

# Table of Contents

## Scope of Symposium

<b>A Soft Solution Process to Synthesize Nanocrystalline Barium Zirconate via Reactive Solid State Precursors</b>	
A.A. Athawale and M. Bapat	3
<b>Anodization of Nanoporous Carbons for Removal of Ammonia</b>	
S.J. Park and J. Shin	7
<b>Characterization of Si Nanocrystals Embedded in SiO<sub>2</sub> with X-Ray Photoelectron Spectroscopy</b>	
Y. Liu, T.P. Chen, Y.Q. Fu and J.H. Hsieh	11
<b>Effect of Grain Size on the Luminescent Properties of Nano-Scale Gd<sub>2</sub>O<sub>3</sub>:Eu</b>	
Q.F. Liu and Q. Liu	15
<b>Encapsulation of Luminescent Quantum Nanodots in Polystyrene Nanocapsules by Microemulsion Polymerization</b>	
X. Yang, N. Huang and Y. Zhang	19
<b>Evaluation of Failure Behaviour of Coated Anisotropic Materials for Dental Implants</b>	
B. Punantapong, S. Thongtem and M.J. Fagan	23
<b>Growth of Zinc Oxide Nanowires and Nanobelts for Gas Sensing Applications</b>	
M.K. Hossain, S.C. Ghosh, Y. Boontongkong, C. Thanachayanont and J. Dutta	27
<b>Influence of the Gas Phase Composition on Nanocrystalline Diamond Films Prepared by MWCVD</b>	
C. Popov, M. Jelínek, S. Boycheva, V. Vorlícek and W. Kulisch	31
<b>Investigation on Field Electron Emission from Carbon Nanotubes on Nanocrystalline Diamond Films</b>	
K.J. Liao, W.L. Wang, C. Cai, J.W. Lu and C.G. Hu	35
<b>Large Stress Reduction Induced by sp<sup>2</sup> Clustering in Tetrahedral Amorphous Carbon Films</b>	
Y.B. Zhang, S.P. Lau, S. Prawer and B.K. Tay	39
<b>Laser Induced Etching for Generation of Si Nanocrystals and Spectroscopic Investigation of Morphology</b>	
H.S. Mavi, S. Rath and A. Shukla	43
<b>Layer Structured Calcium Bismuth Titanate by Mechanical Activation</b>	
M.H. Sim, J.M. Xue and J. Wang	47
<b>Linking Additive Structures to Nanoparticle Properties</b>	
W.R. Richmond, G.M. Parkinson, F. Jones, M.I. Ogden, A. Oliveira, M. Reyhani and A.L. Rohl	51
<b>Modelling of Negative Poisson's Ratio Nanomaterials: Deformation Mechanisms, Structure-Property Relationships and Applications</b>	
A. Alderson, K.L. Alderson, K.E. Evans, J.N. Grima and M.S. Williams	55
<b>Nanocrystalline W-Doped SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub> of Layered Perovskite Structure Derived from Mechanical Activation</b>	
W.S. Toh, Z.H. Zhou, J.M. Xue, J. Wang, Z.H. Barber and J.E. Evetts	59
<b>Nanocrystalline Zirconium Oxide Thin Films Prepared by Filtered Cathodic Vacuum Arc</b>	
Z.W. Zhao, B.K. Tay, G.Q. Yu and S.P. Lau	63
<b>On the Wettability of Nanocomposite Amorphous Carbon Films</b>	
P. Zhang, B.K. Tay, G.Q. Yu and S.P. Lau	67
<b>Preparation and Characterization of ZnSe/SiO<sub>2</sub> Nanocomposite</b>	
F. Kong, X. Yao, M.Q. Wang, H. Jiang and Y.P. Wang	71
<b>Preparation of Porous Alumina by Anodization</b>	
C.X. Xu, X.S. Zhang and X.W. Sun	75
<b>Preparation of Single-Crystal BiOCl Nanorods via Surfactant Soft-Template Inducing Growth</b>	
C. Cao, R. Lv and H.S. Zhu	79
<b>Research of Nanostructure of Bivalva Shell</b>	
B. Chen, J.H. Fan, J. Wang, X. Peng and X.L. Wu	83
<b>Scalable Production of Carbon Encapsulated Ni Nanoparticles by Water Arc Discharge: Structural and Magnetic Properties</b>	
K.H. Ang, I. Alexandrou, N.D. Mathur, R. Lacerda, I.Y.Y. Bu, G. Amaralunga and S. Haq	87

<b>Softmagnetic Nanocomposite with Silicon Polymer Matrix and Powdered Co<sub>68</sub>Fe<sub>4</sub>Mo<sub>1</sub>Si<sub>13,5</sub>B<sub>13,5</sub></b>	91
L.A. Dobrzański, R. Nowosielski, J.J. Wysłocki, A. Przybył and J. Konieczny	
<b>Synthesis and Characterization of Nanoscale CeO<sub>2</sub> Catalyst for deNOx</b>	95
S. Kawi, Y.P. Tang, K. Hidajat and L.E. Yu	
<b>Synthesis, Characterization and Adsorption Properties of ETS-4 Molecular Sieve</b>	99
R.P. Marathe and K. Mantri	
<b>3-D Self-Assembled ZnSnO<sub>3</sub> Nanoparticles: One-Step Solid-State Synthesis</b>	105
J.M. Zhu, G.B. Ma, F. Li, S.S. Huang, Q. Li, X.Q. Xin and N.B. Ming	
<b>An Upper Bound Solution Analysis of Equal Channel Angular Pressing</b>	109
W. Wei and G. Chen	
<b>Effects of Nano-Sized BN Doping on the Phase Formation, T<sub>c</sub> and Critical Current Density of MgB<sub>2</sub> Superconductor</b>	113
S. Soltanian, M. Delfany, X.L. Wang, M.J. Qin, H.K. Liu and S.X. Dou	
<b>Hydrothermal Synthesis of Zn-Al-O Composite Nanorods</b>	117
S.C. Shen, K. Hidajat, L.E. Yu and S. Kawi	
<b>In Vitro Corrosion Behavior and Apatite-Formation of Electrolytic Nanocrystalline TiO<sub>2</sub> Coating for Biomedical Applications</b>	121
C. Lin and S.K. Yen	
<b>Mercury-Telluride Nanocrystalline Thin Films: A Unique Photoluminescence in the Visible Regime</b>	125
S. Rath and S.N. Sahu	
<b>Optical and Electron Correlation Effects in Silicon Quantum Dots</b>	129
S.K. Ghoshal, K.P. Jain and R. Elliott	
<b>Optical-Property Profiling of SiO<sub>2</sub> Films Containing Si Nanocrystals Formed by Si<sup>+</sup> Implantation</b>	133
Y. Liu, T.P. Chen, M.S. Tse, P.F. Ho, A.L.K. Tan and Y.C. Liu	
<b>Photoluminescence and Raman Scattering Correlated Study of Boron-Doped Silicon Nanowires</b>	137
X.B. Zeng, X.B. Liao, S.T. Dai, B. Wang, Y.Y. Xu, X.B. Xiang, Z.H. Hu, H.W. Diao and G.L. Kong	
<b>Structural and Microwave Properties of Copper Ferrite Nanoparticles Prepared by Sol-Gel Synthesis</b>	141
T. George, S. Joseph and S. Mathew	
<b>Synthesis and Characterization of Nano-Composite Lead-Free Solder</b>	145
D.C. Lin, C.Y. Kuo, T.S. Srivatsan, M. Petraroli and G.X. Wang	
<b>Creation of High Performance Mg Based Composite Containing Nano-Size Al<sub>2</sub>O<sub>3</sub> Particulates as Reinforcement</b>	151
S.F. Hassan and M. Gupta	
<b>Damping Characterization of Bulk Nanostructured Nickel Using an Innovative Circle-Fit Approach: Effect of Frequency</b>	155
N. Srikanth, M.A. Thein and M. Gupta	
<b>Development of Al-Mg Based Composites Containing Nanometric Alumina Using the Technique of Disintegrated Melt Deposition</b>	159
K.F. Ho and M. Gupta	
<b>Development of High Permeability Nanocrystalline Ferromagnetic Materials by Pulse Plating</b>	163
X.P. Li, H.L. Seet, Z.J. Zhao and Y.K. Kong	
<b>Effect of Magnetic Field on the Magnetic Structure of Nanocrystalline Electroplated NiFe Layers</b>	167
X.P. Li, Z.J. Zhao, T.B. Oh and H.L. Seet	
<b>Effect of Presence of Nano-Size Alumina Particles on the Properties of Elemental Magnesium</b>	171
X.L. Zhong and M. Gupta	
<b>Effect of Sputtering Target Power on Preferred Orientation in nc-TiN/a-SiN<sub>x</sub> Nanocomposite Thin Films</b>	175
S. Zhang, D. Sun, Y.Q. Fu, H. Du and Q. Zhang	

<b>Functionally Graded Nano Hardmetal Materials Made by Spark Plasma Sintering Technology</b>	179
X. Tan, S. Qiu, W. He and D. Lei	
<b>Mechanical Properties of ECAE Nanocrystalline Copper and Nickel</b>	183
S. Bansal, A.M. Saxena, T. Hartwig and R.R. Tummala	
<b>Microstructural Evolution and Nanocrystalline Formation Kinetics in FeCo Based Alloys During Mechanical Alloying</b>	187
H.F. Li and R.V. Ramanujan	
<b>Microstructure of Nanocrystalline Nickel Deposit Pulse-Plated on Depleted Uranium Surface</b>	191
Q.F. Wang, P.C. Zhang, X.H. Wang, D.P. Ren, D.M. Lang and Y.Z. Zhang	
<b>Microwave Heating of Hydrated Zeolites and Application of Zeolites as a Domestic Reusable Desiccant through its Technique</b>	195
T. Ohgushi and M. Nagae	
<b>Microwave-Assisted Synthesis of Platinum Nanoparticles</b>	199
X.Y. Ling, Z. Liu and J.Y. Lee	
<b>Monte Carlo Simulation of Surface Segregation in Nanoparticles</b>	203
R. Jayaganthan and G.M. Chow	
<b>Nanocrystallization Behavior of Fe<sub>40</sub>Ni<sub>38</sub>B<sub>18</sub>Mo<sub>4</sub> Soft Magnetic Alloy</b>	207
S.W. Du and R.V. Ramanujan	
<b>Near-Amorphous Alloy Thin Films by Co-Sputtering Deposition</b>	211
J.H. Hsieh, C.H. Li, C.M. Wang, Y.C. Liu and Z.Z. Tang	
<b>Preparation and Characterization of Nano-Scaled Ag Plated Activated Carbon Fibers for NO Removal</b>	215
S.J. Park and B.J. Kim	
<b>Preparation and Characterization of nc-(Ti,Al)N and h-AlN Nanocrystalline Deposited by Plasma CVD Techniques</b>	219
K. Moto and S. Veprek	
<b>Processing-Structure Correlations of Ni-Fe-Cu-Cr Soft Magnetic Alloy</b>	223
Z. Wei, O.J. Tien and H.H. Hoon	
<b>Rheological Characteristics of Ethylene Vinyl Acetate (EVA)/Silane Nanocomposites</b>	227
J. Kruenate, R. Tongpool and P. Kongrat	
<b>Synthesis and Characterization of a POSS-Urethane Hybrid Coating for Use in the Corrosion Protection of Metal</b>	231
M. Oaten and N. Roy Choudhury	
<b>Synthesis of a Novel Nanostructure of Rutile Titania by Sonochemical Method</b>	235
G.B. Ma, J.M. Zhu and N.B. Ming	
<b>Synthesis of Nanocrystalline Tungsten Alloy by Mechanical Alloying and Annealing</b>	239
Z.G. Liu, L. Lu and M.O. Lai	
<b>Synthesis of <math>\alpha</math>-Fe<sub>2</sub>O<sub>3</sub> Nanowires and its Magnetic Properties</b>	243
Y.W. Liu, X.F. Rui, Y.Y. Fu and H. Zhang	
<b>The Characteristics of Nickel-Electroplating on Copper Substrate in CO<sub>2</sub> Supercritical Fluid</b>	247
K. Hong, M.S. Kim, Y.C. Lee and N.K. Kim	
<b>The Preparation of Spinel Ferrite Nanoparticles Using Precipitation in Water-in-Oil Microemulsions</b>	251
A. Košak, D. Makovec and M. Drofenik	
<b>The Quasi Static Fracture Behavior of a Bulk Al-Cr-Fe Alloy Made by Consolidating Micron- and Nano-Sized Powders</b>	255
T.S. Srivatsan, S. Givens, M. Al-Hajri, M. Petraroli, R. Radhakrishnan and T.S. Sudarshan	
<b>Thermodynamic Modeling of Surface Segregation in Au-Ti Nanoparticles</b>	259
R. Jayaganthan and G.M. Chow	
<b>Thermo-Mechanical Modeling and Analysis of Equal Channel Angular Pressing</b>	263
Q.X. Pei, B.H. Hu and C. Lu	
<b>Tribological Characteristics of Nanocrystalline Copper</b>	267
M. Shanthi, C.Y.H. Lim and M. Gupta	
<b>Ultrasonic Characterization of Silver Nanoparticles</b>	271
S. Rajagopalan, S.J. Sharma and V.Y. Nanotkar	

<b>Wear of Mg-5%Al-5%Nd Alloy with Nanocrystalline Grain Size</b>	275
C.Y.H. Lim and L. Lu	
<b>Chemical Treatment Enhanced Gas Sensitivity Properties of Carbon Nanotubes</b>	281
W.L. Wang, K.J. Liao, C. Cai, B.Y. Wan and C.G. Hu	
<b>Effect of Pretreatment of Synthetic and Natural Carbons as Starting Materials for Carbon Nanotubes</b>	285
N. Buang, M. Aziz, S. Sanip, J.C. Tee, Z.H.Z. Abidin and A.F. Ismail	
<b>Electrochemical Combustion of Phenol at the Carbon Nanotube Electrode</b>	289
C.G. Hu, W.L. Wang and B. Feng	
<b>Growth and Characterization of Misotstructural Zinc Oxide Tubes</b>	293
X.W. Sun, C.X. Xu, B.J. Chen and Y. Yang	
<b>Low-Temperature Growth of Large Area, Vertically Aligned Carbon Nanotubes for Field Emission Applications</b>	297
Z.L. Tsakadze, K. Ostrikov, R. Storer and S. Xu	
<b>Multi-Walled Carbon Nanotubes without and with Metal Filling</b>	301
A.K. Schaper, H.Q. Hou, W. Treutmann and F. Philipp	
<b>Simultaneous Measurement of Epinephrine and Ascorbic Acid at the Carbon Nanotube Electrode</b>	305
C.G. Hu, W.L. Wang, K.J. Liao and Y.T. Wang	
<b>Study on Piezoresistive of Doped Carbon Nanotube Films</b>	309
W.L. Wang, K.J. Liao, C. Cai, C.G. Hu, Y. Ma and J.W. Lu	
<b>The Carbon Nanotubes with Different Chemical Treatments and Their Electrochemical Voltammetric Reponses</b>	313
C.G. Hu, W.L. Wang, B. Feng and G.B. Liu	
<b>A Study of the Effect of Polymer Matrix on the Ultrasonic Propagation in Silver Nanoparticles</b>	319
S. Rajagopalan, S.J. Sharma and V.Y. Nanotkar	
<b>Ag Dispersed Conducting Polyaniline Nanocomposite as a Selective Sensor for Ammonia</b>	323
A.A. Athawale and P.P. Katre	
<b>Design of Novel Nanocomposites through Interfacial Engineering</b>	327
S. Sindhu, S. Jegadesan, R. Renu and S. Valiyaveettil	
<b>Development of a Novel Micro-Spray-Assembly Process for Multilayer Ultra-Thin Film Formation</b>	331
Z. Peng and L.X. Kong	
<b>Electrical Conductivity of Quantum Size 2d Nanocomplex</b>	335
N. Gupta, H. Mallik and A. Sarkar	
<b>Experimental Investigation and Monte Carlo Simulation of Glass Transition in Polymer Nanocomposites</b>	339
R. Jayaganthan and R.H. Vora	
<b>Gold Nanoparticles on Polymeric Micro Beads: A One-Pot Synthesis and Characterization by X-Ray Absorption Near Edge Structure (XANES) Spectroscopy</b>	343
C.S.S.R. Kumar, M. Aghasyan, H. Modrow, J. Hormes and R. Tittsworth	
<b>Investigation into the Effects of Transformer Oil on Fluoro Poly(ether imide)s and their Nanocomposites Films</b>	347
R. Sarathi, S. Deepa, A. Mishra and R.H. Vora	
<b>Investigation of Amorphous Silicon-Carbon Films Deposited by Filtered Vacuum Cathodic Arc</b>	351
P. Zhang, W.M. Tan and B.K. Tay	
<b>Magnetism and Radio-Frequency Dynamics in Nanocomposite Materials</b>	355
H. Srikanth and P. Poddar	
<b>Material Characterization Based on Instrumented Indentation</b>	359
S. Swaddiwudhipong, K.K. Tho, Z.S. Liu and K.Y. Zeng	
<b>Nanoindentation Study of Polymer Based Nanocomposites</b>	363
M.H. Nai, C.T. Lim, K.Y. Zeng and V.B.C. Tan	
<b>Nonlinear Optical Behavior of Transparent Nanohybrids of Nanocrystalline TiO<sub>2</sub> in Poly(methyl methacrylate) Prepared by In Situ Sol-Gel Polymerization Technique</b>	367
A.H. Yuwono, J.M. Xue, J. Wang, H.I. Elim, W. Ji, Y.Y. Li and T.J. White	

<b>Processing of Bulk Nanostructured Metal, Polymer/Clay Nanocomposites and Nano Ceramic Powder</b>	
M.S. Yong, B.H. Hu, S.L. Liu and Q.F. Liu	371
<b>Study on Thermooxidative Degradation of Poly(Vinyl Alcohol)/Silica Nanocomposite Prepared with SAM Technique</b>	
Z. Peng, L.X. Kong and S.D. Li	375
<b>Synthesis, Fabrication, Characterization, Properties and Thermo-Oxidative Stability Study of Poly(ether imide)/MMT Clay Nanocomposites</b>	
R.H. Vora, R. Jayaganthan, Z. Wang, E.T. Thin and T.K. Bang	379
<b>The Growth of Carbon Nanostructure on the Mechanical-Milling-Derived Catalyst Precursors</b>	
B.H. Liu, J. Ding, Z.L. Dong, Z.Y. Zhong, J.Y. Lin and T.J. White	383
<b>Vapor Phase Growth of Carbon Microcoils / Nanocoils</b>	
S. Yang, X. Chen and S. Motojima	387