

PREFACE

The present thesis entitled " Investigation on the spectroscopic and semiconductive properties of some organic compounds " is in fulfilment of the requirements for the degree of Doctor of Philosophy (Science) of the University of North Bengal. It embodies the results of investigation on the spectroscopic and semiconductive properties of some linear conjugated polyenes.

This thesis has two parts and an Appendix. The first part deals with the investigation on the electronic absorption and emission spectroscopy of some polyenes : solvent effect and effect of adsorption of various vapours on their solid films. In the second part results from the studies on the semiconductive properties of these compounds e.g. the effect of adsorption of vapours on the electrical conductivity, on the semiconduction activation energy and on the variation of the pre-exponential factor (in the standard expression for specific conductivity) with the activation energy have been included. There are three chapters in the first part and the second one comprises four chapters. Chapter 1 of both parts contains a general introduction with a brief review of the relevant parts of the existing theories required to interpret the observed results. For collecting the spectroscopic data spectrophotometer and spectrofluorometer have been used. The experimental techniques used for the semiconductive investigation are presented in Chapter 2 of the second part. The chapters 2 and 3 of Part I and chapters 3 and 4 of Part II contain details of the results obtained in the investigation together with the discussion of the results.

Most of the results have been published in the form of papers in different scientific journals. Some are awaiting publication. A list of publications and the available reprints are given in the Appendix.

This work has been carried out in the Department of Physics, North Bengal University, Darjeeling, India and in the Department of Optics, Indian Association for the Cultivation of Science, Calcutta

Department of Optics
Indian Association for the
Cultivation of Science,
Jadavpur,
Calcutta-700 032,
INDIA
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DISWANATH MALLIK