

LUMINESCENCE HALOES AROUND ORE BODIES

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1. Hypergenetic luminescent haloes formed by secondary minerals containing U6+ indicate directly ore bodies. Some new types of primary endogenetic haloes were found to indicate ore bodies of Au, W, Mo, Be, kimberlite pipes, muscovite pegmatites, mountain crystal veins, ruby-bearing skarns. These haloes are due to photoluminescence (PL) Eu2+, Ce3+, Dy3+, Sm3+, Mn2+, W6+, Mo6+ these elements being accumulated in some iron-free minerals formed in hydrothermal-metasomatic processes. Haloes are seen due to mineral grains which luminesce on the surface of rock samples under ultra-violet light, the number of the grains per cm² sharply surpassing the background one. 2. Haloes in hydrothermal deposits of gold, tungsten, beryllium, mountain crystals contain PL mineral grains by 30..50 times more than background rocks do, stretching up to 50 meters. The main luminogenous metals are: Mn2+ (red in calcite, yellow in apatite), Eu2+ (blue in apatite, plagioclases; violet in fluorite); Eu3+ (red in scheelite), W6+ (blue in scheelite), Mo6+ (yellow in molybdoscheelite-powellite); Sm3+ (rose in apatite). Hypergenetic mineral scatterings occur formed by cerussite (yellow PL), chlorargirite (bluish-green), uranium micas (green). 3. Haloes in muscovite pegmatites are due to blue-violet PL of feldspars outcroppings (Eu2+) stretched up to 50 metres in gneisses. Haloes in ruby-bearing skarns in carbonate rocks are formed by rose or blue PL of calcite outcroppings stretched up to 20 meters.