

## Table of Contents

### Preface

### Chapter 1: Functional and Special Materials

<b>Rapid and Visual Detection of Vitamin C Based on Sodium Citrate-Stabilized Silver Nanoparticles</b> I.N. Handayani, V. Fauzia, A.H. Saputro and N.H. Apriantoro	3
<b>Preparation of Polycurcumin-Modified Graphite Electrode via Electropolymerization and its Application for Determining Cd<sup>2+</sup></b> S. Marwati, A.K. Prodjosantoso and R.T. Padmaningrum	11
<b>Performance Optimization of Supercapattery with Porous Modification on Silicon as Anode and Cathode Based on Al<sub>2</sub>O<sub>3</sub>/CuCrO<sub>2</sub></b> A.S. Nurul Hidayah, M. Diantoro, N. Nasikhudin, S. Sendari, N.I.M. Aturroifah, W. Meevasana and S. Maensiri	19
<b>Silver Nanowires (AgNWs) Post-Treatment Effect in Application of Flexible Transparent and Conductive Electrodes: A Mini Review</b> N. Nasikhudin, Y. Al Fath, I. Istiqomah, H. Rahmadani, M. Diantoro and H. Pujiarti	29
<b>Physical and Optical Properties of CeF<sub>3</sub> Doped with Aluminium Fluorophosphate Glasses</b> J.H. Panggabean, P. Simamora, J. Rajagukguk, C.S. Sarumaha and J. Kaewkhao	41

### Chapter 2: Waste Treatment and Biomass Processing

<b>Catalytic Pyrolysis of Biomass Waste Mixture over Activated Carbon and Zeolite Catalyst for the Production Bio Oil</b> H. Prasetiawan, D.S. Fardhyanti, H. Hadiyanto and W. Fatriasari	53
<b>Pyrolytic Plastic Oil Distillation Study of Five Mixed Plastic Waste Pyrolysis</b> J.P. Simanjuntak, B.H. Tambunan, J.L. Sihombing, M.Z. Zainon, N.W.B.M. Žulkifli and R. Riduwan	65
<b>The Effect of Drying Temperature Variation on the Production of Porang Starch Bioplastics with Sorbitol Plasticizer on Mechanical and Thermal Properties</b> A. Maghfirah, S. Sudiati, M.Z. Sofyan, N.A. Damanik and Y. Hia	71

### Chapter 3: Structural Materials

<b>Study of Sensitization in Gas Tungsten Arc Welded 304 Stainless Steel Joints Using 308L Filler Metal</b> H. Oktadinata, M. Martijanti, P.Y.M.W. Ndaruuhadi and E.A. Alsayed	83
<b>Effect of Heat Treatment Process on the Microstructure and Hardness of Train Wheel Material</b> M. Kozin and B. Tambunan	91
<b>Review of the Physical Properties of CLC Lightweight Concrete Using the Addition of Red Sand from Labuhan Batu Selatan</b> G.K. Tampubolon, M.H. Harahap and W. Putra	99

### Chapter 4: Data Processing and Computational Research in Geology and Geophysics

<b>The Effect of Earthquake Vibration on the Deformation of the Steel Structure of a Special Moment Frame System</b> B. Hadibroto, E. Barlian, K. Jeumpa, S. Sarwa and M.Y. Irsya	107
<b>Landslide Mapping from the Cyclone Seroja in Kupang City Using Remote Sensing</b> M.W. Kati, M.A.L. Eluama and F.R. Ngana	119

<b>Hypocenter Relocation Using Fast Marching Method (FMM) in Tarutung</b>	
Z.A. Al Atas, U. Muksin, M. Muzli and V.H. Banyunegoro	127
<b>Analysis DEM and Geological Observation Data for Study of the Potential Landslide</b>	
<b>National Street for Jantho - Lamno</b>	
M. Zainal, M. Nabil, D. Sugiyanto, A. Muhni and M. Yanis	135
<b>Optimizing the Gravity Data and Geological Observation for Mapping the Local Fault</b>	
<b>around the Jaboi Volcano</b>	
M. Yanis, Z. Nasrullah, M. Isa, A. Riski, M. Zainal and A.Y. Paembonan	145
<b>Convex Relaxation for Solving Polynomial Programs through Quadratization Technique</b>	
L.P. Sinaga, T. Tulus, E. Herawati and S. Nasution	153