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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Total Quality Management in the replication process of sophisticated optical elements -- Mold design for complex optical plastics components -- Optical plastics components: Replication processes and plastic materials -- Freeform machining of molds for replication of plastic optics -- Mold structuring by diamond Machining -- Diamond machinable tool steels by novel nitriding processes -- Novel processes for the machining of tool inserts for precision glass molding -- Deterministic polishing of smooth and structured molds -- Process chain for the replication of complex optical glass components --

Deposition, machining and measuring of novel hard coatings -- In-situ and in-process metrology for optical surfaces -- Metrology Past, Present and Future with reference to optics and manufacture.

Sommario/riassunto

High quality optical components for consumer products made of glass and plastic are mostly fabricated by replication. This highly developed production technology requires several consecutive, well-matched processing steps called a "process chain" covering all steps from mold design, advanced machining and coating of molds, up to the actual replication and final precision measurement of the quality of the optical components. Current market demands for leading edge optical applications require high precision and cost effective parts in large volumes. For meeting these demands it is necessary to develop high quality process chains and moreover, to crosslink all demands and interdependencies within these process chains. The Transregional Collaborative Research Center "Process chains for the replication of complex optical elements" at Bremen, Aachen and Stillwater worked extensively and thoroughly in this field from 2001 to 2012. This volume will present the latest scientific results for the complete process chain giving a profound insight into present-day high-tech production.