



Diamond as an indicator of the upper mantle geochemistry

报告摘要

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主讲人

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Diamond provides information about the composition, conditions of formation and nature of mantle sources. We present data on the study of the physical and chemical characteristics of lithospheric and sublithospheric (superdeep) diamonds from Siberian and Chinese kimberlites, as well as from Juina alluvial deposits (Brazil). The focus is on the process of formation and trapping of mineral and fluid inclusions in diamonds, witnesses of the mantle mineralogy. Olivine is one of the most refractory minerals present during partial melting of mantle peridotites, and it is also the first silicate mineral to crystallize from most mantle-derived melts. The determination of water in olivine as well as trace elements is an important indicator. Our data on 126 olivine inclusions in diamonds from the Siberian and Chinese cratons showed typical mantle oxygen isotope values, low contents of water and a similar distribution of trace elements. The study of multiphased microinclusions in diamonds revealed two contrasting growth media: Mg-rich carbonatitic and Al-rich silicic. The data obtained demonstrate the important role of metasomatic processes in the diamond formation.

人物简介

Professor Alla Logvinova (IGM SB RAS, Russia) is a scientist widely known in the world in the field of diamond research and deep mantle processes. The main directions of scientific activity are a comprehensive study of the mineralogical and geochemical characteristics of diamonds and diamond-bearing rocks to determine the fundamental aspects of the conditions of mineral formation in the deep zones of the Earth's mantle. She has published over 100 research articles in peer reviewed journals, including highly rated journals (Lithos, Scientific reports, Geochemica et Cosmochimica Acta, Earth and Planetary Science Letters, American Mineralogist).

She has participated in 15 International projects, including an industrial one. She was a member of the American and European Geophysical Unions.

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