

Spectroscopic Studies of Minerals: Principles, Applications and Advances

IN December 1987 the Mineralogical Society held its 'First Winter Conference' at the University of Aston in Birmingham. The objectives of such major conferences, to be held in alternate years, is to explore a theme through a combination of invited lectures and more specialist contributions organized by the various interest groups of the Society. The theme of the First Winter Conference was 'Spectroscopic Studies of Minerals: Principles, Applications and Advances' in which a day of general review lectures (including the Hallimond Lecture) was followed by presentations involving specific applications of spectroscopic techniques to glasses and melts, to various ore and industrial minerals, and to clay minerals. Contributors to the meeting were invited to submit papers for publication in the *Mineralogical Magazine* and what follows is, therefore, representative of the presentations made at the conference.

The first paper in this special part-volume is the text of the 19th Hallimond Lecture delivered by Roger Burns. This deals with electronic (optical) absorption and reflectance spectroscopy and the contributions being made in this field to the remote sensing of planetary surfaces. The uses of photoelectron and X-ray emission spectroscopies in studies of the bonding in minerals are then reviewed by Urch, and a more specialist application of X-ray spectroscopic techniques presented by Purton and Urch. Contributions in the

field of vibrational spectroscopy are represented by papers from Geiger *et al.* on the infrared spectra of garnets and by Tlili *et al.* on the Raman spectra of micas. Walker provides a contribution on the application of luminescence spectroscopy to rock-forming carbonates and Law on the application of Mössbauer spectroscopy to certain amphiboles. Charnock *et al.* combine Mössbauer spectroscopy with Extended X-ray Absorption Fine Structure (EXAFS) studies in examining the tetrahedrite group minerals, and in the last two papers, Richardson and Vaughan apply Auger, X-ray photoelectron and Conversion Electron Mössbauer techniques to studies of the surface oxidation of the sulphide minerals pentlandite, violarite and arsenopyrite. One further contribution arising from the meeting, on Mössbauer and chemical studies of mudrocks by Davey and Curtis, is to be separately published in the journal *Clay Minerals*.

I should like to acknowledge the help of my fellow convenors John Ashworth, Derek Bain and Bill McWhinnie in the organization of the meeting, and the financial support of the Royal Society of Chemistry (Dalton Division) and the Mineralogical Society through its Applied Mineralogy, Geochemistry and Clay Minerals Groups. Thanks are also due to Andrew Clark, Helen Smith and a group of anonymous referees who helped to make production of this series of papers possible.

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