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The present state of knowledge on the high-technology elements in porphyry copper deposit from Romania

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Porphyry copper deposits are the most important source of Cu in the world, but also a source of Mo, Au, Ag and Sn. Some "high-technology elements" (HTE), such as Re, In, W, Te and Se can reach economically-interesting concentrations in this type of deposits. Elevated platinum group elements (Pd and Pt) contents have been reported from several porphyry copper deposits from Balkan Peninsula and Pacific area.
In Romania, numerous porphyry copper deposits occur in Banat (Southern Carpathians) and in Apuseni Mountains related to Alpine orogenesis. In Banat, they are classified as Cu-Mo type (Moldova Nouă, Sasca, Şopot, Bozovici, Teregova-Lăpuşnicel) [1] being associated with Laramian granodiorite/monzodiorite bodies of calc-alkaline affinity. The porphyry copper deposits from Apuseni Mountains are hosted mainly by microdiorite subvolcanic bodies and andesites of the Miocene calc-alkaline magmatism and can be divided in three types: Cu-Mo (Au) type (Deva, Roşia Poieni), Cu-Au type (Valea Morii, Bolcana, Rovina, Voia, Tălagiu, Larga, Trâmpoiele, Valea Tisei, Tarniţa) and Au-Cu porphyry (Colnic, Cireşata)[1,3]. The data on HTE of the porphyry-type deposits in Romania are scarce and they come only from a few deposits: Moldova Nouă, Valea Morii, Deva, Bucium-Tarniţa and Rovina [2]. The published contents of HTE in bulk rocks are generally low, but higher values were reported from Cu concentrates (e.g., 500 ppm Se at Deva, 500 ppm Te at Bucium-Tarniţa). There are no data on the platinum group elements contents. The presence of minerals of HTE in some porphyry copper deposits from Romania (e.g., germanium minerals at Bucium-Tarniţa, Roşia Poieni and Rovina) could be an indicator of the enrichment of such elements in the host intrusions. Considering the policy of the European Community towards the identification of new resources of HTE, more systematic investigations of these elements in the porphyry copper deposits of Romania is necessary. A new ongoing project undertakes this task, employing modern methods and analytical means.

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