

CONTENTS

Preface	vi
Periodicity of Interaction Coefficients in Austenite and Molten Iron Z. BUŽEK, K. STRÁNSKÝ, J. ŠENBERGER, L. DOBROVSKÝ	1
Ultra-Steel Project in NIMS – R&D of High Nitrogen Steel – Y. KATADA	11
Microstructural Design of Brittle Materials and Reliability Limit of Functional Parts B. STRNADEL	21
Fracture Behaviour of Fibre Reinforced Brittle Matrix Composites Z. CHLUP, I. DLOUHÝ, A. R. BOCCACCINI, K. K. CHAWLA	31
Structural Integrity of Pressurized Pipes with Circumferential Flawas K. HASEGAWA	39
Fracture Toughness Transferability - from Small to Full Scale Specimens I. DLOUHÝ, Z. CHLUP, V. KOZÁK	53
Brittle Crack Crest Toughness in Steel Plate for Structural Integrity T. ISHIKAWA	61
Evaluation of the Explosive Technolofy of Tube Fixing J. BUCHAR, J. VOLDŘICH, S. ROLC	69
Safety Concept for Ships Considering Fracture Damage of Structural Parts H. MATSUSHITA, Z. KAMIO, B. STRNADEL	77
On the Evaluation of Creep Resistance of Real Construction Parts by Means of Small Punch Technique F. DOBEŠ, K. MILIČKA, J. SOBOTKA, Z. KUBOŇ	85
Strain Induced Structural Degradation at Elevated Temperatures T. ENDO, M. TAKEDA, K-S. PARK, T. NAKAJIMA	93

Stress Corrosion Cracking Study of Steam Generator Bolt Steel S. LASEK, M. BLAHETOVÁ, V. ČÍHAL	103
Effects of Potential and pH on IGSCC of Sensitized Type 304 Stainless Steel in 3% Sodium Chloride Solutions S. NISHIJIMA, T. ISHIHARA, S. ASAKURA	113
Developpment of Small-Punch SCC Testing Apparatus with In-Situ Observation System for EAC Evaluation J. ISSELIN, T. SHOJI	121
Using of Fracture Mechanics for Residual Life Prediction of Power Plant Components S. VEJVODA	129
K-Value Control Method for Crack Growth Tests in High Temperature and High Pressure Water T. SUNABA, T. ISHIHARA	139
Mechanisms of Corrosion Microcracks Nucleation in 08X18N10T (AISI 321) Stainless Steel in Water Solutions at 270 °C K. MATOCHA	147
Environmentally Assisted Cracking Behavior of LWR Structural Materials in High Temperature Water Y. KATADA, X. WU	157
Fractographic Study of Fatigue Processes J. SIEGL, I. NEDBAL, O. KOVÁŘÍK, J. KUNZ	165
Evaluation of Fatigue Damage of Metals by Means of Atomic Force Microscopy Y. NAKAI	173
Improvement of Fatigue Strength in Components Having Stress Concentration Part K. ANDO, K. TAKAHASHI, K. YOSHINO	181
High-Cycle Fatigue of Bearing Steel L. KUNZ, M. ČINČALA	189

The Effects of Graphite Shape, Size and Distribution on the Fracture Tougness and Fatigue Crack Growth of Austempered Ductile Iron T. NIKI, K. OGAWA, T. SHOJI	197
Strength Criterion Fit for Quasi-Isotropic Statically Loaded Materials J. FUXA	207
Contribution to Car Frontal Frame Structure Design M. ŽATEK, Z. PORUBA, Q. YU	215
Analysis of the Rock Bursts Consequence for Arch Tunnel Support P. HORYL	223
Shape and Function of 2-Piece Non-Carbonated Beverage Can K. TAKENOUCHI	227
Fatigue Tests and Optimization of the Design of Locomotive Railway Axles R. FAJKOŠ, J. PAVČO, P. MATUŠEK, I. FÜRBACHER	235
Effect of the Cold-Working and the Annealing Treatment on the Activation Energies of the Diffusion of Carbon in the Ferrite and the Cementite Decomposition: Application in Pearlitic Steel 1035 (abstract only) M. HABASHI	247
Supermartensitic Stainless Steels Serve to Offshore Gas and Oil Extraction (abstract only) M. TVRDÝ, A. KORČÁK, J. ŠELIGA, V. VODÁREK, G. ROŽNOVSKÁ, P. TKAČÍK	249