

Table of Contents

Preface

Fracture Toughness and Charpy Impact Test of MIM Steels and Correlation of Results by K_{IC}- CVN Relationships R. Tomášek, V. Mareš and L. Horsák	1
Stress Distribution in Front of the Crack - Analytical Solutions vs. Numerical. Can the Differences be Minimized? A. Neimitz and S. Lipiec	7
Engineering Version of Local Approach to Fracture and its Application for RPV Lifetime Prediction S. Kotrechko, G. Zimina, V. Revka and I. Dlouhý	15
Effect of Heat Treatment at $(\beta+\gamma)$ Two Phase Region on Fracture Toughness in TiAl Intermetallic Compound M. Hasegawa, T. Inui and I. Dlouhý	21
Microstructural Change and Fracture Behavior under Different Heat Exposure Conditions on Thermal Barrier Coatings Deposited on TiAl Intermetallic Compound M. Hasegawa, K. Hirata and I. Dlouhý	27
Fatigue Crack Growth Thresholds under Negative Stress Ratio for Aluminium Alloys K. Hasegawa, S. Usami and B. Strnadel	34
Novel Methods for High-Cycle Fatigue Life Determination P. Konopík, R. Procházka, M. Rund and J. Džugan	40
Cyclic Plastic Properties of a Lead Free Solder D. Antoš, R. Halama and M. Bartecký	46
Corrosion Properties of ECAP Titanium with Bioactive Oxide Coating in Physiological Solution J. Hlinka, L. Dluhoš and K. Dědková	52
Influence of Passivation on Wettability of AISI 304 Steel and its Corrosion Properties in Solution of Sodium Hypochlorite J. Hlinka and S. Lasek	58
Crystal Orientation Analysis on Stress Corrosion Cracking Facets in Austenitic Stainless Steels R. Wakinaga, N. Koga, O. Umezawa, M. Morita, S. Motoda and T. Shinohara	64
Comparison of Behaviour of Different Variants of Hydrogenated TRIP Steels at Slow Strain Rate Tests P. Váňová, J. Sojka, K. Konečná and T. Radkovská	70
FE Prediction and Extrapolation of Multiaxial Ratcheting for R7T Steel R. Halama, J. Bartecká and P. Gál	76
Microstructure Evolution in Belt-Casted Strip of Grain Oriented Electrical Steel V. Vodárek, C.P. Reip and A. Volodarskaja	82
Residual Life-Time Evaluation Method Using Instrumented Indentation Test W.J. Kim, J.J. Lee, J.H. Won and D.I. Kwon	89
Anomalous Twinning as the Macroscopic Deformation Mechanism for AZ31 Magnesium Alloy Y. Onuki and S. Sato	95
Technological Aspects of Fe-Al-Si Intermetallic Alloy Preparation by Mechanical Alloying P. Haušild, J. Čech, V. Kadlecová, M. Karlík, F. Průša, K. Nová, P. Novák and J. Kopeček	101
Architected Multi-Metallic Structures Prepared by Cold Dynamic Spray Deposition I. Dlouhý, L. Rehorek, H.S. Seiner, J. Čížek and F. Šiška	107
New Generation of ODS Alloys P. Dymáček, D. Bártková, V. Horník, L. Stratil, B. Mašek and J. Svoboda	113
Advanced Fiber Reinforced Self-Healing Ceramics for Middle Range Temperature W. Nakao, T. Hayakawa, T. Yanaseko and S. Ozaki	119
Investigation on Effectiveness and Shape Recovery Ratio of Shape Recovery Self-Healing Plastic H. Ueshima and W. Nakao	125

Enhanced Disintegration of Silicon Particles due to their Mutual Impact Caused by Ultrasonic Cavitation Bubbles	
J. Bednář, P. Mančík, L. Svoboda and R. Dvorsky	131
Computation of Composite Strengths by Limit Analysis	
S. Sysala, R. Blaheta, A. Kolcun, J. Ščučka, K. Souček and P.Z. Pan	137
Mechanical and Transport Properties of High Volume UFA Cement Composites	
X.Y. He, J.X. Huang, Y. Su, J. Yang, Z.Q. Zheng, C. Zhang, X.J. Wang and B. Strnadel	143