

Table of Contents

Preface, Committees

Chapter 1: Structural Steels and Alloys

Improvement of Structural Characteristics for CuZn Alloy through Heat Treatments D. Achîței, P. Vizureanu, M.G. Minciună, N. Cimpoeșu and B. Istrate	3
Pressure Influence on the AlCrFeNiMn/Graphite High Entropy Composite Microhardness G. Popescu, M. Branzei, C.A. Popescu, A.A. Matei, R. Trusca and I. Csáki	9
CoCrFeNiMo High Entropy Alloy Produced by Solid State Processing I. Csáki, S.N. Karlsdottir, S. Serghiuă, G. Popescu, M. Buzatu, L.E. Geambazu and C.A. Manea	15
Structural Aspects Revealed by X-Ray Diffraction for Aluminum Alloys 2024 Type F.V. Anghelina, I. Ionita, D.N. Ungureanu, E.V. Stoian, I.N. Popescu, V. Bratu, I. Petre, C. Popa and A.D. Negrea	20
Effect of TIG Welding and Manual Metal Arc Welding on Mechanical Properties of AISI 304 and 316L Austenitic Stainless Steel Sheets A.A. Harb, I. Ciuca, R. Ciocoiu, M. Vasile, A. Bibis, B. Rahali and I. Al Hawamda	26
Study on Wear Resistance FeNiCrMnAl High Entropy Alloy - Mechanical Properties G. Buluc, R. Chelariu, G. Popescu, M. Sârghi and I. Carcea	34
Studies and Research on the Influence of Carbon and Chromium Content Aimed at Obtaining Superior Mechanical Characteristics of 16CD4 Steel Used in the Automobile Industry E.V. Stoian, M.C. Enescu, I. Petre, P.C. Fluieraru and A.D. Negrea	39
Determination of Heat Input in Tungsten Inert Gas and Laser Welding of Type Optim 960 QC Structural Steel Using Adams' Equation for 2-D Heat Distribution S. Cvetkovski	45
Advanced Synchrotron Radiation and Neutron Scattering Techniques for Microstructural Characterization in Industrial Research F. Fiori, E. Girardin, A. Giuliani, A. Manescu, S. Mazzoni, F. Rustichelli and E. Amler	53

Chapter 2: Corrosion Processes, Coatings and Surface Engineering

Study on Degradation Mechanisms of the Inner Surface of Fire-Arms I. Petre, V. Bratu, M.C. Enescu, E.V. Stoian and F.V. Anghelina	69
Stainless Steels as Erosion Resistant Materials for Hydraulic Machines B. Ghiban, C.A. Safta and V. Motoiu	75
Aspects of the Structure and Corrosion Resistance of Materials Used in Tongue Piercings C.M. Buzea, I. Csáki and M.C. Cotru	80
Investigations of Thin Films Obtained by Plasma Jet Method on a Stainless Steel Used in Turbine Blades Construction C.A. Tugui, P. Vizureanu, M.C. Perju, C. Nejneru, B. Istrate and A. Savin	85
Characterization of Cr₂O₃ Adhesion Properties by Destructive Testing in Accordance with the APS Metal Spraying Process Parameters R.A. Ghea, M. Goran, A.E. Buaru, L. Bichir and G.M. Dumitru	91
Effect of Ionic Liquid Environment on the Corrosion Resistance of Al-Based Alloy I. Peter	97
Influence of Proposed Hardening Process on Hardness and Toughness of Martensitic Stainless Steel C. Saikaew and W. Sawatwor	103
Microstructure and Corrosion Properties of Homogenized AZ31 and AZ31+1%La Magnesium Alloys H. Ahlatci, I.H. Kara, Y. Turen, Y. Sun and H. Zengin	107
Effect of Ti Addition on Corrosion Properties of As-Cast and Hot-Rolled AM60 Magnesium Alloys Y. Sun, N.U. Aydın, Y. Turen, H. Ahlatci and H. Zengin	113

Microstructure and Corrosion Properties of Homogenized Mg-4Zn-1La Magnesium Alloy H. Zengin, Y. Turen, H. Ahlatci, Y. Sun and I.H. Kara	118
Effect of Sn Addition on Corrosion Properties of As-Cast and Hot-Rolled AZ31 Magnesium Alloys Y. Turen, D. Güzel, H. Zengin, Y. Sun and H. Ahlatci	124
Calcium Oxalate on Limestone Surface of Heritage Buildings R.M. Ion, S. Teodorescu, R.M. Știrbescu, I.A. Bucurică, I.D. Dulamă and M.L. Ion	129

Chapter 3: Composites and Functional Materials

Design and Processing of FGCM Materials for Applications Subjected to Intensive Abrasive Wear I. Badoi, D.M. Constantinescu and D. Vlăsceanu	137
Research on Using AlMg10-SiC Cellular Alloys for Fluids Filtering O. Rusu and I. Rusu	142
Property Modifications in Ni-Ti Shape Memory Alloys M. Vasilescu and M. Dobrescu	148
Sequential Casting of Functionally Graded Material I. Peter, M. Rosso and S. Lombardo	153
Evaluating the Thermal Conductivity and Viscosity of CuO-Nanolubricants M. Koruk, A. Turgut and A. Alasli	159
Damping Capacity of Metallic Materials for Automotive Industry R.C. Crăciun, S. Stanciu, N. Cimpoeșu, R. Cimpoeșu and V. Manole	164
Ferrofluid Plug Actuation for Micro Pumping Systems S. Doganay, A. Turgut and L. Cetin	168

Chapter 4: Materials for Biomedical Application

Obtaining of Fe-Base Biodegradable Metallic Alloy F. Săndulache, S. Stanciu, N. Cimpoeșu, R. Cimpoeșu and T. Stanciu	175
New High Entropy Alloy for Biomedical Applications B. Ghiban, G. Popescu, D. Dumitrescu and V. Soare	180
Ti-Mo-Zr-Ta Alloy for Biomedical Applications: Microstructures and Mechanical Properties M.S. Bălțatu, P. Vizureanu, M. Benchea, M.G. Minciună, D. Achiței and B. Istrate	184
New Materials for Dental Implantology C. Piconi and M. Sandri	189
Design and Processing of Novel Ceramic Composite Structures for Use in Medical Surgery M. Fornabai, P. Palmero, H. Reveron, J. Chevalier and L. Montanaro	195