

1. Record Nr.	UNINA9910254000203321
Autore	Litvin Yuriy A
Titolo	Genesis of Diamonds and Associated Phases // by Yuriy A. Litvin
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-54543-4
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XIV, 137 p. 45 illus., 4 illus. in color.)
Collana	Springer Mineralogy, , 2366-1585
Disciplina	553.82
Soggetti	Geochemistry Mineralogy Chemistry, Physical and theoretical Physical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Earth's mantle mineralogy of diamond and associated phases -- High-pressure experimental mineralogy of diamond genesis -- Physicochemical experimental study of diamond genesis under the Earth's upper mantle conditions (within 150 – 250 km depth) -- Physicochemical experimental study of "super-deep" diamond genesis under the Earth's lower mantle conditions (over 670 km depth) -- Mantle-carbonatite conception of diamond and associated minerals origin -- Genetic role of partition coefficients for diamond-parental melts and associated minerals -- Fractional magmatic evolution of the Earth's mantle material and diamond-parental melts -- Conclusion.
Sommario/riassunto	This book presents an overview of recent advances in our understanding of the genesis of diamonds and the associated phases. It is divided into three main parts, starting with an introduction to the analysis of diamond inclusions to infer the formation processes. In turn, the second part of the book presents high-pressure experimental studies in mantle diamond-parental mineral systems with representative multicomponent boundary compositions. The experimental syngensis phase diagrams provided reveal the physicochemical mechanisms of diamond nucleation and substantiate the mantle-carbonatite concept of the genesis of diamonds and

associated phases. Lastly, the book describes the genetic classification of diamond-hosted mineral inclusions and experimentally determined RE “mineral-parental melt” partition coefficients. The physicochemical experimental evidence presented shows the driving forces behind the fractional evolution of the mantle magmas and diamond-parental melts. Given the depth and breadth of its coverage, the book offers researchers essential new insights into the ways diamonds and associated minerals and rocks are naturally created.
