseases (Sp II); (2) chalcopyrite (partly intergrown with In-sphalerite (Sp III)), pyrite, and quartz. A different Sn-ore type is associated with flat dipping cassiterite-quartz-tourmaline-fluorite(-sulfide) veinlets hosted by mica schists below the skarn zone. The genetic relationship to the skarn-hosted Sn mineralization is unknown and the subject of further study.

The ore deposition in Hämmerlein is complying with the formation of other rare metal skarn deposits that are later superimposed by Sn-polymetallic mineralization [5].

[1] Treliver Minerals (2015) Tellerhäuser Project Res. Statement. [2] Schuppan and Hiller (2012) Bergbau in Sachsen, **17**. [3] Wolf (1995) Z. geol. Wiss., **23**, 609-618. [4] Hiller (1995) Z. geol. Wiss., **23**, 599-608. [5] Kwak (1987) Developments in Economic Geology, **24**.