Foreword

The first Seminar of the Siberian Branch of the Russian Academy of Sciences and Ural Branch of the Russian Academy of Sciences "Thermodynamics and inorganic materials" has been held on October 23–25, 2001 in the Institute of Inorganic Chemistry, SB RAS, under the chairmanship of Professor F. A. Kuznetsov. The organizers of the Seminar were Scientific Council of the RAS on chemical thermodynamics and thermochemistry, Institute of Inorganic Chemistry, SB RAS, Institute of Solid State Chemistry, UrB RAS, UNESCO Chair of the Novosibirsk State University.

The goal of the Seminar was to elaborate the general strategy of research in this area, to support the existing experimental techniques and procedures (many of which are unique), and to analyse the modern status and outlooks. Investigations in this area are still in the centre of attention of scientists working in the area of development of newest technologies of the synthesis of promising materials.

Thermodynamic investigations allow proposing new stable compositions and methods to synthesize them. They are also necessary for better understanding of the perspectives of development of nanotechnologies, for the investigation of processes occurring in lithium current sources, high-temperature superconductors, *etc*. There were experts in the area of thermodynamics who one of the first paid attention to instability of high-temperature superconductors and a series of lithium-cobalt oxides. Experimental thermodynamic procedures which are at present becoming fewer and fewer are of the highest value.

More than 160 reports were delivered at the Seminar within the following sections: physical chemistry of promising inorganic materials, thermodynamic investigation of inorganic substances and heterogeneous systems, thermodynamic modeling and informational provision of investigations in the area of the synthesis of inorganic materials.

The publication of a part of reports dedicated to fundamental problems of chemical thermodynamics and synthesis of new inorganic materials is timed to the 100th anniversary of Professor A. V. Nikolaev.