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Titolo	New Approaches to Gear Design and Production // edited by Veniamin Goldfarb, Evgenii Trubachev, Natalya Barmina
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Descrizione fisica	1 online resource (XIII, 529 p. 320 illus., 219 illus. in color.)
Collana	Mechanisms and Machine Science, , 2211-0984 ; ; 81
Disciplina	621.833
Soggetti	Mechanical engineering Industrial engineering Production engineering Software engineering Computer-aided engineering Mechanical Engineering Industrial and Production Engineering Software Engineering/Programming and Operating Systems Computer-Aided Engineering (CAD, CAE) and Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Foreword by Marco Ceccarelli -- Preface -- Introduction -- Advanced computer-aided gear design, analysis and manufacturing -- Tooth contact analysis of cylindrical gears reconstructed from point clouds -- Simulation of the teeth profile shaping during the finishing of gears -- Tooth surface stress and flash temperature analysis with trochoid interference of gears -- Computer-aided techniques versus analytical methods for tooth gear calculations -- Optimization of planocentric gear train characteristics with CA tools -- Biplanetary gear trains and their analysis through the torque method -- Curvature interference characteristic of ZC1 worm gear -- Engineering assessment of load-carrying capacity and tribotechnical parameters of spur gears with account of tooth profile correction and variation of sliding friction factor in gearing -- Approaches to computer-aided design of spur and helical gear production processes with account of patterns for

generation and variation of quality parameters of gears at their production -- Aspects of the kinematic theory of spatial transformations of rotations: analytic and software synthesis of kinematic pitch configurations -- Engineering design of gears with involute-bevel gearwheels via application of additive techniques -- Chapter with no title yet -- Design analysis of geometry of bevel gearwheels made by stamping method -- Features of designing the power elements of drives with high load-carrying capacity -- Analysis and prospects of application of bevel gears with variable gear ratio in foldable antenna mechanisms -- Vibration monitoring of mechanisms and aggregates with broadband spectrum of vibration -- Features of parameter selection for worm gears with steel gearwheels -- New geometry and geometric and kinematic parameters of gears and machine-tool gearing: concepts, terminology and development of the theory of kinematic generation of surfaces -- Capabilities of computer-aided design of worm-type gears by means of "SPDIAL+" software -- New approach to computer-aided design of gearbox systems: models and algorithms -- Numerical simulation of elastic and plastic contact of heavy-loaded spiroid gears -- Possibilities of cutting bevel gearwheel teeth by hobs -- Simulation of gears and gear trains within the MMS study course -- New approach to computer-aided design of gearbox systems: conception and development of information support.

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### Sommario/riassunto

This is the third book in a series devoted to gear design and production. Comprising papers by scientists and gear experts from around the globe, it covers recent developments in practically all spheres of mechanical engineering related to gears and transmissions. It describes advanced approaches to research, design, testing and production of various kinds of gears for a vast range of applications, with a particular focuses on advanced computer-aided approaches for gear analysis, simulation and design, the application of new materials and tribological issues.

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