

1. Record Nr.	UNINA9910739466203321
Titolo	Characterisation of areal surface texture // Richard Leach, editor
Pubbl/distr/stampa	Berlin ; ; New York, : Springer, c2013
ISBN	3-642-36458-6
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (353 p.)
Altri autori (Persone)	LeachRichard K
Disciplina	620.44 620/.44
Soggetti	Surfaces (Technology) - Measurement Surface roughness - Measurement
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 and index.
Nota di contenuto	Introduction to surface topography -- The areal field parameters -- The areal feature parameters -- Areal filtering methods -- Areal form removal -- Areal fractal methods -- Choosing the appropriate parameter -- Characterization of individual areal features -- Multi-scale signature of surface topography -- Correlation of areal surface texture parameters to solar cell efficiency -- Characterisation of cylinder liner honing textures for production control -- Characterization of the mechanical bond strength for copper on glass plating applications -- Inspection of laser structured cams and conrods -- Road surfaces.
Sommario/riassunto	The function of a component part can be profoundly affected by its surface topography. There are many examples in nature of surfaces that have a well-controlled topography to affect their function. Examples include the hydrophobic effect of the lotus leaf, the reduction of fluid drag due to the riblet structure of shark skin, the directional adhesion of the gecko foot and the angular sensitivity of the multi-faceted fly eye. Surface structuring is also being used extensively in modern manufacturing. In this way many properties can be altered, for example optical, tribological, biological and fluidic. Previously, single line (profile) measurements were adequate to control manufacture of surfaces, but as the need to control the functionality of surfaces increases, there is a growing need for three-dimensional (areal)

measurement and characterisation techniques. For this reason there has been considerable research, development and standardisation of areal techniques. This book will present the areal framework that is being adopted by the international community. Whereas previous books have concentrated on the measurement aspects, this book concentrates on the characterisation techniques, i.e. how to interpret the measurement data to give the appropriate (functional) information for a given task. The first part of the book presents the characterisation methods and the second part case studies that highlight the use of areal methods in a broad range of subject areas - from automobile manufacture to archaeology. Contents Introduction to Surface Topography The Areal Field Parameters The Areal Feature Parameters Areal Filtering Methods Areal Form Removal Areal Fractal Methods Choosing the Appropriate Parameter Characterisation of Individual Areal Features Multi-Scale Signature of Surface Topography Correlation of Areal Surface Texture Parameters to Solar Cell Efficiency Characterisation of Cylinder Liner Honing Textures for Production Control Characterisation of the Mechanical Bond Strength for Copper on Glass Plating Applications Inspection of Laser Structured Cams and Conrods Road Surfaces.

---