



Cathodoluminescence Microscopy of Inorganic Solids

By D. B. Holt

Springer. Hardcover. Book Condition: New. Hardcover. 292 pages. Dimensions: 9.1in. x 6.0in. x 0.9in. Microcharacterization of materials is a rapidly advancing field. Among the many electron and ion probe techniques, the cathodoluminescence mode of an electron probe instrument has reached a certain maturity, which is reflected by an increasing number of publications in this field. The rapid rate of progress in applications of cathodoluminescence techniques in characterizing inorganic solids has been especially noticeable in recent years. The main purpose of the book is to outline the applications of cathodoluminescence techniques in the assessment of optical and electronic properties of inorganic solids, such as semiconductors, phosphors, ceramics, and minerals. The assessment provides, for example, information on impurity levels derived from cathodoluminescence spectroscopy, analysis of dopant concentrations at a level that, in some cases, is several orders of magnitude lower than that attainable by x-ray microanalysis, the mapping of defects, and the determination of carrier lifetimes and the charge carrier capture cross sections of impurities. In order to make the book self-contained, some basic concepts of solid-state physics, as well as various cathodoluminescence techniques and the processes leading to luminescence phenomena in inorganic solids, are also described....



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