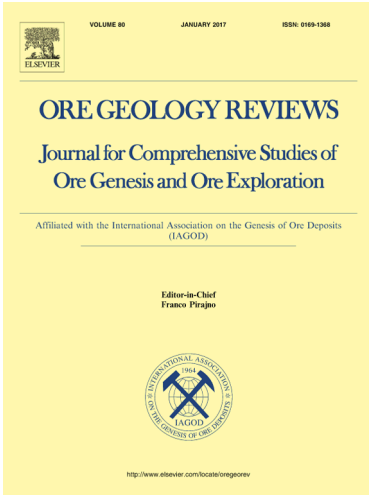

Special Issue of the 'Ore Geology Reviews' on Chromite: Petrogenetic Indicator to Ore Deposits

Sisir K. Mondal, Ria Mukherjee

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Introduction by the Guest Editors

Special Issue of the **'Ore Geology Reviews'** on ***Chromite: Petrogenetic Indicator to Ore Deposits***

Sisir K. Mondal[1] and Ria Mukherjee[2]

[1] Department of Geological Sciences, Jadavpur University, Kolkata-7-00032, India; e-mail: sisir.mondal@gmail.com

[2] School of Geosciences, University of the Witwatersrand, Johannesburg 2001, South Africa e-mail: ria.mkrj@gmail.com

Chromite [(Mg, Fe)O (Cr, Al, Fe^{3+})$_2O_3$] is the only primary source of Cr from natural rocks. Primary or liquidus composition of chromite can be used as a petrogenetic indicator because the chemistry of chromite reflects that of its parental magma, which generates in a specific tectonic setting. Chromite deposits are genetically linked to ultramafic-mafic magmatism that are restricted to specific periods in the geological time-scale, and have specific tectonic settings (e.g., Stowe, 1994; Mondal et al., 2006). For example: (1) stratiform and discordant chromitites within sill-like ultramafic bodies in greenstone belts are genetically linked to widespread high-Mg komatiitic magmatism that represents major crust building processes of the Earth throughout the Archean; (2) stratiform chromitites of mafic-layered intrusions in continental rift settings represent widespread boninite-norite magmatism during the Neoarchean-Paleoproterozoic after the formation of a supercontinent, and reflect a period of global-scale mantle upwelling or enhanced plume activities, and (3) stratiform and discordant chromitites of ophiolites are genetically linked to boninites of the convergent margin settings representing ore genesis in Phanerozoic. Since the chemistry of chromite from different tectonic settings strongly depends on parental magma compositions, the process of magma generation in the mantle is therefore vital for the formation of these different types of chromite deposits over the geological time-scale.