

Table of Contents

Preface

Chapter 1: Coatings and Surface Treatment

Effect of Mechanically Created Pits Pattern for Direct Diamond Deposition on Stainless-Steel Surface	
R. Shiraishi, H. Toyota, H. Goto, X. Zhu, Y. Iwamoto and K. Okamoto	3
Low Tool Wear Cutting Method Using H₂O Radical	
H. Toyota, R. Shiraishi, H. Goto, X. Zhu, Y. Iwamoto and S. Tamura	15
Electropolishing Research for Stainless Steel Surface Finishing under Vacuum Status	
H.P. Tsui, A.C. Wang, B.H. Yan and C. Yang	25
Edge Treatment by Tip-Burnishing Process with an Active Rotary Tool	
M. Okada, S. Yoshita, M. Nikawa and N. Hasegawa	33
Electropolishing with Circulated Electrolyte for Improving Surface Finish of Brass	
A.R. Safaruddin, U.A. Salim, S. Suyitno, M. Mahardika and B. Arifvianto	41
Low Reflection-Loss Thermal Barrier Coating on Hastelloy C276 for Radio Control Rocket Tip Nosecone Using Yttria-Stabilized Zirconia (YSZ) at Extreme Temperature	
W. Widyastuti, R.A. Wahyuono, R. Fajarin, S. Sulistijono, A.N. Hakim, L. Mariani, H. Purnomo and I.F.H. Islam	49
Increasing Hardness and Wear Resistance of SKD61 Steel by Using Plasma Nitrocarburizing Process	
R. Setiawan, T. Sujitno, E.S. Siradj, S. Suprpto and H. Suprihatin	61
Deposition of Multi-Ceramic Aluminium-Matrix Composite Coating by Direct Laser Deposition	
K.S. Al-Hamdani, M. Al-Thamir, M.J. Sahi and A.A. Abed	69

Chapter 2: Metals Machining

A Research on the Enhancing of the Formability of Stainless-Steel Sheet Sus304 by Multistage Single Point Incremental Sheet Forming (MSPIF) Technology	
K.D. Le, H.H. Ho, T.N. Nguyen, T.L. Tran, T.N. Le and D.H. Vu	81
A Study on a Novel Process Combines Cutting and Joining by an Automatic Lathe	
H. Tanaka	91
Microstructure Characterization and Mechanical Properties of Laser Welded Super High Strength QP980 Automotive Steel	
L.L. Zhao, Y. Lu, R.J. Xue, Q. Zhang, Y.Z. Gao, B.G. Nian and C. Ma	99

Chapter 3: Synthesis and Properties of Special Nanomaterials

Synthesis of Single Nanometer-Sized Au Nanoparticles Coated with Silica Toward X-Ray Contrast Agent	
T. Sakamoto, N. Yamauchi, T. Takase, M. Kimura, K. Gonda and Y. Kobayashi	119
Biosynthesis and Characterizations of Gold Nanoparticles (AuNPs) Prepare Using Different Age Classes of <i>Marphysa moribidii</i> (Polychaetes) Extract as Biogenic Reducing Agents	
N.A. Mocktar, M.N. Mustafa, N.A. Harun, W.I.W. Ismail, M. Maulidiani and I. Idris	129
Physicochemical Properties of Silk Fibroin Electrospun Membranes Functionalized with Gold Nanoparticles and Choline Based Bio-Ionic Liquids	
W. Agudelo, Y. Montoya, A. Garcia-Garcia and J. Bustamante	137
The Influence of Silica Dioxide in the Electrocatalytic Performances of rGO/Fe₃O₄ as Oxygen Reduction Electrocatalyst	
F. Yusoff and K. Suresh	143
Carbon-Based and Silicon-Based Nanomaterials for Enhanced Structural Adhesives	
M. Al-Zu'bi, L. Anguilano and M. Fan	151