

## **BOOK REVIEW**

### **Optical Spectroscopy: Technology, Properties and Performance**

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The book is an excellent one in the field of optical spectroscopy of materials, including both science and technology. It is written by outstanding specialists in optical spectroscopy. The book includes 2 chapters written by Dr. Nicolae Tomozeiu and 2 chapters written by Hideo Takeuchi. The book treats at a high level both the science and technology of measurement and interpretation of the results. The book is devoted to the development of the science of optical spectroscopy coupled with the technology of the methods implied in measurements. The physics lying at the basis of optical spectroscopy is excellently expressed by the editor of the book in the two chapters written by him.

My first observation is related to the title of the book. It is not appropriate to say “properties” linked to optical spectroscopy. My proposal is to change the subtitle to: Science and Technology.

The Chapter 1 of the book treats the subject: Optical Emission Spectroscopy Used to Investigate Plasma Deposition of Thin Solid Films. This subject is “the violin d’Ingres” of the doctor in physics and Prof. N. Tomozeiu.

Chapter 2 is entitled: Reflectance Spectroscopy and treats an important domain of the spectroscopy of solids. It is a clear description of the techniques of measurement and interpretation of the results.

Chapter 3 discusses Photoreflectance Spectroscopy of Franz-Keldysh Oscillations from Semiconductor Heterostructures for Electronic and Optoelectronic Devices and Components. It is written by Hideo Takeuchi. It is clearly written and the figures are drawn, simply to understand. The concepts are clearly explained.

Chapter 4 discusses the Infrared Attenuated Total Reflection – A Tool to Investigate Liquid Penetration in Paper: Theoretical Considerations. This is a special chapter related to the interaction of the liquids with paper. A high level mathematics is developed. The mathematical formulas are both elegant and clear. It is an example how a complex phenomenon can be supported by a rigorous mathematical instrument.

Chapter 5 treats the IR Attenuated Total Reflection – A Tool to Investigate Liquid Penetration in Paper (by N. Tomozeiu and Hennie Boonen). The last two chapters are remarkable in the sense that the first one covers the theoretical aspects of the phenomenon and the last one the experimental aspects including detailed description of the method of study and technology.

Chapter 6 is entitled, Electronic Spectroscopy of Diffuse Reflection - A Promising Method for Quantifying the Coordination States of the Atoms in the Superficial Layer of Dispersed Materials. The authors are Eugene A. Sosnov and Anatoly A. Malkov. The problem of interaction liquid – solid material is further extended and treated at a high level. The last three chapters are original and represent the core of the

book, very useful for technologists working in the field of spectroscopy used for investigation of the behavior of the heterogeneous solid materials which come in contact with particular liquids.

Chapter 7 treats the Polariscopy: Its High Sensitivity to Internal/Residual Strains of Semiconductor Single Crystal Wafers. It is written by Hideo Takeuchi. It is a chapter of fundamental interest and strongly related to the practical investigation of the interaction of the liquids with solid and complex materials media. I remark the scientific high level and the potential for education of the students and those which are keen to enter into this particular field of research and modern technology.

The book covers an interdisciplinary field of research and technology and is addressed to the specialist in technology of printing the dates generated by computer. It is a useful book for those interested in the science of interaction of liquids with paper and other complex materials. It can be used as a handbook for scholars, scientist and engineers and also to professors that guide the students and PhD students. All the chapters of the books are clearly written and the explanations are given in a comprehensible manner but rigorously in the frame of an excellent mathematical tool. I suggest to the editor to take care to the title, which must embrace the general subjects treated in this book of interest for many scientists and engineers.

After my opinion the manuscript contains a valuable scientific and technological material which worthwhile to be published in NOVA Publ. House.

Reviewed provided by Prof. Mihai Popescu, National Institute of Materials Physics, Bucharest – Magurele, ROMANIA