

## FIRST DISCOVERY OF PLATINUM GROUP MINERALS IN COSTA RICA

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We report on the presence of Platinum group minerals (PGM) discovered, for the first time, in Costa Rica. The PGM were found in small chromitite bodies of the Santa Elena ophiolite, located in the northern Pacific coast of Costa Rica, close to the border of Nicaragua. The PGM were previously investigated microscopically using reflected light at 250 to 500 times magnification. Subsequently, they were analyzed by electron microprobe at the E.F. Stumpfl laboratory of the UZAG consortium, installed at the Leoben University. The following PGM have been identified: laurite ( $\text{RuS}_2$ ), erlichmanite ( $\text{OsS}_2$ ), irarsite ( $\text{IrAsS}$ ) accompanied by these unknown phases: Ir-Rh-S, Ir-Ni-Fe-S and Ir-Ni-Fe-Cu-S. The PGM form very minute and polygonal grains (from 1 to 10 microns in size) forming single phase crystals or in polyphasic aggregates with Fe-Ni-Cu sulphides, clinopyroxene and chlorite (Figure 1). Most

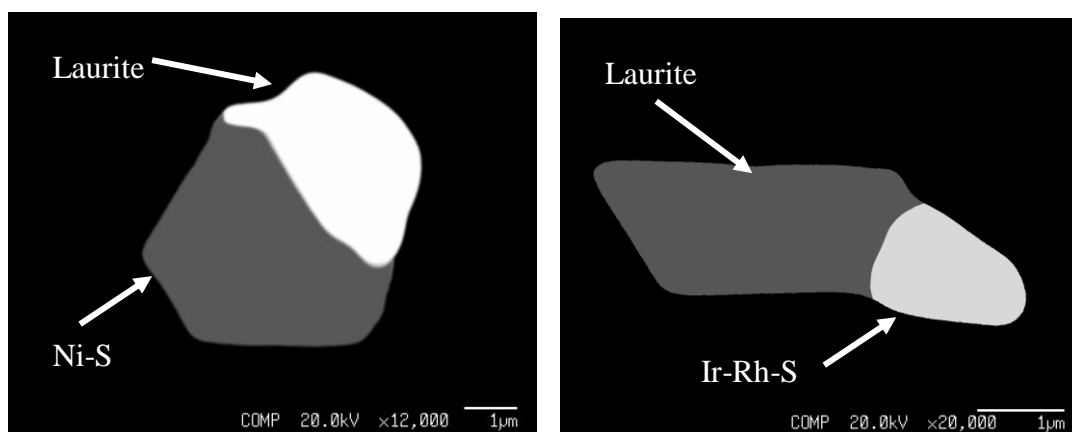


Figure 1. Back scattered electron images of PGM enclosed in fresh chromite.

of them occur enclosed in fresh chromite. Some grains are associated with chlorite forming the filling of cracks and the intergranular matrix, others are in contact with ferrian chromite. The presence of Ru-Ir-Os PGM in the Santa Elena chromitites is consistent with the typical assemblages of the chromitites hosted in the mantle section of ophiolite. Morphology and texture of the PGM inclusions indicate that most of them formed at high-temperature during the crystallization of the host chromite. The presence of abundant Ir and base metals sulfides, erlichmanite and laurite coupled with the absence of magmatic Os-Ir-Ru alloys, suggest that the PGM associated with the Santa Elena chromitites crystallized under high sulfur fugacity.