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New Insights into Composition of the Earth's Mantle Deduced from Osmium Isotope Data in Os-Rich Alloys, Sulfides, and Chromite

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Message from the Guest Editor

Dear Colleagues,

This special issue aims to provide a forum for contributions exploring: (i) the variations in isotopic composition of osmium relevant to behaviour of highly siderophile elements (HSE) during partial melting of the Earth's mantle; (ii) the degree of crust-mantle interaction and sources of HSE in ores within oceanic and subcontinental lithospheric mantle; (iii) the timing and nature of mantle events relevant to the large-scale dynamics of the Earth. The Os budget of the mantle is mainly controlled by sulfides and alloys so combining micro-analysis of both Os-bearing alloys and sulfides, coupled with whole rock data, allows a more robust interpretation of the Os-isotope systematics. We invite contributions that use combined mineralogical, geochemical and isotopic studies, with integration of whole-rock and mineral separate (via N-TIMS) and sub-grain scale (via LA-MC-ICPMS) isotopic information (Re-Os, Pt-Os) from a selected set of robust minerals (Os-rich alloys, sulfides, chromite) derived from various geological settings. The latter may include but not limited to: (i) Archean paleoplacers of the Witwatersrand deposits; (ii) deep portions of ophiolite sections within the oceanic mantle, (iii) zoned and orogenic peridotite massifs, typical of subcontinental lithospheric mantle. Os-isotope studies that provide new insights into evolution of the Earth's mantle are particular welcome.

For further reading, please follow the link to the Special Issue at: https://www.mdpi.com/journal/minerals/special_issues/osmium



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Special Issue