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## Optical Properties of Thin Solid Films Dover Books on Physics

By Physics

Dover Publications. Paperback. Book Condition: New. Paperback. 288 pages. Dimensions: 8.4in. x 5.3in. x 0.6in. Thin solid films are both functional and intrinsically interesting. Their most familiar use is as coatings on the lenses of optical instruments, where they reduce reflections inside the instrument and produce sharper images. Their curious optical behavior has aroused interest since Newton's time, but has been understood only in modern times through examination of their structure by high-powered microscopes. This text treats the formation, structure, optical properties and uses of thin films, emphasizing the causes of their anomalous optical behavior. Beginning chapters describe the physical nature of thin films—their formation and structure. Heavens discusses thoroughly and practically the common thermal evaporation and sputtering processes. The equipment used is explained and diagrammed. Instruments employed to investigate the structure of thin films—the optical microscope, electron microscope and field emission microscope are described. Photos taken through these instruments show the nonuniform patterns formed by crystallites of silver, gold, chromium, aluminum, nickel and other metals deposited in thin films. The next three chapters measure the effectiveness of alkaline and metallic thin solid films in transmitting and reflecting light. Maxwell's equations of electromagnetic theory are presented to calculate the intensity...



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