



## **Baddeleyite in PGE paleoproterozoic layered intrusions on Fennoscandian Shield (Arctic region): significance for timing, duration and continental reconstruction**

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Baddeleyite was firstly found and U-Pb dating in PGE layered intrusions of the Fennoscandian Shield in the rock-forming orthopyroxene (Lukkulaivaara intrusion in Karelia region) and in magmatic zircon from gabbronorite Mt. General'skaya (Kola region). Real crystals of baddeleyite were separated and U-Pb measured from Fedorovo-Pansky complex in gabbronorites lower part of the Pt-Pd reef intrusion (as first phase 2.50 Ga) and in upper part of Pt-Pd reef in anorthosites (second phase -2.45 Ga) and reflect time interval about 50 Ma of magmatic complex activity. In basite dykes from Cr-Ti-V Imandra lopolith baddeleyite were dating by U-Pb with 2.40 Ga. Therefore total duration time of Kola LIP and magmatic origin of the multimetal deposits are estimated as 100 Ma [1].

New additional isotope Nd-Sr-He data for the WR of the layered PGE intrusions in the Kola-Karelia-Finland big belt more than 500 km reflect EM-1 mantle reservoir. New REE (ELAN- 9000) distributions in the WR and dykes complexes of the Fedorovo-Pansky and Monshegorsk Cu-Ni and PGE ore deposits gave OIB, N-MORB and E-MORB primary plume mantle source due to Re-Os data [2].

LA-ICP-MS data of REE investigations in baddeleyite crystals from Monchegorsk ore region yielded 1000 C forming of the grains and high U-Pb closure temperatures compared with zircon.

Baddeleyite also primary magmatic minerals in the layered PGE intrusions and dykes complexes from Fennoscandian Shield and U-Pb precise data using artificial 205 Pb spike of the crystals together with time data for different continents gave new important information concerning break up and super continental reconstruction of geological history in paleoproterozoic time [3].

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### References:

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