P R E F A C E

The present work was carried out in the department of Physics and Meteorology, Indian Institute of Technology, Kharagpur during the years 1963 - 1967. The thesis reports the results of investigations on the optical absorption, luminescence, thermoluminescence and bleaching properties of colour centres in calcium fluoride, bombarded by low energy cathode rays. The combined effect of X-rays and cathode rays on the formation of colour centres in this crystal has also been studied. These investigations were undertaken with a view to study further about the emission and absorption processes and also to see if any interrelation between the four band spectrum and the two band spectrum exists.

Chapter I deals with the general introduction and scope of the present work.

In Chapter II a brief review of the earlier work on the colour centres in calcium fluoride is reported.

Chapter III describes the various experimental methods and procedures, adopted for undertaking the different measurements.

The results of the various measurements undertaken are presented in Chapter IV.

In Chapter V the results of the above measurements are discussed and a short summary of the results and conclusions is also given at the end.

A bibliography consisting of the references to previous work, having a bearing on the present investigations, has been compiled to the extent available from various sources and appended at the end of the relevant chapters.

The author takes this opportunity to acknowledge his deep gratitude to Prof. H. N. Bose, Head of the Department of Physics, for suggesting the problem, valuable guidance and continued interest throughout the course of these investigations. He also wishes to express his gratefulness to Dr. J. Sharma and Dr. V. V. Ratnam for helpful discussions.

The author is grateful to the authorities of the institute for providing the necessary facilities. Finally, the co-operation received from the technical staff of the Department and the Central Workshops is gratefully acknowledged.

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