

## BOOK REVIEW

**Systematics and the Properties of the Lanthanides.** Edited by S. P. Sinha. D. Reidel, Dordrecht/Boston/Lancaster, 1983, 648 pp, 195 D fl.

This text is based on a series of lectures given at a NATO Advanced Study Institute held in Braunlage in 1982, the aim of which was to promote interdisciplinary interaction in the area of lanthanide chemistry. Five topics are presented and discussed in thirteen chapters derived from the Plenary lectures. The fourteenth chapter summarises four reports developed during the conference on future trends in the area.

'Systematics' is covered by three chapters presented by W. Klemm, L. Brewer and S. P. Sinha. The first of these is especially of interest as it was Klemm who, in the 1930's, developed the first systematics of the lanthanides.

'Structures' are then discussed in two chapters, one concerned with Inorganic Complexes of the Rare Earths (L. Niinistö) and the other with Structural Chemistry of the Lanthanides (G. J. Palenik). The latter chapter reviews the structural chemistry of the lanthanides using the Cambridge Crystallographic Data Centre file and covers organolanthanides as well as coordination compounds. Together the chapters give a most comprehensive coverage of this aspect of lanthanide chemistry.

'Electronic and Magnetic Properties' are discussed in the next two chapters by H. L. Skriver and J. Rossat-Mignod followed by four chapters on 'Spectroscopic Properties'. In these S. Hufner presents the

Optical Spectroscopy of Lanthanides in Crystalline Matrices; W. T. Carnall *et al.* summarise the present state of their energy level calculations on single crystal matrices and in aqueous solution; S. P. Sinha discusses the fluorescence spectra and lifetimes of the lanthanide aquo-ions and their complexes and J. R. Ascenso and A. V. Xavier's contribution is on the use of lanthanide ions as NMR structural probes.

The final topic 'Lanthanide Geochemistry' is dealt with in two chapters by J.-C. Duchesne and P. Möller who show in some detail the potential of the use of lanthanides as geochemical probes.

Each chapter is well referenced and is accompanied by a full report of the discussion held after the lecture it concerns. A list of the posters presented at the meeting is given.

As is often the case in books devoted to material presented at conferences or summer schools the nature of the subject area is restricted. However the organisers have succeeded in bringing together a group of people who have helped them achieve their objective of an interdisciplinary interaction. This book appears to reflect well the material presented at the ASI and so is worthy of inspection as it could be of use to someone looking for an introduction to one of the specialist areas it covers. For example the two chapters on structures were of particular interest to the reviewer as they give a full coverage of the material published in that area prior to the meeting.

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