

1. Record Nr.	UNINA9910703196903321
Titolo	Specular gloss / / edited by Raimo Silvennoinen, Kai-Erik Peiponen, Kari Myller
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, 2007
ISBN	9786611076740 9781281076748 1281076740 9780080554686 0080554687
Edizione	[1st ed.]
Descrizione fisica	1 online resource (519 p.)
Collana	NIST special publication ; ; 250-70
Altri autori (Persone)	SilvennoinenRaimo PeiponenK. -E <1954-> (Kai-Erik) MyllerKari
Disciplina	530.1 530.124 535.3
Soggetti	Specular reflectance Specular reflectance - Measurement Optical measurements
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [413]-479) and index.
Nota di contenuto	Front Cover; Specular Gloss; Copyright Page; Table of Contents; Preface; Notation; Video Clip Examples of Gloss in Different Applications; Disclaimer; Chapter 1 Introduction; Chapter 2 Light Reflection from Ideal Surface; 2.1. Electromagnetic theory of light waves; 2.1.1. Wave equation; 2.1.2. Maxwell equations for free space; 2.2. Light irradiance; 2.3. Light polarization; 2.4. Real refractive index; 2.5. Group velocity; 2.6. Normal reflection of light; 2.7. Light reflection at an oblique angle of incidence; 2.8. Complex refractive index; 2.9. Beer-Lambert law 2.10. Oblique angle reflection from light-absorbing isotropic media2. 11. Reflectance from anisotropic media; 2.12. Specular reflection from nanostructured medium; Chapter 3 Light Reflection from a Rough

Surface; 3.1. Statistical surface roughness parameters; 3.2. Light diffraction from finishing marks; 3.3. Kubelka-Munk function for diffuse reflection; 3.4. Specular reflection of laser beam from moderately rough surface; 3.5. Specular reflection from surface with normal distribution of surface heights; 3.6. Speckle pattern; 3.7. Statistical parameters for specular gloss

Chapter 4 Specular Gloss 4.1. Visual appearance of a surface; 4.2. Directionality of surface; 4.3. Standardized method for specular gloss; 4.4. Problems in the gloss measurement; Chapter 5 Light Sources for Gloss Measurement; 5.1. Radiation laws; 5.1.1. Geometrical consideration; 5.1.2. Kirchhoff's law; 5.1.3. Black body radiation; 5.1.4. Grey body radiation; 5.1.5. Stefan-Boltzmann law; 5.1.6. Wien's displacement law; 5.1.7. Planck's radiation law; 5.1.7.1. Derivation of Stefan-Boltzmann constant (s); 5.1.7.2. Derivation of constant (C_0) in Wien's displacement law

5.1.8. Brightness temperature 5.1.9. Colour temperature; 5.2. White light source (S_o) for standardized glossmeter; 5.2.1. Brightness and emissivity of tungsten; 5.2.2. Stability of tungsten as an S_o ; 5.2.3. Spectral irradiance of incandescent lamp of standardized glossmeter; 5.3. Coherence and partial coherence of light; 5.3.1. Damping effect on function of electric dipole; 5.3.1.1. Light emission influenced by damping; 5.3.1.2. Light absorption influenced by damping; 5.3.2. Concept of coherence; 5.3.2.1. Time coherence; 5.3.2.2. Spatial coherence

5.3.3. Coherence function and fringe visibility 5.3.4. Coherence of thermal S_o ; 5.3.5. Photon correlation; 5.4. Light-emitting diode; 5.4.1. Energy bands in semiconductors; 5.4.2. Radiative and non-radiative transitions; 5.4.3. Spectral broadening of luminescence spectra; 5.4.4. Light generation efficiency; 5.4.5. Electrical characteristics of LEDs; 5.4.6. Architecture of LED; 5.4.7. Frequency response of LED; 5.4.8. Spectral response of LED; 5.5. Laser; 5.5.1. Theory of inversion population - a paradox of equilibrium; 5.5.2. Lasing conditions; 5.5.3. Spectral profile of lasing radiation

5.5.4. Laser beam directionality

Sommario/riassunto

The aesthetic appearance of various objects is important to human beings. One measure of the quality of an object is its surface quality, which can be characterized with the concept of gloss. Nowadays measurement of the gloss is a routine off-line method in assessment of quality of product at various sectors of industry. The book gives a fresh treatment on the concept of gloss. Theoretical description will be on more general basis of optical physics than in other sources. The text will give a modern treatise of machine vision based glossmeters and furnish the ideas how to measure and analyse
