

Table of Contents

Preface and Organization Committees

Chapter 1: Applied Mechanics, Fluid and Solid Mechanics

Modified Building Shapes for Reducing Vibrations of Tall Building K.P. You, Y.M. Kim and J.Y. You	3
Interference Effect Tall Building to Fluctuations Wind Load K.P. You, Y.M. Kim and J.Y. You	9
Second-Order Convergence and Unconditional Stability on Crank-Nicolson Scheme for Burgers' Equation Q. Zheng, L. Fan and G.Y. Sun	15
Risk Assessment Method and Protection Goals of High Concrete Gravity Dam Subjected to Far-Field Underwater Nuclear Explosion L. Lu, X. Li and J. Zhou	21
Three-Dimensional Hydrodynamic Lubrication Analysis of Cylinder Liner-Piston Ring S.F. Zhang, S.H. Cao and J.J. Xu	27
A Numerical Analysis of the Interaction between the Piston Oil-Film and the Elastic Structure in an Internal Combustion Engine M. Redha, K. Ahmed, K. Abdelkader and K. Benyoucef	32
Influence Analysis of the Vibration Frequency to the Dynamic Response of Deepwater Drilling Casing String K.H. Su, J.L. Liu, C.W. Qi and L. Shi	39
Parametric Study of Air Flow Shape in Saddleback Double-Cladding Ventilated Roof on Input Velocity T. Bartoš and J. Pěňčík	45
Method for Analysis of Dynamic and Strength in Internal Combustion Engine Crankshaft B.B. Han and H.X. Zhang	50
Double Crossed Step-Down-Stress Accelerated Life Testing for Pneumatic Cylinder Based on Cumulative Damage Model J. Chen, J. Li, D.Y. Wang, D.L. Fan and X.Y. Qi	56
Crane Basic Boom Static Analysis Based on ANSYS J. Lian and J. Li	64
Design and Simulation Study of a Certain Landing Gear Loading Simulation System J.G. Ma, Z.Z. Wu, H.R. Guo and J. Li	69
Research on Electrical Transmission System with Hydraulic Coupler M. Su, Z.P. Xi, D.M. Zhu, Z.C. Gu and H. Wang	77
A Study on Penetration Characteristics Test and Analysis of Tungsten Penetrator S.W. Lee, Y.S. Lee, J.H. Kim, Y.W. Bae and J.M. Park	83
Comparative Study on the Reynolds Shear Stress in CTAC Drag-Reducing Flow by Experiment and DNS W.G. Gu and D.Z. Wang	89
Simulation of the Influence of Air Preheat Combustion on the Temperature of Propane Turbulent Flame Using Probability Density Function Approach and Eddy Dissipation Model Elwina, Yunardi, Y. Bindar and Syukran	95
The Existence of Retrograde Orbits for the Four-Body Problem with Various Choices of Masses C. Li	101
Characteristics for a Flow Past a Circular Cylinder with Two Types of Radial Disturbances at $Re=100$ L.M. Lin, X.F. Zhong and Y.X. Wu	107
The Study on Vibration for Integral Reciprocating Compressors J.H. Liu and G.C. Hu	115

DEM Study on Energy Allocation Behavior in Crushable Soils J.F. Wang and R.Q. Huang	119
Investigation of the Deformable Behavior of Loose and Dense Sand through DEM Y. Yang, R.Q. Huang, Y.M. Cheng and J.F. Wang	124
The Pre-Twisted Thin-Walled Beam Element Stiffness Matrix Considering the Saint-Venant Warping Deformation C.H. Chen and Y. Huang	129
Uniform Second-Order Hybrid Schemes on Bakhvalov-Shishkin Mesh for Quasi-Linear Convection-Diffusion Problems Q. Zheng, X.Z. Li and Y.F. Liu	135
Thermo-Mechanical Couple Analysis of Cylinder Head Joint with Quadratic Contact G.C. Hu and J.H. Liu	141

Chapter 2: Materials Science and Technology

Melt Time-Temperature Treatment Affecting the Amorphous Ribbons' Properties of the HTS-42 Solder V. Tsepelev, V. Konashkov, V.V. Vyukhin, A. Povodator and A. Latipova	147
A Study on Corrosion Wear of Cold Rolling Work Roll W.H. Sun, H.C. Li and A.K. Tieu	152
Study of Wear Resistance of Sintered Powder Tool Materials A.A. Vereschaka and M.S. Migranov	159
Carbide Tools with Nano-Dispersed Coating for High-Performance Cutting of Hard-to-Cut Materials A.A. Vereschaka, A.S. Vereschaka and A.I. Anikeev	164
Studies on Exciting the Activity of Waste Glass Powder by Hydrothermal Activation Q.Q. Kong, G.J. Ke and D. Wang	171
Tensile Properties of Untreated and Treated Long Kenaf Fiber/Polyester Composites N. Hamzah, E.Y.M. Taib and M.A.A. Bakar	179
Fracture Toughness of Treated OPEFB Filled Polymer Nanocomposites at Different Clay Loading N.A.M. Fadzil, A. Kalam, A. Jumahat, Y.M. Taib and N.W.A. Razak	184
Effects of Oil Palm Empty Fruit Bunch (OPEFB) Fibre Size on Fracture Toughness of OPEFB Filled Polymer Nanocomposite R. Kamarudzaman, A. Kalam, N.N. Ahmad, N.W.A. Razak and Z. Salleh	189
Manufacturing of Zirconia (ZrO₂) Nanoparticles in Sodium Dodecyl Sulfate Surfactant Solution Using Laser Ablation Technique A.K. Mahmoud	194
Mathematical Model to Evaluate Wear Rate of Graphite as Sealing Materials Y.W. Kim, J.H. Kim, B.H. Seo, H.S. Choi, S.H. Park and H.K. Lee	200
Preparation of Ni-Doped MoS₂ Microsphere and its Superior Electrocatalytic Hydrogen Evolution Ability Y.C. Xie and Y.M. Li	206
Effects of Temperature and Forming Speed on Square Cup Drawability of AZ31 Magnesium Alloy Sheet T. Katahira, T. Naka, Y. Nakayama, R. Hino and F. Yoshida	211
Performance of Cellulose Membrane from Bacterial Cellulose in Fermented Coconut Oil Treatment Faridah, Elwina, Helmi, M. Sami and Yudistira	215
The Novel Polishing Characteristics for GaAs Based Diode Lasers Wafer Z.J. Li, X.G. Zheng, T. Li, Y. Qu, B.X. Bo, G.J. Liu and X.H. Ma	221
The Reason of Sign-Variable Thermoelectric Effect in Fe₈₆Mn₁₃C Alloy L.I. Kveglis, R.B. Abylkalykova, A.V. Djess, M.N. Volochev and A.G. Cherkov	226
Abnormally Fast Migration of Substance at Shock Loadings R.B. Abylkalykova, L.I. Kveglis, A.A. Kalitova and F.M. Noskov	231
Evolutionary Creation of New Molecules P. Osmera and I. Rukovansky	235

A Study on Dynamic Characteristics of Hyper-Elastic Shock Programmer with Truncated Conical Shape	
T.H. Yang, Y.S. Lee, Y.J. Kim, T.H. Kim, C.W. Shul, M.S. Yang, C.H. An and G.S. Lee	240
Estimation of Master Curves of Relaxation Modulus and Tensile Properties for Solid Propellant	
B.W. Seo and J.H. Kim	247
Effect of Chemical Treatment on Mechanical Properties of Municipal Solid Waste and Banana Fiber Reinforced Polymer Composites	
J.R. Aseer, K. Sankaranarayanan and P. Jayabalan	253
The Study of Waste-to-Energy Plant Combustion Characteristics Based on Computational Fluid Dynamics	
G.C. Hu	259
Multiscale Model of Shape Rolling Taking into Account the Microstructure Evolution - Schedule Design by Finite Element Method	
L. Lach and D. Svyetlichnyy	263
Broad-Band Electroluminescence from Highly Stacked InAs Quantum Dot at Telecom-Band	
K. Akahane, N. Yamamoto and T. Kawanishi	269

Chapter 3: Analysis and Design of Machine Parts and Mechanisms for Industry

Design Optimization of an Industrial Muffler by Taguchi Method	
T.C. Yang and S.S. Tsai	277
Artificial Immune Systems with Negative Selection Applied to Health Monitoring of Aeronautical Structures	
F. Parra dos Anjos Lima, F.R. Chavarette, A. dos Santos e Souza, S. Silva Frutuoso de Souza and M.L. Martins Lopes	283
Research on Dynamic Characteristics of Anti-Reverse Valve for Hydraulic Excavator Rotary Motor	
Y.L. Luo, C.G. Xu and Q.Y. Zhang	290
The Unsteady Flow and Forced Response for a Variable Nozzle Turbine	
Y.X. Liu, D.Z. Lao, Y.H. Liu, C. Yang and C.C. Ma	296
Research on the NNARX Model Identification of Hydroelectric Unit Based on Improved L-M Algorithm	
Z.H. Xiao, Z.P. An, S.Q. Wang and S.Q. Zeng	304
3D Simulation Training Systems on Ship Lift of Hydropower Station	
Z.H. Xiao, Y.F. Chen, L.B. Song and X.Y. He	310
A Spiral Actuated Micro In-Pipe Robot for Pipes Diameter 15mm	
T. Jiang, Z.R. Luo and J.Z. Shang	315
A Study on Analysis Method Considering Camber for the Carbody Deflection of the Urban Transit Vehicles	
J.D. Chung and J.S. Pyun	323
Algorithm of Marriage in Honey Bees Optimization Coperate with Linear Method	
C.G. Yang and Q.G. Liu	330
Generation of Uniform Diameter Micro-Bubbles Using a Piezo-Vibration Assisted Capillary Nozzle	
S. Kurumi, K. Suzuki, M. Shiono, H. Miura, T. Ono, M. Tanabe, K. Yoshida, M. Kimura, H.S. Lee and Y. Umemura	338
The Application of Data Fusion on Fault Diagnosis in Motor Coil	
J. Chen, K.R. Zhang, W.G. Zhu, Y. Wang and J. Zhao	342
The Design Method of V-Tooth Coupling	
D.C. Lei and J.Y. Tang	347
Gear Dynamic Transmission Error Testing	
D.C. Lei, J.Y. Tang and J.J. Tang	352
Effects of a Keyway Broaching Machine Craft Parameters and Structural Parameters on Keyway Broaching Precision	
S.H. Di and J.Y. Tang	358

A Design Method of Rain Test Device Based on Water Drop Motion Simulation H.T. Zeng, L.L. Lin, C. Feng and Z.H. Xiao	363
Virtual Geometrical Data Definition of Part with Unspecified Shape K. Monkova	369