

<sup>1</sup> Schulman J H & Compton W D. *Color centers in solids*.  
Oxford: Pergamon Press, 1962. 368 p.  
[US Naval Research Laboratory]

This book is an introduction to the subject of color centers in inorganic solids, treating their production, properties, configurations, and the insight which they give to the nature and role of imperfections in solids. [The SC<sup>1</sup> indicates that this book has been cited over 685 times since 1962.]

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"'Color centers' are atomic-scale imperfections in solids—such as impurities, vacant lattice sites, or interstitial atoms or ions—which, either directly or after having trapped electrons or holes, give evidence of their presence by changes in the optical absorption spectrum of the material (color being produced if the absorption changes happen to lie in the visible spectral region). The study of color centers was one of the earliest and most productive approaches to an understanding of the dramatic influence of imperfections and non-stoichiometry on the absorption, luminescence, radiation-sensitivity, and electrical properties of insulating solids.

"The work of Pohl<sup>1,2</sup> and his students in Germany during the 1930s provided the experimental basis from which the subject developed, stimulated by the theoretical interpretations of Mott and Gurney<sup>3</sup> in the UK and Seitz<sup>4,5</sup> in the US. Color center literature was already voluminous by the late-1950s, but no general summary of this very active research area existed. Our book was intended to fulfill this need.

"While the need for such a book seemed to be considerable, the time for writing it could not have been less favorable. Activity in color center research had expanded manifold in the Western world and in Ja-

pan. New techniques had recently been brought to bear on the study of defects in insulating solids. More attention was being paid to the purity of materials, and effects formerly thought to be intrinsic were shown to be impurity-related. Conversely, some color centers thought to involve imperfections were shown to be an intrinsic property of the compound. So, while we were writing during late-1959 and early-1960, there was a literal explosion of papers which revised many accepted ideas, disproved many of the current color center models, and pointed to new ones.

"The main manuscript had to be finished because of the June 1960 departure of one of us (JHS) for a sabbatical year in London. This writing was accomplished and corrected page proofs of the text were in hand by this date. In the expectation that the book would soon be published, we decided to try to keep up with important last minute advances by a 'Recent Developments' addendum to each chapter in proof.

"For reasons only known to the publisher, publication of the book was delayed for well over a year after we finished the manuscript. When the volume finally appeared, it gave us a dreadful shock. Gross misspellings and other errors which did not exist in the 1960 page proofs appeared in the final text! Rather than withdraw the first printing, further delaying the publication of the book, we reluctantly settled for inclusion of an extensive 'errata' page and resigned ourselves to the critical comments that we anticipated from the reviewers.

"Despite these circumstances, it has been gratifying to find that the book achieved its purpose. We think that this publication has been highly cited because it provided, in 1962, the first general summary of the very active research field of color centers in solids. We can only add that our enthusiasm in undertaking the book was stimulated and sustained by our colleagues who contributed so notably to US color center research during that period: Clifford C. Klick, Herbert Rabin, Howard Etzel, John Lambe, and the late David Dexter. More recent publications in the field have appeared."<sup>6,7</sup>

1. Pohl R W. Electron conductivity and photochemical processes in alkali-halide crystals. *Proc. Phys. Soc.* 49:3-31, 1937.
2. -----, Zusammenfassender Bericht über Elektronenleitung und photochemische Vorgänge in Alkalihalogenidkristallen. *Physik Z.* 39:36-54, 1938.
3. Mott N F & Gurney R W. *Electronic processes in ionic crystals*. Oxford: Clarendon Press, 1940. 275 p.
4. Seitz F. Color centers in alkali halide crystals. *Rev. Mod. Phys.* 18:384-408, 1946.
5. -----, Color centers in alkali halide crystals. II. *Rev. Mod. Phys.* 26:7-94, 1954.
6. Fowler W B, ed. *Physics of color centers*. New York: Academic Press, 1968. 655 p.
7. Crawford J H, Jr. & Silkin L M, eds. *Point defects in solids*. New York: Plenum Press, 1972. Vol. 1.