

## Table of Contents

|                                                                                                                                                |    |
|------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Effect of Zinc Oxide Films on Si Substrates Growth by Microwave Plasma Jet Sintering System</b>                                             |    |
| C.H. Su and C.M. Huang                                                                                                                         | 1  |
| <b>Characterizations and Process Parameters of Titanium Dioxide Thin Film by RF Sputtering</b>                                                 |    |
| C.R. Yang, T.P. Teng and Y.Y. Yeh                                                                                                              | 9  |
| <b>Piezoresponse Force Microscopy Study of Ferroelectric BaTiO<sub>3</sub> Thin Film Directly Deposited on Si(001) by Magnetron Sputtering</b> |    |
| H.L. Lu, S.Q. Song, X.F. Gu, S.L. He, C.L. Chen, G.B. Song, Z.H. Cai, H.M. Guo, H.J. Gao and L. Sun                                            | 23 |
| <b>Synthesis, Characterization and <i>In Vitro</i> Drug Release of Melphalan Magnetic Microspheres</b>                                         |    |
| J.Q. Xu, H.X. Xu, Z. Newaz, R. Li, Y. Zhang, H. Liu, Z.J. Huang, H. Zheng, X.P. Liu, Y.H. Yin, Y.C. Lou, B. Lu and P.H. Xu                     | 31 |
| <b>Modeling of the Plastic Deformation of Polycrystalline Materials in Micro and Nano Level Using Finite Element Method</b>                    |    |
| M. Jafari, S. Ziaei-Rad and N. Nouri                                                                                                           | 41 |
| <b>Waterproof and Dustproof of Wild Silk: A Theoretical Explanation</b>                                                                        |    |
| R.X. Chen, J.H. He and H.Y. Kong                                                                                                               | 61 |
| <b>Silk Cocoon: "Emperor's New Clothes" for Pupa: Fractal Nano-Hydrodynamical Approach</b>                                                     |    |
| R.X. Chen, F.J. Liu, J.H. He and J. Fan                                                                                                        | 65 |
| <b>Highly Selective Adsorption of Plants' Leaves on Nanoparticles</b>                                                                          |    |
| H.Y. Kong, J.H. He, R.X. Chen and L. Wang                                                                                                      | 71 |
| <b><i>In Situ</i> Characterization of the Mechanical Behavior of Gecko's Spatulae by Atomic Force Microscopy</b>                               |    |
| S.Y. Liu, M.M. Tang, A.K. Soh and L. Hong                                                                                                      | 85 |
| <b>Sol-Gel Synthesized Copper-Substituted Cobalt Ferrite Nanoparticles for Biomedical Applications</b>                                         |    |
| N. Sanpo, J. Wang and C.C. Berndt                                                                                                              | 95 |