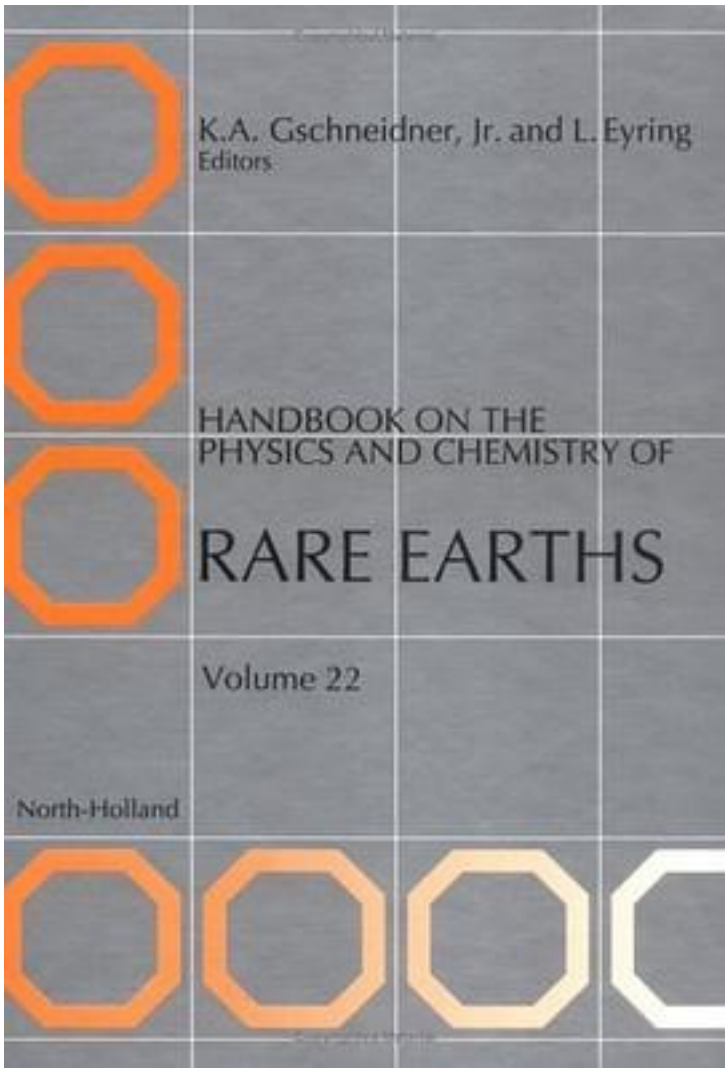
Handbook on the Physics and Chemistry of Rare Earths



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This volume of the "Handbook on the Physics and Chemistry of Rare Earth" begins with a dedication to late Professor LeRoy Eyring who had been a committed co-editor of the first 32 volumes of this series. This is followed by four chapters, the first two pertaining to solid state physics and materials science, while the last two chapters describe organic (and inorganic) reactions mediated by tetravalent cerium-based oxidants and by divalent samarium-based reductants. Chapter 227 is devoted to the description of the crystal chemistry and physical properties of rare-earth bismuthides, a class of compounds showing large similarities with the rare-earth antimonides previously reviewed in volume 33 of this series. The fascinating optical and electric properties of rare-earth hydride films displaying a switchable mirror effect as a function of hydrogen pressure, i.e. from a shiny metallic state to a transparent insulating film with increasing pressure, are described in Chapter 228, along with their fabrication methods. Many chemical reactions take advantage of the tetravalent/trivalent Ce(IV)/Ce(III) redox couple and many of its potential applications are presented in Chapter 229, from analytical procedures, to electrosynthesis, and organic and industrial (polymerization) reactions. The last review (Chapter 230) focuses on the synthesis and use of divalent samarium-based reductants in organic and inorganic reactions, mainly on those containing iodide and pentamethylcyclopentadienyl ligands. It is an authoritative, comprehensive, up-to-date, critical and reliable text.

作者介绍:

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