Table of Contents

Preface, Committees, Sponsors

Chapter 1: Research and Design of Materials Machining Technologies

Study on High-Speed Milling of Steam Turbine Blade Materials - Differences in Cutting Characteristics of an Unforged Ingot and a Forged Part of Stainless Steel
T. Kimura, T. Sawa and T. Kamijyo 3

Roller Burnishing Method with Active Rotation Tool - Better Surface Finish than Conventional Roller Burnishing
M. Okada, Y. Miyagoshi and M. Otsu 9

Relationship between Cutting Heat and Tool Edge Temperature in End Milling of Titanium Alloy

Influence of Micro End Mill Tool Run-Out on Machining Accuracy

Influence of Scratch Marks on Undeformed Chip Thickness in Ultra-Precision Cutting of Al-Mg Alloys

High Aspect Ratio Thin Rib Shape Processing of Carbon Material for Electrical Discharge Machining Molds
T. Fukao, Y. Masu, T. Yasuki, T. Inoue and M. Hagino 33

On the Formation Mechanisms of Adhering Layer during Machining Metal Material
X.Q. Song, Y. Takahashi, W.M. He and T. Ihara 39

Roundness in Drilling of Low-Rigidity Workpiece
M. Sato, A. Fukuma, K. Yamamoto and T. Matsuno 46

Investigation of Grinding Fluid for Prevention of Chip Adhesion in Miniature Drilling of Glass Plate Using Electroplated Diamond Tool
K. Honda, A. Mizobuchi and T. Ishida 52

Wet Core Drilling of CFRP with an Electrodeposited Diamond Core Drill - Effects of Cutting Conditions on Chip Evacuation and Core Jamming
Y. Kojima, R. Tanaka, Y. Yamane, K. Sekiya and K. Yamada 58

Property and Recyclability Change of Corrosion-Inhibition-Improved Amine-Free Water-Soluble Cutting Fluid with Repeated Recycling
K. Yamaguchi, K. Ogawa, T. Fujita, Y. Kondo, S. Sakamoto and M. Yamaguchi 65

Deposition of a Diamond-Like-Carbon Film by Ion Plating and Investigation on its Adhesiveness
X. Zhu, K. Kubo, H. Toyota, S. Nomura, Y. Iwamoto and P. Gautama 70

Basic Characteristics of In-Liquid Plasma Jet and Electrode Damage
X. Zhu, T. Satoh, H. Toyota, S. Nomura, Y. Iwamoto and P. Gautama 76

Micro Milling on Thin Wire
M. Serizawa and T. Matsumura 81

Influence of Coolant Application Direction on the Cutting Performance of Ceramic Tool in High-Speed Air-Jet-Assisted Machining of Inconel 718
T. Obikawa and M. Yamaguchi 87

Study on Tool Wear In-Process Estimation for Ball End Mill Using Rotation Control Air Turbine Spindle

Turning of Titanium Alloy Using Near-Dry Methods with MQL, Coolant Mist and Hybrid Mist Supplies
T. Wakabayashi, K. Yamada, S. Koike and T. Atsuta 101

Deep Hole Machining with a Small Diameter Drill and Ultrasonic Vibration
Y. Masu, T. Fukao, T. Yasuki, M. Hagino and T. Inoue 107

Difference of Feed Marks in Cutting Fluids when Turning Stainless Steel
T. Kitamura, R. Tanaka, Y. Yamane, K. Sekiya and K. Yamada 111
Study on Clarification of Large-Area EB Irradiation Phenomenon by Electron Track Analysis
Y. Kimura, T. Shinonaga and A. Okada

Efficiency Investigation of Removal of Loading Carbon Chips on Wheel Surface Using Dry Ice Blasting
Y. Ohta, S. Murakawa and K. Ohashi

Influence of Nozzle Jet Flushing on Wire Breakage in 1st-Cut Wire EDM from Start Hole
A. Kawata, A. Okada, Y. Okamoto and H. Kurihara

Study on Analysis of Cutting Mechanism of Ball End Mill for Concave and Convex Spherical Surface Using 3D-CAD
T. Fujita, R. Kuromi, H. Usuki and M. Hagino

Effects of Tool-Edge Form during the Drilling of CFRP
M. Hagino, T. Inoue, T. Fujita and H. Usuki

The Investigation of Electrochemical Slurry Jet Micro Machining on the SKD11 Mold Steel
Z.W. Fan, L.W. Hourng, T.Y. Chen and H.P. Tsui

A Research of the Precision of Titanium Sheet Formed by Hot Incremental Sheet Forming Method
K.D. Le, T.H. Nguyen, N.H. Tran, T.S. Le, H.B. Nguyen and T.N. Nguyen

Generation of the Anti-Twist Crowned Helical Gear by Modifying the Gear Rotation Angle in the Hobbing Process
R.H. Hsu, Y.R. Wu and S.S. Chen

The Effect of Heating to the Formability of Titanium Sheet by SPIF Technology
T.H. Nguyen, K.D. Le, N.P. Nguyen, H.B. Nguyen, T.N. Nguyen and T.Y. Vo

Wear Characteristics of Coated Carbide Tools in the Face Milling of Ductile Cast Iron
I. Martinez, R. Tanaka, Y. Yamane, K. Sekiya, K. Yamada, T. Ishihara and S. Furuya

A Standard Procedure for Development Performance Map of CNC Machining Centers by Using Double Ball-Bar
S. Phankhoksoong, A. Pramuanjaroenkij, T. Ngamvilaikorn and C. Chungchoo

A New Procedure for Determining Minimum Sampling Points for Tolerance Evaluation of High Precision Mechanical Parts
S. Phankhoksoong, A. Pramuanjaroenkij, T. Ngamvilaikorn and C. Chungchoo

Chapter 2: Materials Properties, Technologies of Production and Synthesis

Production of Cemented Carbide-Alumina Composite Material by Wet-Shaping Process
A. Ikuta, H. Kyogoku and H. Suzuki

Effects of C and NbC Additions on the Microstructure and Mechanical Properties of Binderless WC Ceramics
A. Nino, K. Morimura, S. Sugiyama and H. Taimatsu

Epitaxial Growth of Diamond by In-Liquid Plasma CVD Method
P. Gautama, H. Toyota, X. Zhu, Y. Iwamoto, S. Nomura and S. Mukasa

Synthesis of Single-Wall Carbon Nanotubes by In-Liquid CVD

Prediction of Static and Dynamic Mechanical Properties of GFRTCP Product through Injection Molding
K. Furuya, M. Nikawa, N.B. Tuyen, Y. Nakamura, R. Ueno, A. Chiba, K. Sakurai and Y. Matsumura

Experimental Analysis on Surface Profile of Sapphire Wafer after Polishing by Chemical Mechanical Polishing
Z.C. Lin, W.S. Huang and H.Y. Ding

Modeling Strength and Stress Diffusion in Hip Prostheses with Nano-Reinforced Composites
C.Y. Chung

Applicability of Interrupted Micro Cutting Process “Tilling” as Surface Texturing
H. Usami, T. Sato, Y. Kanda and S. Nishio
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects of Machining History on Tribological Properties of Bronze Containing Micro-Sized Sulfide</td>
<td>Y. Hirai, K. Ogawa, T. Sato and H. Usami</td>
<td>246</td>
</tr>
<tr>
<td>Stress Analysis for a Substrate Holder Module and Thin Films Grown in an MOCVD Reactor</td>
<td>S.W. Guo and C.K. Lin</td>
<td>257</td>
</tr>
</tbody>
</table>