

Introduction to the Symposium

In this issue there are 15 articles based on papers given at the Symposium on Synthesis in Solid State Chemistry: Frontier Structures and Novel Results, held at the 190th National Meeting of the American Chemical Society in Chicago, Illinois, September 9–11, 1985. The Symposium was sponsored by the ACS Division of Inorganic Chemistry. Support for foreign speakers was provided by the Division and by an Educational Grant from the Donors of the Petroleum Research Fund.

The synthesis of solid state compounds has a number of facets which might be emphasized and each is important in its own right. For example, the synthesis of ultrapure and defect-free materials of known structure is a matter of great technological importance worthy of considerable research effort. In this symposium attention is focused on the synthesis of new materials which are interesting because of their unusual structures or their physical/chemical properties. Often in the course of synthetic studies a new compound is obtained whose structure or properties is so novel that it serves as a stimulus for further, widespread research. In some cases structures are so novel and unexpected that they considerably expand our vision of what structures are possible. In other words, nature provides what our minds have been incapable of conceiving.

Among the articles included in this issue are several which describe the synthesis and structure of new ternary metal halide, oxide, and chalcogenide compounds, representing new visions of what is possible. The remainder of the articles stress new synthetic approaches to complex compounds and their derivatives belonging to known structure types, careful studies of the consequences of synthesis conditions on structure and composition, and correlation of properties with structural or compositional modifications. Collectively these articles represent a good cross section of modern synthetic solid state chemistry and provide us with a sense of direction for future developments in the field.

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