

Table of Contents

Preface and Committees

Chapter 1: Researching and Design of Manufacturing Equipments

Constant Pressure Control for Energy Efficient Lathe Turret J.C. Renn, W.J. Hsu and Y.R. Li	3
On the Kinematic of Generalized Oldham Couplings W.H. Hsieh and C.H. Tsai	10
Development of a Single Pulse Micro EDM System and to Manufacture Micro Spherical Probe Used in Micro CMM C.L. Chu and H.C. Chen	16
Polymer-Based Capacity Micromachined Ultrasonic Transducer for Surface Roughness Measurement G.T. Bui, Y.Z. Chen and D. Pang	22
Enhanced Grey Variable Structure Control Methodology of Parallel-Connected DC-AC Inverters for Ultra-Precision Machining E.C. Chang, H.L. Cheng, C.H. Chang, J.W. Liu, C.H. Chuang, P.S. Wang and K.Y. Liao	29
Interference of Die Equipment for Hexagonal Flange Nut Forming Process Y.T. Chou, S.Y. Hsia and P.Y. Shih	36
Stress Analysis of Forging Dies for Inverse Extrusion K.H. Chang, C.W. Shih and G.Y. Tzou	44

Chapter 2: Technologies of Mechanical Processing

The Effects of Grain Size and Lubrication on Micro Curl Forming Process of Metallic Thin Sheet C.C. Chen and H.L. Ho	55
Study of 6061 Aluminum Alloy Milling Using Four-Blade Face Cutter D.C. Chen, C.S. You, C.A. Tu and C.H. Ni	62
Effects of Process Parameters on the Formability of Miniature Layered Cups T.C. Chen and M.L. Xu	69
Effect of Grain Size on Micro Deep Drawing of SUS304 Stainless Steel Square Cup C.C. Chang and H.S. Chen	77
Bulging Deformation Prediction and Experimental Verification of Bonded Double-Layer Clad Cylinder in Rotating Compression S.C. Weng, B.L. Kuo and G.Y. Tzou	83
Finite Element Modeling of Grain Size Effect on the Mechanical Properties and Deformability of Titanium Alloy in Equal Channel Angular Pressure C.P. Jiang and Z.H. Huang	91
Cold Bending a Ni-Ti Shape Memory Alloy Wire K. Fann and P.M. Huang	98
Microstructure Prediction by Finite Element Analysis during Hot Rolling of Magnesium Alloy Sheets Y.M. Hwang and T.L. Yeh	105
Accuracy of Additive Manufactured Parts T.R. Neitzert	113

Chapter 3: Materials and Technologies for Microelectronics and Surface Engineering

Characteristics of a System in a Package with Silver Wires Y.L. Lai and W.J. Chiang	121
---	-----

Study on Anti-Adhesion Layers Using AFM for Nanoimprint Process	
C.T. Pan, T.L. Yang, C.H. Chao, Z.K. Wang and P.R. Ni	128
Preparation and Properties Investigation of Polyetherimide/Bamboo Charcoal Composites with High Dielectric Constant	
C.C. Wu, C.C. Diao, C.F. Yang, Y.P. Huang and G.Y. Tzou	134
Deposition of Boron Nitride Films by Filament-Assisted CVD Using Tris(Bimethylamino)Borane Precursor	
Y. Jin, S. Yasuhara, T. Shimizu and M. Yang	142
A Plasma Spray Coating for Titanium Particles Using Software Simulation	
T.C. Li and J.F. Lin	149
Manufacturing of a Linear Variable Filter for Spectral Order Sorting	
C.H. Ko, K.Y. Chang, Y.M. Huang, J.R. Tsai and B.J. Wang	156