

**INTERNATIONAL CONFERENCE ON CRYSTAL GROWTH (ICCG)  
Boston, June 20-24, 1966**

About 700 participants from Asia, Eastern Europe, Western Europe and the U.S.A., representing various disciplines such as Physics, Chemistry, Metallurgy, Mineralogy, Ceramics and Electrical Engineering, gathered in Boston to attend the first of a new periodic series of Conferences on Crystal Growth, called ICCG. Approximately one hundred and sixty papers were presented on the program, which consisted of three parallel sessions. Among the most interesting sessions were the ones on morphological stability of interfaces, crystal perfection and an evening motion picture session bowing details of the crystallization process. The experimental papers described the growth of many compounds difficult to crystallize, such as Bridgeman growth of ZnS under high pressure, Czochralski growth of rubies of high crystal perfection and crystallization of some of the elements such as selenium, europium and noble gases, such as argon. The Proceedings will be published as a supplement to the Journal of Physics and Chemistry of Solids. The conference was sponsored by the Air Force Cambridge Research Laboratories and the Solid State Commission of the International Union of Pure and Applied Physics. The international organizing committee of the conference was chaired by M. Schieber, the program committee by B. Chalmers, the publication committee by H. S. Peiser and the local arrangements committee by J. F. Wenckus.

The second ICCG is planned for September 1968 in Birmingham, England. A review of the Boston ICCG will be published in one of our next issues. Following the Seventh International Congress of Crystallography and in conjunction, with the Congress, an international Symposium on Crystal Growth was held in Moscow on July 20 and 21, 1966. N. N. Sheftal of the Institute of Crystallography of the Academy of Sciences of the USSR was the Convener of the Symposium. Registration at the Congress constituted registration at the Symposium so that separate attendance figures are not available, but the author estimates that between 800 and 1000 attendees (many of whom did not attend the Congress) were present. Somewhat more than half were from the Soviet Union.

The Symposium began with a plenary session of invited papers at which B. K. Vainshtein (Institute of Crystallography of the Academy of Sciences, USSR) presided. After an introduction by N. N. Sheftal, R. Parker (National Bureau of Standards) gave a report highlighting the events of the International Conference on Crystal Growth held in Boston, June 19-24, 1966. P. Hartman (Geologisch en Mineralogisch Instituut der Rijksuniversiteit, Garenmarkt, Leiden, The Netherlands) gave a lecture on "The Dependence of Crystal Morphology on Crystal Structure Hartman has extended the ideas of Donnay and Harker and now classifies crystal faces by considering the nature of the uninterrupted chain of strong bonds lying in the face. If a given chain (called the periodic bond, chain or PBC) is linked to another PBC by strong bonds, this face will be important in the crystal in the absence of certain external factors. By the use of this and similar ideas, predictions concerning the morphology of a surprising variety of materials are possible. While the connection between this approach and the atomic mechanism of crystal growth is at present obscure the approach, if considered only for its ability to give rules applicable to the morphology of many materials, is arresting. R. Kern (Laboratoire de Minéralogie et Cristallographie, Université de Nancy, Nancy, France) spoke on "Crystal Growth in the Presence of Impurities". Kern pointed out that morphological modification in the presence of impurities is not dependent upon their incorporation into the crystal but only upon their adsorption upon the growing faces. He showed that interpretations of habit modification can be based upon thermodynamic, kinetic and crystal chemical considerations.

The final plenary lecture was given by G. I. Distler (Institute of Crystallography, Academy of Sciences of the USSR) on "Real Structure, Activity and long-range Effects of Crystalline Surfaces". Distler emphasized the fact that electron microscopic examination of such materials as silicon, germanium, mica, quartz and sapphire shows the presence of various active centers usually associated with impurities. These active centers are thought to be essential determinants in many of the surface properties of solids such as surface reactivity and epitaxial overgrowth. On occasion the blocking of an active center by, for instance, an adsorbed impurity, can be of overriding importance in determining surface behavior.

Following the plenary session, contributed papers at the Colloquium were presented in four parallel sessions organized on the themes of Morphology, Impurities, Epitaxy and Techniques. At these sessions over one hundred and twenty five papers were presented by researchers representing most of the active crystal growth laboratories in Eastern and Western Europe and many of the active laboratories in North America and Asia. It would be impossible to give a full report of this cornucopia. No more than impressions and personal opinions are possible.

A. A. Chernov (Institute of Crystallography of the USSR) talked on "Theory of Crystallization of a Binary

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System His work illustrates the efficacy of using an essentially statistical approach to the growth process. Good progress has been made in the analysis of idealized binary chain systems by this approach, and presently the optimism of many workers in theory of crystal growth is high that this approach will yield results on more complex real systems.

Crystal growth techniques were represented by a great number of papers. The author found the papers: "Morphological Characteristics of Yttrium Aluminum Garnets Grown on a Seed, by the Flux Technique", by V. A. Timofeeva, I. N. Guseva and N. M. Melancholin, Institute of Crystallography, Academy of Sciences of the USSR; "Analysis of Crystal Growth Conditions in Autoclaves", by A. A. Sternberg, Institute of Crystallography, Academy of Sciences of the USSR; "Morphological Differences in Crystals Grown by the Hydrothermal Method", by N. Yu. Ikonnikova and B. N. Litvin, Institute of Crystallography, Academy of Sciences of the USSR, especially interesting.

As is the case with most modern, large size meetings, the real value lay even more in the informal discussions and laboratory visits held, outside the meeting halls. This was especially true of the Moscow Symposium since few Westerners have had the opportunity to visit Soviet Laboratories in the field of crystal growth or to meet such a large number of Soviet researchers. Laboratory visits were easily arranged. The author was impressed by the magnitude and scope of Soviet activities in the field of crystal growth. Soviet Laboratories were well equipped and fully staffed.

K. S. Bagdasarov's group at the Institute of Crystallography and V. V. Osiko's group at the Lebedev Institute are highly active in melt and flux growth, and the range of hydrothermal activities at the Institute of Crystallography was of special interest to me.

In conjunction with the meeting an exhibit of crystallographic and crystal growth equipment and single crystals was held. The single crystals ranging from classic materials such as quartz through avant garde materials such as lithium niobate included more than 150 Soviet grown crystals.

The author has emphasized the Soviet aspects of the Symposium, since it is his feeling that these are perhaps lesser known and consequently of greater interest. However, it should be pointed out that the meeting in terms of participation, contributions and attendance was truly international.

Finally, the social aspects of the meeting deserve special comment. Our Soviet hosts outdid themselves in warmth and hospitality.

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