

Table of Contents

Preface

Chapter 1: Functional Nanomaterials

Immobilization of Silver Nanoparticles on Silica Particles by Silver Mirror Reaction A. Keigo, N. Yamauchi, S. Tada and Y. Kobayashi	3
Light-Induced Phase Transition and Photodetection Application of Nanotube Encapsulated TaS₂ Nanoribbon Sensor L.L. Hou, J. Duan, T.L. Shi and H. Long	11
Colorimetric Detection of Pb²⁺ Using Green Synthesized AgNPs B. Desales, K.I. Duerme, E.O.V. Fundador and N.G.V. Fundador	17

Chapter 2: Protective Coatings

Dynamic Mechanical Properties and Corrosion Resistance of Epoxy Coatings Enhanced with MXene and Diverse Nano-Fillers M.S. Saharudin, N.A. Che Nasir, A.A. Janjua, A.E. Okechukwu, N.H. Faisal and E.Z. Ahmad	25
Influence of PTFE as Thin Top Layer on Hydrophobicity and Wear Behaviour of HVOF Sprayed TiC+50%NiCr Coating on SS410 Steel A. Bansal, V. Singh and A.K. Singla	33
Investigating the Corrosion Resistance of Ti-Al Coating on Structural Steel Components T.Z. Deng, S. Ramhormozian and M. Ramezani	41
Micro-Raman Spectroscopic Study of the Tribology of AlCrN Coated Cemented Tungsten Carbide Pins Dry Sliding on Hardened Steel Discs K.C. Solasa, A. Bhattacharyya, P. Roy Choudhury and N.V. Venkataraman	51
Surface Wettability Response of Hydroxyapatite-Doped Coatings on Metallic Biomaterials: A Concise Review I.A. Gul, A.M. Abdul-Rani, A. Ahmad, M. Al-Amin, A.A. Aliyu and E. Garba	61
Comparison and Sustainability Enhancement of Oxide Coatings by Reactive and Non-Reactive Radio Frequency Magnetron Sputtering Technique R.R. Srivastava, S. Ghosh and P.V. Rao	73
Functional Tool Surfaces with Smooth Diamond-Based Tool Coatings for the Wear-Free Forming of Aluminum Sheets P. Scholz, C. Stein, K. Weigel, M. Höfer, M. Frankiewicz, M. Cwikla, M. Kempa and S. Baron	81
Tribological Performance of AlCrN and TiAlN Coatings in Aluminum Forming Process at High Temperature P. Soranansri, A. Dubois, P. Moreau, T. Funazuka, K. Dohda and L. Dubar	89