Minerals as Advanced Materials I
This book contains chapters presented at the International workshop ‘Minerals as Advanced Materials I’ that was held in the hotel of the Russian Academy of Sciences on the Imandra lake, Kola peninsula, one of the most beautiful places of the Russian North, during 8–12 July, 2007. The idea of the workshop originated from the necessity of interactions between mineralogy and material science, including all aspects of both these disciplines. Many important materials that dominate modern technological development were known to mineralogists for hundreds years, though their properties were not fully recognized. Mineralogy, on the other hand, needs new impacts for the further development in the line of modern scientific achievements, including novel insights provided by development of bio- and nanotechnologies as well as by the understanding of a deep role that information plays in the formation of natural structures and definition of natural processes.

Thematically, the book can be separated into several parts dedicated to some specific ideas: zeolites and microporous materials (contributions by Armbruster, Pekov et al., Peters et al., Yakovenchuk et al., Merlino et al., Zubkova and Pushcharovsky, Spiridonova et al., Khomyakov, Zolotarev et al., Grigorieva et al., Olysjch et al., Organova et al.), crystal chemistry of minerals with important properties (chapters by Yakubovich, Filatov and Bubnova, Krzhizhanovskaya et al., Britvin, Siidra and Krivovichev, Selivanova et al., Karimova and Burns), mineral nanostructures (chapters by Ferraris, Kovalevski, Voytekhovsky, Krivovichev), minerals as actinide host matrices (chapters by Livshits and Yudintsev, Burakov et al., Tananaev), and biominerals and biomineralogy (chapters by Chukanov et al., Izatulina and Elnikov, Frank-Kamenetskaya). Thus, the chapters in this book touch almost all important points where mineralogy intersects with material science and related disciplines.

We hope that the workshop series ‘Minerals as Advanced Materials’ will initiate interesting and fruitful discussions that will help us to achieve deeper understanding of inorganic natural matter.

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