

## Book Reviews

**Advances in Nuclear Quadrupole Resonance, Vol. 1,**  
 Edited by J.A.S. Smith, Heyden, London, 1974;  
 pages xv + 454.

This book is intended to be the first volume of a new series of "Advances" devoted to pure nuclear quadrupole spectroscopy, one of the less developed techniques in the field of rf and microwave spectroscopy, and it is based on the contributions presented at a NQR spectroscopic symposium held at the University of London in September 1972. As such, it reflects a certain inhomogeneity of its contents, ranging from introductory reviews such as those on NQR and stereochemistry by E.A.C. Lucken and on the use of NQR in organic analysis by H.G. Fitzky, to highly specific research problems, and to instrumentation techniques. The former type of contributions is obviously the most interesting one to the layman, and, if the new series of "Advances" aims at a revival or simply at a larger diffusion of the technique of NQR spectroscopy, even more weight should be put in the future on such reviews at introductory level. The second and third type of contributions are of interest almost exclusively to the NQR specialist, apart from the implications of NQR spectroscopy in solid state chemistry and physics, to which two entire sections ("Molecular Motions" and "Lattice Effects") out of the eight sections of the book are devoted, plus further connections to solid state problems emerging also from papers of the sections on the resonances of halogens, of metals and of nitrogen. Of the molecular studies reported in this book, the majority is concerned with compounds of the halogens, and only three of them with nitrogen-14. It appears therefore that the subjects of molecular studies, and their relative distribution among the various quadrupole nuclei, have not changed substantially since the earliest development stages of the NQR technique in the 50's, with nitrogen-14 constantly confined to the role of a well promising but never fully exploited subject of NQR investigations. Hopefully the volumes of this series will contribute to better understanding and wider use of the spectroscopic technique of NQR which has been, perhaps unjustly, neglected until now with respect to magnetic resonance techniques, but is still far from developing its potentialities.

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**Wechselwirkung von  $\pi$ -Elektronensystemen mit Metallhalogeniden**

H.-H. Perkampus, Springer-Verlag, Berlin-Heidelberg-New York, 1973.

The present monograph is devoted to a class of compounds on the borderline between metal  $\pi$ -complexes and classical Lewis acid-Lewis base adducts. The author is one of the most active chemists in this field and has succeeded in giving a comprehensive account on the subject.

After an introductory chapter containing some historical background and a definition of the types of donor-acceptor compounds known to-day, the first part of the book describes the properties of  $\pi$ -donors and metal halides used in the studies of Lewis acid-Lewis base interactions. It also gives a brief survey on the properties of corresponding adducts formed between  $\pi$ -donors and the proton. The second and main part of the monograph thoroughly describes the methods used for studying complex formation between  $\pi$ -donors and metal halides. Phase studies, spectroscopic investigations (IR, UV, NMR, NQR, ESR) and measurements of dipole moments are reported in detail. Finally, there is a summary of the compounds known in this field and a small chapter concerned to " $\sigma$ -complexes", e.g.,  $\text{R}-\overset{\oplus}{\text{C}}\text{H}-\overset{\ominus}{\text{C}}\text{H}_2-\overset{\ominus}{\text{B}}\text{F}_3$  and  $\overset{\oplus}{\text{C}}_6\text{H}_6-\overset{\ominus}{\text{M}}\text{X}_3$ , formed between  $\pi$ -donors and metal halides.

The clearly written and accurately revised monograph will certainly be of great value for anyone who is interested in entering this field. As to criticism, the reviewer feels that beyond the facts the theoretical background could be improved and, for example, the fundamental work of Dewar treated in more detail. There is no particular mention of Lewis acid-Lewis base adducts formed with heterocyclic donors, e.g. borazines or phosphazenes, which often behave quite analogously to  $\text{C}_6$ -aromatic ring systems. Nevertheless, the book can be fully recommended and should fulfil the requirement for a standard work on  $\pi$ -donor/metal halide complexes.

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