

presented at the 6th AIRAPT Meeting in Boulder, Colorado (July 1977). In keeping with the role of AIRAPT, the Conference dealt with the full spectrum of high-pressure investigations.

High pressure is basically a tool, but the particularity of the technology brings together almost all scientific branches. The present book does not elude this difficulty and, as every field is concerned, the reader can find in his own speciality the up-to-date position of high-pressure investigations.

The book is voluminous (about 1000 pages for each volume), but reading is greatly facilitated by the classification employed by the editors, although many papers belong to a section different from that specified in the book. However, this feature is unavoidable and the editors deserve much credit, considering their enormous task.

Starting with an excellent paper of Drickamer on high-pressure studies of electronic phenomena, the contributions examine the important field of equations of state, pressure-induced phase transitions in solids and phase diagrams, then thermal properties such as low temperature and melting phenomena. Spectroscopic studies (Raman and infra-red) are reported up to very high pressures. The third section deals with high-pressure phase equilibria and separation processes (for example, chromatography using compressed gases). Chemistry is the subject of the next section (organic, inorganic, macromolecular and biochemistry), with particular emphasis on applications in industry. The wide field of metrology and instrumentation is thoroughly examined and is certainly of great value for anyone wishing to perform his own measurements with techniques as various as viscometry, interferometry, X-ray diffraction, etc. Material and hydrothermal synthesis has become for many years an important application area for high pressures (synthesis of A 15-type

materials, diamond, carbonado-diamond, boron nitride, dense borides, oxides, sulfides, hydrothermal synthesis of quartz, fayalite, coesite, etc.).

Volume 2 begins with the field of high-pressure geological applications (mantle and core geochemistry and geophysics) which represents at least one third of the volume and is followed by an interesting section constrained by actuality on high pressure in energy resource recovery. Mechanical properties are considered from a plastic and elastic point of view and are intimately connected with the design of high-pressure vessels. In the next section, we find industrial applications of high pressure (isostatic processing, hydrostatic extrusion, explosive welding and forming). The volume ends with a discussion of the future directions in high-pressure applications (metallic hydrogen in the megabar range, shock waves, future materials and techniques) and exotic methods for generation of very high pressures (pulsed magnetic fields, photonic compression).

244 papers are reported in both volumes selected from among 300 proposed contributions. The general quality is good, although there appears sometimes a lack of originality. In the opinion of the reviewer, the book should certainly find its place in all high-pressure laboratories, but runs the risk of being of restricted utility for people outside high-pressure technology, except in some special cases (for example in biochemistry, chemistry, geophysics and geochemistry).

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Crystals: growth, properties and applications. Vol. 1. Crystals for magnetic applications.
Edited by C. J. M. Rooijmans.
Pp. iv + 139. Berlin, Heidelberg, New York: Springer-Verlag, 1978. Price DM 58.00, US\$ 31.90.

All the chapters of this book are so well written that reading is most pleasurable and comprehension is easy. The book is most timely because of the growing interest in crystals for magnetic applications and it will be of value to experienced crystal growers and magneficians as well as newcomers to these fields. The various techniques which are used to grow single crystals or epitaxial films of these materials are indicative of the restraints imposed by thermodynamic considerations as well as practical aspects. Adequate reviews of recent developments are given, together with the reasons for the choice of the particular growth technique used to grow each type of crystal. Most of the crystal growth techniques are explained in such detail that one could readily grow crystals from the descriptions. The difficulties encountered in crystal growth and crystalline defects are fully discussed.

More details on the properties as related to device needs or applications would be useful, as well as more information about the composition and deviations from stoichiometry. The aims of this new series, as outlined in the foreword of this book, have been well met in this first book and there is hope that subsequent volumes will be of equal quality. The publisher, editors and authors are to be congratulated on a job well done.

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