

Table of Contents

Preface

| | |
|--|-----|
| Technology and Characteristic of Wool Ring Spun Compound Yarn B. Zhao | 1 |
| A Co-Evolutionary Contract Net-Based Framework for Distributed Manufacturing Execution Systems R. Wang | 6 |
| The Research on Cutting Force in High-Speed Milling Process of Aluminum Alloy Impeller Y.B. Liu, C. Zhao, X. Ji and P. Zhou | 11 |
| Research of Asynchronous Multi-Type Sensors Data Fusion Y. Qin, X.H. Wang, M.J. Feng, Z. Zhou and L.J. Wang | 16 |
| Researcher of Region Growing Medical Image Segmentation Based on Adaboost Algorithm P. Wang, X.F. Ye, S.W. Yin, S.C. Kang and J.L. Xin | 21 |
| Trail Investigation on Chip of High-Speed and Dry Cutting on Hardened Steel with PCBN Tool Z.H. Qing, D.W. Zuo, F. Xie and C.G. Zhang | 26 |
| Simulate Measure for Spring Back of Autobody Panel's Edge B. Liu, M.J. Liu, J.X. Jiang and Y.Q. Zhou | 31 |
| Reconfigurable Clamping Device Based on Memory Alloy, Orientation Disc, Majority Column and Telescopic Pole Z. Chen and M.D. Wang | 35 |
| Analysis of Mechanical Characteristics and Structural Options of Micro-Milling Cutter L.J. Zhu, W.Z. Lu, D.W. Zuo and F. Xu | 40 |
| Study on Predictive Control of Ship Steering Gear System G.X. Yang and S.X. Yu | 45 |
| Research of Hydroforming Technology for Special-Shaped Cross-Section Pipe S.G. Hu | 51 |
| Design of CNC Grinding Machine Especially for C.V Joint Inner Race Spherical Raceway Processing L. Liu | 55 |
| Passivation of the Fe-Based Bulk Amorphous Alloy in HCl Solution H.X. Xiao and J.P. Zhang | 59 |
| Simulation of Temperature Field during 7022 Al Alloy Friction Stir Welding process Based on Dual-Source D.L. Shao, W.Z. Lu, D.Z. Wen, H.F. Wang and M.M. Huang | 63 |
| Study on Al-4.5Cu-3Ce Alloy Semi-Solid Slurry Prepared by Slope Vibration Casting R.X. Yi, S. Xie, X.Q. Zheng, Z. Gao, X.Y. Guo and X.L. Pan | 68 |
| Precision Control Research on DACS-Based Modern Digital Shipbuilding Technology G.X. Liu | 72 |
| Contact Stress Analysis of NCD Coating on Roll Ball of Ball Bearing J.J. Yuan, W.Z. Lu, L.J. Ma, D.W. Zuo and F. Xu | 77 |
| Low Cycling Thermal Fatigue of Large-Scale Marine Diesel Engine Piston R. Xie | 82 |
| Study on Remote Monitoring and Control System for Construction Vehicle S.L. Song, S.J. Huang, F.T. Su, Q. Zhang and R. He | 87 |
| Research on New Structural Quay Container Crane S.P. Liu | 91 |
| Study on the Microstructure and Properties of Suspensory Wire in DVD CD-ROM Head L.Y. Wu, Y.L. Wang and J. Deng | 95 |
| Investigation of the Precipitation in Mg-Zr Alloys G.B. Lin, Z.D. Wang, Z. Zheng and L.F. Liu | 99 |
| The Optimization of Cutting Parameter of Machining the Small Diameter Deep Hole on Austenitic Stainless Steel Z.R. Huang | 103 |

| | |
|--|-----|
| An Analysis of Drawing Process in Stamping Die Design for the Wheel Hub B. Liu | 107 |
| Effects of Residual Stress on Interfacial Bonding Strength of Zinc-Plated Film X.F. Wang | 112 |
| Friction and Wear of Polished Single Crystal Silicon at Different Area S.X. Yu, D.W. Zou, X.L. Zhu, Y.L. Sun and L. Zhou | 117 |
| Numerical Simulation of the Machining Distortion of Aircraft Aluminum Part Caused by Redistribution of Residual Stress Y.W. Liu | 122 |
| Study on Fuzzy D-S Evidence Theory Mathematics Foundation Based on the Form Prototype Z. Gao and X.M. Ji | 126 |
| Study on the Influence of Internal Flow Field in Pipeline Elbow by the Guide Plate L.Y. Wu, Y.L. Wang, Z.D. Wang and M.W. Chen | 130 |
| Research on Electrical Resistivity of Wood Dust H.D. Zhou, Z.N. Liu and X.B. Lei | 134 |
| Primary Research of Bionic Design on Tools with Mouthpart of Larvae Long Horned Beetles K. Zhang, B.Z. Ji, S.W. Liu and Z.H. Qing | 139 |
| Adsorption Analysis of Cr(VI) by Fly Ash Composite Material in Aqueous Medium H.Q. Xue, Z.Q. Jing and Z. Wang | 143 |
| Research of Controlling Heat Treatment Deformation for Powder Metallurgy Mechanical Structural Parts Y.B. Yan, X.P. Shen, D. Zhang and M.W. Li | 148 |
| Influence of Vacuum Heat Treatment on Sintered W-Cu Alloy Performances Y.B. Yan, X.P. Shen, M.W. Li and D. Zhang | 153 |
| Design on Numerical Control System of Glass Cutting Machine Based on PC W. Wang | 157 |
| Fast Frequency Hopping Signal Generator Based on DDS Y.H. Du and Q.R. Ouyang | 162 |
| The Optimization of Material Thickness for Neutron Shielding with Monte Carlo Method C. Chen and M. Wang | 166 |
| A Method to Measure Rotary Speed and Torque Using JC Sensors Q. Wang, S.L. Song and W. Zhao | 170 |
| Different Evaluation Approaches of Confusion Network in Chinese Spoken Classification L. Zhang, J.X. Chang and X.Z. Xiang | 174 |
| Study on Mine-Used Battery Locomotive Charging System L.P. Xuan | 180 |
| Steel Wire Rope Section Damage Detection System Based on Wavelet Multi-Resolution Analysis L.P. Xuan | 184 |
| Three-Level SVPWM Controller Design Based on FPGA G.X. Chang, W. Li and X.L. Liu | 188 |
| Phase Error Immunity Optical Measurement System W.T. He, X.L. Meng and C. Zhao | 194 |
| A Stable Least Squares Ellipses Fitting Algorithm Based on Zernike Moments X.L. Meng, W.T. He and C. Zhao | 199 |
| Accuracy Verification Method about Optical Three-Dimensional Measuring Instrument W.L. Zhao, C. Zhao, J.T. Cheng and H.Y. Yue | 204 |
| Contrast Research on Cutting Forces in 4-Axis and 5-Axis Blade Machining Process T. Wu, C. Zhao, G.B. Bu and D.W. Zuo | 209 |
| A Method to Center Extraction of Reference Point Algorithm in Reverse Engineering X.Q. Che, J.T. Cheng, S.B. Xiao and J.J. Ma | 214 |
| Optimal Design of Flexible Manufacturing System Based on Optical Measurement Principle S.S. Wang, W.T. He, R.B. Liu and J.T. Cheng | 219 |
| Material Removal for Modal Effect on Impeller Blades by Finite Element Analysis W.H. Wu, C. Zhao and G.B. Bu | 223 |

| | |
|--|-----|
| Rotation Inertia Measurement Device Design of Winged Rigid Body Based on TRIZ Conflict Resolving Matrix | |
| H.Y. Chi and H. Cao | 228 |
| Development of NC System of the 3-PUU Parallel Machine Tool Based on PMAC | |
| H.P. Lin and Y.M. Xu | 233 |
| Finite Element Analysis and Dynamic Testing for Hard Gear Cutting by Gear Hobbing Machine | |
| M.H. Liu and X.L. Liu | 238 |
| Design and Stimulation of Hydraulic Servo System for Vehicle Test Equipment for Rubber Shock Absorber | |
| C.L. Zhu, W.Z. Jin and W.S. Gui | 243 |
| Research on Chip Breaking Mechanism of High-Temperature and High-Strength Steel 2.25Cr-1Mo-0.25V | |
| E.L. Liu, Y.F. Li, X.Z. Wang, F. Xiao and X.L. Liu | 248 |
| Research on the Machinability of Hydrogenated Cylindrical Shell Materials (2.25 Cr-1Mo-0.25V Steel) | |
| H.P. Zhang, F.G. Yan, Y.X. Wang, Y.S. Zhai and X.L. Liu | 253 |
| Applied Research of the Electric Spindle Technology on Sub-Nanometer Crusher with Cellulosine | |
| L.Y. Yang | 258 |
| High-Speed Milling Toolpath Planning for Aviation Engines Impeller Using POWERMILL Software | |
| X.F. Wang, C.T. Sun and H.J. Sun | 262 |
| Finite Element Analysis of Cold Extrusion Combination Mold Interference Fit | |
| Y. Zhang and Q.G. Huang | 266 |
| Coagulant Prepared by Gangue and its Application in Treatment of Coal Washing Wastewater | |
| K.J. Luo and G.M. Ren | 270 |
| Development and Oxidation of RexOy-Modified Aluminide Coating | |
| J.C. Zhang and Y.B. Zhou | 274 |
| Design and Research on Two-Degree of Freedom Spherical Gear | |
| C.S. Yang, S.Y. Zhao and S.W. Song | 279 |
| An Algorithm for Computation of Radial-Harmonic-Fourier Moments | |
| Y.J. Jiang and Z.L. Ping | 284 |
| Applied Research on Synesthesia Theory in Industrial Design | |
| W. Wang and D. Su | 289 |