1. Record Nr. UNINA9911006531903321 Titolo Handbook of optical constants of solids / / edited by Edward D. Palik Orlando, : Academic Press, 1985 Pubbl/distr/stampa **ISBN** 1-281-11198-8 9786611111984 0-08-054721-4 1-60119-270-3 Descrizione fisica 1 online resource (824 p.) Collana Academic Press handbook series PalikEdward D Altri autori (Persone) Disciplina 530.4/1 Soggetti Solids - Optical properties Optical constants Lingua di pubblicazione Inglese **Formato** Materiale a stampa

Livello bibliografico Monografia

Note generali Description based upon print version of record.

Nota di bibliografia Includes bibliographies.

Nota di contenuto Front Cover; Handbook of Optical Constants of Solids; Copyright Page;

Table of Contents; List of Contributors; Preface; Part I: DETERMINATION OF OPTICAL CONSTANTS; Chapter 1. Introductory Remarks; I. Introduction; II. The Chapters; III. The Critiques; IV. The Tables; V. The Figures of the Tables; VI. General Remarks; References; Chapter 2. Basic Parameters for Measuring Optical Properties; I. Introduction; II. Intrinsic Material Parameters in Terms of Optical Constants; III. Reflectance, Transmittance, and Absorptanceof Layered Structures IV. The General Lamelliform-Phase Coherency ThroughoutV. The General Lamelliform-Phase Incoherency in Substrate; VI. Summary; Appendix A. Basic Formulas for Fresnel Coefficients; Appendix B. General Formulas for the Case of a Parallel-Sided Slab; Appendix C. Reflectance, Rjk at j-k Interface; Appendix D. Reflectance of Single Layer on Each Side of a Slab and Single Layer on Either Side of a Slab;

Appendix E. Critical Angle of Incidence; Definition of Terms; References; Chapter 3. Dispersion Theory, Sum Rules, and Their

Application to the Analysis of Optical Data; I. Introduction

II. Optical Sum Rules and Their Physical InterpretationIII. Finite-Energy Sum Rules; IV. Sum Rules for Reflection Spectroscopy; V. Analysis of Optical Data and Sum-Rule Applications; VI. Summary; References;

Chapter 4. Measurement of Optical Constants in the Vacuum Ultraviolet Spectral Region; I. Introduction; II. General Discussion of Reflectance Methods; III. Reflectance Method for Two Media; References; Chapter 5. The Accurate Determination of Optical Properties by Ellipsometry; I. Reflection Techniques; Background and Overview; II. Measurement Configurations

III. Accurate Determination of Optical Properties: Overlayer EffectsIV. Living with Overlayers; V. Eliminating Overlayers; VI. Bulk and Thin-Film Effects; Effective-Medium Theory; VII. Conclusion; References; References; Chapter 6. Interferometric Methods for the Determination of Thin-Film Parameters; I. Introduction; II. Basic Principles; III. Nonlaser Interferometers; IV. Kosters-Prism Interferometers; V. A Self-Calibrating Method; VI. Surface Effects; VII. Conclusions; References; Chapter 7. Thin-Film Absorptance Measurements Using Laser Calorimetry; I. Introduction

II. Single-Layer FilmsIII. Wedged-Film Laser Calorimetry; IV. Electric-Field Considerations in Laser Calorimetry; V. Entrance versus Exit Surface Films; VI. Experimental Determination of f, aaf, and afs; References; Chapter 8. Complex Index of Refraction Measurements at Near-Millimeter Wavelengths; I. Introduction; II. Fourier Transform Spectroscopy; III. Free-Space Resonant Cavity; IV. Mach-Zehnder Interferometer; V. Direct Birefringence Measurement; VI. Overmoded Nonresonant Cavity; VII. Crystal Quartz as Index Reference; VIII. Conclusion; References

Chapter 9. The Quantum Extension of the Drude-Zener Theory in Polar Semiconductors

## Sommario/riassunto

While bits and pieces of the index of refraction n and extinction coefficient k for a given material can be found in several handbooks, the Handbook of Optical Constants of Solids gives for the first time a single set of n and k values over the broadest spectral range (ideally from x-ray to mm-wave region). The critiquers have chosen the numbers for you, based on their own broad experience in the study of optical properties. Whether you need one number at one wavelength or many numbers at many wavelengths, what is available in the literature is condensed down