

1. Record Nr.	UNINA9910733711903321
Titolo	Advanced manufacturing processes IV : selected papers from the 4th Grabchenko's International Conference on Advanced Manufacturing Processes (InterPartner-2022), September 6-9, 2022, Odessa, Ukraine / / edited by Volodymyr Tonkonogyi, Vitalii Ivanov, Justyna Trojanowska, Gennadii Oborskyi, Ivan Pavlenko
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-16651-5
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (xviii, 597 pages) : illustrations (some color)
Collana	Lecture Notes in Mechanical Engineering, , 2195-4364
Disciplina	670
Soggetti	Manufacturing processes Mechanical engineering Production engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Organization -- Honorary Chair -- General Chair -- Co-chair -- Steering Committee -- Program Committee -- Invited External Reviewers -- InterPartner Team -- Contents -- Design Engineering -- Mechatronic Transducer for Two-Level Adaptive Control of CNC Machines -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 3.1 Conclusions from the Review -- 3.2 Multi-level Control -- 3.3 Methodology for Programming Systems of the Upper and Lower Levels -- 4 Results and Discussion -- 5 Conclusions -- References -- Reverse Engineering and Design Process as Set of Procedures -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Design Measures to Reduce Specific Loads on Support Surfaces of Slide Bearings -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Automated Control of the Gear Profile for the Gerotor Hydraulic Machine -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Non-circular Wheels from Congruent Arcs -- 1

Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Dynamics of Clamping Pneumatic Cylinder for Technological Equipment -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Synthesis Structural Scheme Self-adjusting Floating Bollard Ship Gateway -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Manufacturing Technology -- An Increase in Heavy Machines' Accuracy by Controlling the Carrier System Parameters -- 1 Introduction -- 2 Literature Review.

3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Dimensional Accuracy of Porous Structures Manufactured Using Air Controller -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 4.1 Surface Quality -- 4.2 Dimensional Accuracy -- 5 Conclusions -- References -- The Efficiency of Adaptive Slicing Group of Rationally Oriented Products for Layered Manufacturing -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 4.1 Research of the Influence of 3D Model Orientation and Adaptive Slicing Parameters on the Number of Build Layers -- 4.2 Analysis of Effectiveness of Adaptive Slicing -- 4.3 Statistical Layered Analysis of Deviations from Correct Shape -- 5 Conclusions -- References -- Optimal Conditions for Deformation of Stamping-Drawing Process from Aviation Materials -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Manufacturing of the T-207 Prismatic Part Using Additive Manufacturing Technologies -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 3.1 Material and Main Methods of Obtaining a Blank -- 3.2 Correlation Analysis of Average Mechanical Processing Data -- 4 Results and Discussion -- 4.1 Integrity Analysis Based on SCH 15 Grey Cast Iron -- 4.2 Basic Parameters of Surface Roughness of Samples Made of Inhomogeneous Materials -- 4.3 3D Modelling of the T-207 Body Part Using CAD/CAM/CAE Technologies -- 5 Conclusions -- References -- Control of Thermomechanical Conditions for Working Surfaces of Products Made of Heterogeneous Materials at Finishing Operations -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References.

The Efficiency of Dynamic Vibration Dampers for Fine Finishing Boring -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- An Improved Model for Integrated Management Systems -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 4.1 Classification of Management Systems Requirements -- 4.2 Structure of the Integrated Management System -- 4.3 Discussion -- 5 Conclusions -- References -- Machining Processes -- Numerical Simulation of Grain Concentration Effect on Output Indicators of Diamond Grinding -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Wave Nature of the Abrasive Granules Action on the Surface of Parts During Vibration Processing -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Evaluation of a Decrease in Temperature Conditions upon Intermittent Grinding -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions

-- References -- Influence of Back Rake Angle of a Threading Cutter on the Drill-String Tool-Joint Pitch Diameter -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussions -- 4.1 Results of Calculations -- 4.2 Discussion -- 5 Conclusions -- References -- Features of Deformation Mechanics in the Deformation Zone During Deforming Broaching of Cast Iron Workpieces -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Numerical Simulation of Cutting Forces in Face Milling -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References. Optimization of the Cutting Process Based on Thermophysical Characteristics -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Advanced Materials -- Method for Evaluating the Resource of Diffusion Coatings Under the Fatigue Conditions -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Effect of Ti-Zr Ligature on Microstructure and Mechanical Properties of Automotive Silumin -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Synthesis of Copper Nanoparticles on Graphite Using Transient Glow-to-Arc Discharge Plasma -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Fatigue Strength of Steel Samples After Friction Treatment -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- New Complex Treatment to Ensure the Operational Properties of the Surface Layers of Machine Parts -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Functional Evaluation of Surface Texture in Laser Selective Melted Inconel 718 Alloy Parts Processed by Shot Peening -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 4.1 Surface Morphology -- 4.2 Surface Waviness and Bearing Ratio Parameters -- 4.3 Skewness and Kurtosis Assessment -- 4.4 Hardness and Hardening Intensity -- 5 Conclusions -- References -- Investigation of the Corrosion Resistance of Porous Permeable Materials with Protective Coatings -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology. 4 Results and Discussion -- 5 Conclusions -- References -- Quality Assurance -- Influence of Drill Microgeometry on the Quality of the Machined Fiberglass Surface -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- A General Approach for Tolerance Control in Quality Assessment for Technology Quality Analysis -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Application of Advanced Packaging Technology -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- The Advanced Technology of Economic Efficiency Evaluation -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Modernization of the Internal Audit Process Using a Risk-Based Approach at an Industrial Enterprise -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Improvement of Operational Parameters for High-Precision Tribosystems -- 1

Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- The Taxonomy Approach for Engineering Students' Outcomes Assessment -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- A Universal Quality Control System on Machine-Building Enterprises -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 4 Results and Discussion -- 5 Conclusions -- References -- Mechanical Engineering -- Vibration Damping of Lifting Mechanisms -- 1 Introduction -- 2 Literature Review -- 3 Research Methodology -- 3.1 Synthesis of Design Schemes of Lifting Mechanisms.

Sommario/riassunto

This book offers a timely snapshot of innovative research and developments at the interface between manufacturing, materials and mechanical engineering, and quality assurance. It covers various manufacturing processes, such as grinding, boring, milling, broaching, coatings, including additive manufacturing. It focuses on cutting, abrasive, stamping-drawing processes, shot peening, and complex treatment. It describes temperature distribution, twisting deformation, defect formation process, failure analysis, as well as the convective heat exchange and non-uniform nanocapillary fluid cooling, highlighting the growing role of quality control, integrated management systems, and economic efficiency evaluation. It also covers vibration damping, dynamic behavior, failure probability, and strength performance methods for aviation, heterogeneous, permeable porous, and other types of materials. Gathering the best papers presented at the 4th Grabchenko's International Conference on Advanced Manufacturing Processes (InterPartner-2022), held in Odessa, Ukraine, on September 6–9, 2022, this book offers a timely overview and extensive information on trends and technologies in manufacturing, mechanical, and materials engineering, and quality assurance. It is also intended to facilitate communication and collaboration between different groups working on similar topics and to offer a bridge between academic and industrial researchers.
