Natural metallic nano-micro particles: from ores to the surface

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Deep-penetrating geochemistry is defined that metallic nanoparticles from the ores can penetrate the overburden onto the surface by the upwards gas flow (CO_2, etc.)and then they are captured by different geochemical barriers[1]. Shenjiayao gold deposit is located in Henan Province, China.

Deep-penetrating geochemical anomalies can indicate concealed ore bodies based on the comparison between the performance of anomalies and the local explorating data. Au-Zn bearing nanoparticles in the soils were observed using TEM with EDS. They have ordered structure, which refers to the products of endogenic mineralization.

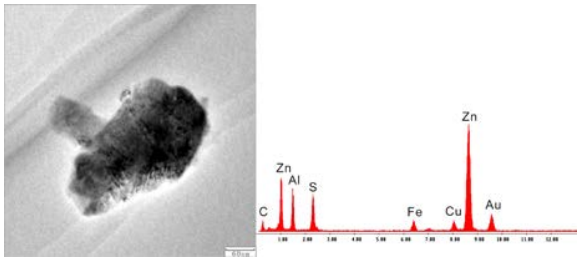

Figure 1: TEM photo of Au-Zn bearing nanoparticles assemlage in the soils.

Micro eletrum particle was found in the ores[2]. The relationship of particles in ores and surface will contribute to the mechanism of deep-penetrating geochemistry.

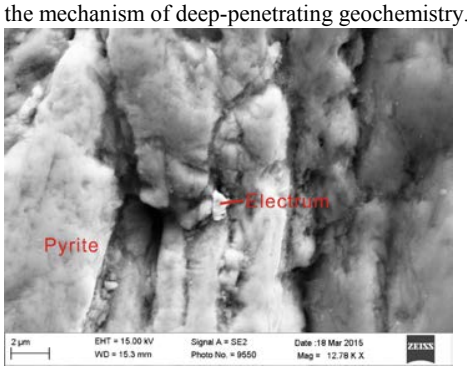

Figure 2: SEM photo of electrum associated with the pyrite.

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[1] Wang *et al.*(2016) Ore Geol. Rev. **73**, 417-431.[2] Saunders *et al.*(2016) Mineral. Deposita. **51**, 1-11.