

Table of Contents

Preface

Chapter 1: Nickel-Based Superalloys

Oxidation Kinetic and Oxide Scale Morphology of Fe-33Ni-19Cr Ni-Based Superalloy N. Parimin and E. Hamzah	3
Effect of Nb on Oxide Formation by Isothermal Oxidation of Solution Treated Fe-40Ni-24Cr Ni-Based Alloy N. Parimin and E. Hamzah	11
Role of Mn Alloying Element on the Oxide Growth Behavior of 800H Nickel-Based Alloy at 900°C N. Parimin and E. Hamzah	17

Chapter 2: Corrosion Behaviour and Protection of Metallic Materials

Corrosion Inhibition of Low Carbon Steel in Soil Solutions, Using Novel Schiff Base Inhibitor M. Faryal, M. Uzman, M. Shahid and M. Arfan	25
Corrosion Behavior of MoSi₂ Coated Hastelloy X Utilized in Iodine -Sulfur Cycle for Hydrogen Production Application Z. Hussain, Z. Khan, A. Ali, N. Ahmad, W. Qasim and A. Shabbir	35
Oxidation Resistant Nickel Aluminide Coating on Niobium Alloy C103 for High Temperature Aerospace Applications N. Zubair, N. Ejaz and M. Mansoor	43
Synthesis of Nano Ceramic Epoxy Hybrid Composite Coating on Metallic Substrate for Corrosion Protection W. Shehzad, E. Ul Haq, M.R. Abdul Karim, J. Shehzad and H. Sabtai	49

Chapter 3: Nanomaterials and Nanostructures

Ultrasonic-Assisted Synthesis of Germanane and Siloxane Nanostructures A. Kouloumpis, G. Potsi, T. Giousis, N. Chalmpes, D. Gournis and P. Rudolf	63
Influence of Laser Energies on the Generation of Cobalt Oxide Nanoparticles via Laser Ablation in Liquid M. Alheshibri	69
Comparison between One-Dimensional and Three-Dimensional Optical Modelling of Ordered Black Silicon Nanostructures Using Effective Medium Approach J.Y.H. Chai, B.T. Wong and S. Juodkazis	75
Nitrogen-Doped Carbon Dots in Zeolithic Imidazolate Framework Core-Shell Nanocrystals: Synthesis and Characterization E.S. Elmorsy, A. Mahrous, W.A. Amer and M.M. Ayad	81
A Novel Formulation of Mesoporous Silica Nanoparticles Functionalized with Polyaniline Brush Polymer: Synthesis and Characterization E.A. Abdelsalam, I.A. Khalil, A. Osman Egiza and M.M. Ayad	89
Industrial Scale Engineering of Photocatalytic Nanomaterials by Flame Spray Pyrolysis (F.S.P.) A. Zindrou, A. Mantzanis and Y. Deligiannakis	95
Effect of Ni Doping on the Optical Properties of ZnO Thin Films Prepared by Sol-Gel Spin Coating and Investigation of ZnO Powder Nanostructures S. Oudjertli, A. Mohammedi and M. Ibrir	103
Properties of PEDOT:PSS on Black Silicon and Hybrid Textured Surfaces A. Abdulkadir, A. Abdul Aziz and M.Z. Pakhuruddin	109

Chapter 4: Thin Films

The Effect of Solvents on the Preparation of Poly(9,9-Dioctylfluorene) Thin Films

K.W. Chew, N.A. Abdul Rahim, P.L. Teh and N.S. Abdul Hisam

121

Thermal Degradation of Hybridize Doped Poly(Dioctylfluorene) Film with Polydimethylsiloxane

N.S. Abdul Hisam, N.A. Abdul Rahim, J. Abd Jalil and K.W. Chew

127

Chapter 5: Building Materials

Analysis of Displacement Measured during the Compressive Testing of Cylindrical Specimens

I. Kumpová, P. Frantík, D. Lisztwan, P. Daněk, P. Rovnaníková and Z. Keršner

135

UHPC Application in Buildings and Geotechnical Structures

M. Tipka, J. Kostka and J. Vašková

145

Use of Bended for Reinforcement in the Design of the Slab-Column Connection of a Flat Slab Structure

V. Kostiha, F. Girgle, O. Januš, D. Vašátko and P. Štěpánek

151

Analysis of the Migration Process of Concrete Layers during Compaction

T. Trtík, R. Chylík, J. Fládr and J. Vašková

159

The Effect of Granite Filler Grain Size on its Physical and Chemical Properties with Regard to Use in Cement Composites

L. Musil, R. Chylík and J. Vodička

165

Strengthening of Concrete Structures Using UHPC

J.L. Vítěk, L. Boháček, R. Coufal and D. Čítek

173

The Effect of Cement Mortar Recipe on Early Age Strength Development

P. Kasal and J.L. Vítěk

179

The Development of a New Chemically Resistant Sprayed Mixture

P. Figala, R. Drochytka, V. Černý and P. Dohnálek

185

K-Value Determination Options for Active Admixtures

A. Hubáček, R. Hela, M. Hubertová and P. Šperling

193

Effect of Alkaline Environment on Mechanical Properties of Molded Composite Reinforcement

J. Lagin, F. Girgle, V. Kostiha, I. Rozsypalová and P. Štěpánek

201

Study of the Influence of the Opening Size and the Type of Reinforcement on the Behavior of the Reinforced Concrete Infill Shear Walls

O. Šimek and M. Zich

209

Determination of Initial Shear Strength of Masonry Testing of Selected Adhesives

K. Richterova, P. Heinrich and P. Bíly

217

Analysis of Retaining Walls Subjected to Concentrated Loads

A. Horská and A. Kohoutková

223