



## Bases of the Mantle-Carbonatite Conception of Diamond Genesis

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In the mantle-carbonatite conception of diamond genesis, the results of physic-chemical experiments are coordinated with the data of analytic mineralogy of primary inclusions in natural diamonds. Generalization of the solutions of principal genetic problems constitutes the bases of the conception. The solutions are following: (1) it is grounded that diamond-parental melts of the upper mantle have peridotite/eclogite – carbonatite - carbon compositions, of the transition zone – (wadsleite/lefrichtarrowingwoodite) – majorite – stishovite – carbonatite - carbon compositions, and of the lower mantle – periclase/wustite – bridgmanite - Ca-perovskite -stishovite – carbonatite - carbon compositions; (2) a construction of generalized diagrams for the diamond-parental media, which reveal changeable compositions of the growth melts of diamonds and associated phases, their genetic relations to the mantle substance, and classification connections of the primary inclusions in natural diamonds; (3) experimental equilibrium phase diagrams of syngensis of diamonds and primary inclusions, which characterize the nucleation and growth conditions of diamonds and a capture of paragenetic and xenogenetic minerals by the growing diamonds; (4) a determination of the phase diagrams of diamonds and inclusions syngensis under the regime of fractional crystallization, which discover the regularities of ultrabasic-basic evolution and paragenesis transitions in the diamond-forming systems of the upper and lower mantle. The evidence of the physic-chemically united mode of diamond genesis at the mantle depths with different mineralogy is obtained.

### References.

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