

Table of Contents

Preface

Chapter 1: Properties and Processing Technologies of Structural Metals

Strip Casting of Al-25%Si-4%Mg Using Unequal Diameter Twin Roll Caster Equipped with Steel Rolls T. Haga, H. Ochi, H. Fuse, H. Watari and S. Nishida	3
Casting of Aluminum Alloy Wire Using Three-Wheel Caster T. Haga, H. Ochi, H. Fuse, H. Watari and S. Nishida	9
Effects of High Temperature to Improve Hot Forging Process of SACM 645 Nitriding Steel A. Sanrutsadakorn, W. Lawong and W. Julsri	15

Chapter 2: Functional Materials

Tuned Photodegradation Efficiency of Bimetallic Copper-Iron Oxide Catalysts via Precursor Stoichiometry Control for Water Decontamination S.M.O. Merca, J.C.I.M. Damo, H.K.D. Vargas, R.J.A.V. Biñas, C.A.R. San Jose, S.B.A. See, Y.D.G. Edañol, K.A. Usman and M.T. Conato	25
Spectroscopic Analysis of Electrolyte Solutions with Diverse Metal Ions for Aqueous Zinc-Ion Batteries S. Lee, E. Kim, P.M. Nogales and S.K. Jeong	33
Impacts of Lithium Salt on Interfacial Reactions between SiO and Ethylene Carbonate-Based Solutions in Lithium Secondary Batteries S. Yoon, S. Lee, P.M. Nogales and S.K. Jeong	39

Chapter 3: Building Materials

Experimental Evaluation of the Shear Stress of Concrete with Macro-Synthetic Fibers and Steel Fibers for Structural J.H.E. Moreno, S.L. Arapa and P.J.P. Torres	47
Evaluation of Structural Response in Ultra-High-Strength Concrete and Carbon Fiber Reinforced Frames Exposed to High Temperatures Using Numerical Simulation D.L. Manco, A.L. Palacios, V.I. Davila, J.R. Casas and R.M. Delgadillo	55
Influence of Rice Husk Ash on Self-Compacting Concrete to Avoid the Presence of Honeycombs in Columns M.J. Boza Rabanal, A.P. Tarazona Alarcon and K.L. Lopez Pasapera	63
Modified Model of Prediction of Carbonation Depth Based on CEB-FIP for Concrete with Portland Cement with High Water-Cement Ratios L.A. Flores Soto, F.V. Safra and P.J.P. Torres	73

Chapter 4: Research of Equipment and Machine Parts

Methodology for the Analysis of the Operation of High-Performance Computing Equipment W. Aucahuasi, K. Urbano, E. Flores, O. Linares, C. Ovalle, M. Campos -Sobrino, H. Quispe-Peña, J. Sobrino-Mesias, N. Benites, J. Marin-Huapaya, R.O. Flores-Castañeda and S. Olaya-Cotera	85
Methodology for Thermal Analysis of Combustion Engines, Applied to Automobiles W. Aucahuasi, K. Urbano, E. Flores, C. Ovalle, M. Campos -Sobrino, H. Quispe-Peña, J. Sobrino-Mesias, N. Benites, J. Marin-Huapaya, R.O. Flores-Castañeda and S. Olaya-Cotera	93