

Volume 1 Issue 9, August 2014

**International Journal of Advanced Engineering
and Nano Technology**



Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.
Exploring Innovation: A Key for Dedicated Services

Address:

22, First Floor, ShivLoka Phase-IV,
Khajuri Kala, BHEL-Piplani, Bhopal (M.P.)-462021, India

Website: www.blueeyesintelligence.org

Email: director@blueeyesintelligence.org, blueeyes@gmail.com

Cell #: +91-9669981618, WhatsApp #: +91-9669981618, Viber #: +91-9669981618

Skype #: beiesp, Twitter #: beiesp

Editor In Chief

Dr. Shiv K Sahu

Ph.D. (CSE), M.Tech. (IT, Honors), B.Tech. (IT)

Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal (M.P.), India

Dr. Shachi Sahu

Ph.D. (Chemistry), M.Sc. (Organic Chemistry)

Additional Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Vice Editor In Chief

Dr. Vahid Nourani

Professor, Faculty of Civil Engineering, University of Tabriz, Iran

Prof. (Dr.) Anuranjan Misra

Professor & Head, Computer Science & Engineering and Information Technology & Engineering, Noida International University, Noida (U.P.), India

Chief Advisory Board

Prof. (Dr.) Hamid Saremi

Vice Chancellor of Islamic Azad University of Iran, Quchan Branch, Quchan-Iran

Dr. Uma Shanker

Professor & Head, Department of Mathematics, CEC, Bilaspur(C.G.), India

Dr. Rama Shanker

Professor & Head, Department of Statistics, Eritrea Institute of Technology, Asmara, Eritrea

Dr. Vinita Kumari

Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., India

Dr. Kapil Kumar Bansal

Head (Research and Publication), SRM University, Gaziabad (U.P.), India

Dr. Deepak Garg

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India, Senior Member of IEEE, Secretary of IEEE Computer Society (Delhi Section), Life Member of Computer Society of India (CSI), Indian Society of Technical Education (ISTE), Indian Science Congress Association Kolkata.

Dr. Vijay Anant Athavale

Director of SVS Group of Institutions, Mawana, Meerut (U.P.) India/ U.P. Technical University, India

Dr. T.C. Manjunath

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. Kosta Yogeshwar Prasad

Director, Technical Campus, Marwadi Education Foundation's Group of Institutions, Rajkot-Morbi Highway, Gauridada, Rajkot, Gujarat, India

Dr. Dinesh Varshney

Director of College Development Counseling, Devi Ahilya University, Indore (M.P.), Professor, School of Physics, Devi Ahilya University, Indore (M.P.), and Regional Director, Madhya Pradesh Bhoj (Open) University, Indore (M.P.), India

Dr. P. Dananjayan

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

Dr. Sadhana Vishwakarma

Associate Professor, Department of Engineering Chemistry, Technocrat Institute of Technology, Bhopal(M.P.), India

Dr. Kamal Mehta

Associate Professor, Deptment of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. CheeFai Tan

Faculty of Mechanical Engineering, University Technical, Malaysia Melaka, Malaysia

Dr. Suresh Babu Perli

Professor & Head, Department of Electrical and Electronic Engineering, Narasaraopeta Engineering College, Guntur, A.P., India

Dr. Binod Kumar

Associate Professor, School of Engineering and Computer Technology, Faculty of Integrative Sciences and Technology, Quest International University, Ipoh, Perak, Malaysia

Dr. Chiladze George

Professor, Faculty of Law, Akhaltsikhe State University, Tbilisi University, Georgia

Dr. Kavita Khare

Professor, Department of Electronics & Communication Engineering., MANIT, Bhopal (M.P.), INDIA

Dr. C. Saravanan

Associate Professor (System Manager) & Head, Computer Center, NIT, Durgapur, W.B. India

Dr. S. Saravanan

Professor, Department of Electrical and Electronics Engineering, Muthayamal Engineering College, Resipuram, Tamilnadu, India

Dr. Amit Kumar Garg

Professor & Head, Department of Electronics and Communication Engineering, Maharishi Markandeshwar University, Mullana, Ambala (Haryana), India

Dr. T.C.Manjunath

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. P. Dananjayan

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

Dr. Kamal K Mehta

Associate Professor, Department of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. Rajiv Srivastava

Director, Department of Computer Science & Engineering, Sagar Institute of Research & Technology, Bhopal (M.P.), India

Dr. Chakunta Venkata Guru Rao

Professor, Department of Computer Science & Engineering, SR Engineering College, Ananthasagar, Warangal, Andhra Pradesh, India

Dr. Anuranjan Misra

Professor, Department of Computer Science & Engineering, Bhagwant Institute of Technology, NH-24, Jindal Nagar, Ghaziabad, India

Dr. Robert Brian Smith

International Development Assistance Consultant, Department of AEC Consultants Pty Ltd, AEC Consultants Pty Ltd, Macquarie Centre, North Ryde, New South Wales, Australia

Dr. Saber Mohamed Abd-Allah

Associate Professor, Department of Biochemistry, Shanghai Institute of Biochemistry and Cell Biology, Yue Yang Road, Shanghai, China

Dr. Himani Sharma

Professor & Dean, Department of Electronics & Communication Engineering, MLR Institute of Technology, Laxman Reddy Avenue, Dundigal, Hyderabad, India

Dr. Sahab Singh

Associate Professor, Department of Management Studies, Dronacharya Group of Institutions, Knowledge Park-III, Greater Noida, India

Dr. Umesh Kumar

Principal: Govt Women Poly, Ranchi, India

Dr. Syed Zaheer Hasan

Scientist-G Petroleum Research Wing, Gujarat Energy Research and Management Institute, Energy Building, Pandit Deendayal Petroleum University Campus, Raisan, Gandhinagar-382007, Gujarat, India.

Dr. Jaswant Singh Bhomrah

Director, Department of Profit Oriented Technique, 1 – B Crystal Gold, Vijalpore Road, Navsari 396445, Gujarat. India

Technical Advisory Board

Dr. Mohd. Husain

Director, MG Institute of Management & Technology, Banthara, Lucknow (U.P.), India

Dr. T. Jayanthi

Principal, Panimalar Institute of Technology, Chennai (TN), India

Dr. Umesh A.S.

Director, Technocrats Institute of Technology & Science, Bhopal(M.P.), India

Dr. B. Kanagasabapathi

Infosys Labs, Infosys Limited, Center for Advance Modeling and Simulation, Infosys Labs, Infosys Limited, Electronics City, Bangalore, India

Dr. C.B. Gupta

Professor, Department of Mathematics, Birla Institute of Technology & Sciences, Pilani (Rajasthan), India

Dr. Sunandan Bhunia

Associate Professor & Head,, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Jaydeb Bhaumik

Associate Professor, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Rajesh Das

Associate Professor, School of Applied Sciences, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Mrutyunjaya Panda

Professor & Head, Department of EEE, Gandhi Institute for Technological Development, Bhubaneswar, Odisha, India

Dr. Mohd. Nazri Ismail

Associate Professor, Department of System and Networking, University of Kuala (UniKL), Kuala Lumpur, Malaysia

Dr. Haw Su Cheng

Faculty of Information Technology, Multimedia University (MMU), Jalan Multimedia, 63100 Cyberjaya

Dr. Hossein Rajabalipour Cheshmehgaz

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Malaysia (UTM) 81310, Skudai, Malaysia

Dr. Sudhinder Singh Chowhan

Associate Professor, Institute of Management and Computer Science, NIMS University, Jaipur (Rajasthan), India

Dr. Neeta Sharma

Professor & Head, Department of Communication Skills, Technocrat Institute of Technology, Bhopal(M.P.), India

Dr. Ashish Rastogi

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Santosh Kumar Nanda

Professor, Department of Computer Science and Engineering, Eastern Academy of Science and Technology (EAST), Khurda (Orisa), India

Dr. Hai Shanker Hota

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Sunil Kumar Singla

Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala (Punjab), India

Dr. A. K. Verma

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Durgesh Mishra

Chairman, IEEE Computer Society Chapter Bombay Section, Chairman IEEE MP Subsection, Professor & Dean (R&D), Acropolis Institute of Technology, Indore (M.P.), India

Dr. Xiaoguang Yue

Associate Professor, College of Computer and Information, Southwest Forestry University, Kunming (Yunnan), China

Dr. Veronica Mc Gowan

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Mohd. Ali Hussain

Professor, Department of Computer Science and Engineering, Sri Sai Madhavi Institute of Science & Technology, Rajahmundry (A.P.), India

Dr. Mohd. Nazri Ismail

Professor, System and Networking Department, Jalan Sultan Ismail, Kuala Lumpur, MALAYSIA

Dr. Sunil Mishra

Associate Professor, Department of Communication Skills (English), Dronacharya College of Engineering, Farrukhnagar, Gurgaon (Haryana), India

Dr. Labib Francis Gergis Rofaiel

Associate Professor, Department of Digital Communications and Electronics, Misr Academy for Engineering and Technology, Mansoura City, Egypt

Dr. Pavol Tanuska

Associate Professor, Department of Applied Informatics, Automation, and Mathematics, Trnava, Slovakia

Dr. VS Giridhar Akula

Professor, Avanthi's Research & Technological Academy, Gunthapally, Hyderabad, Andhra Pradesh, India

Dr. S. Satyanarayana

Associate Professor, Department of Computer Science and Engineering, KL University, Guntur, Andhra Pradesh, India

Dr. Bhupendra Kumar Sharma

Associate Professor, Department of Mathematics, KL University, BITS, Pilani, India

Dr. Praveen Agarwal

Associate Professor & Head, Department of Mathematics, Anand International College of Engineering, Jaipur (Rajasthan), India

Dr. Manoj Kumar

Professor, Department of Mathematics, Rashtriya Kishan Post Graduate Degree, College, Shamli, Prabh Nagar, (U.P.), India

Dr. Shaikh Abdul Hannan

Associate Professor, Department of Computer Science, Vivekanand Arts Sardar Dalipsing Arts and Science College, Aurangabad (Maharashtra), India

Dr. K.M. Pandey

Professor, Department of Mechanical Engineering, National Institute of Technology, Silchar, India

Prof. Pranav Parashar

Technical Advisor, International Journal of Soft Computing and Engineering (IJSCE), Bhopal (M.P.), India

Dr. Biswajit Chakraborty

MECON Limited, Research and Development Division (A Govt. of India Enterprise), Ranchi-834002, Jharkhand, India

Dr. D.V. Ashoka

Professor & Head, Department of Information Science & Engineering, SJB Institute of Technology, Kengeri, Bangalore, India

Dr. Sasidhar Babu Suvanam

Professor & Academic Coordinator, Department of Computer Science & Engineering, Sree Narayana Gurukulam College of Engineering, Kadayiuruppu, Kolenchery, Kerala, India

Dr. C. Venkatesh

Professor & Dean, Faculty of Engineering, EBET Group of Institutions, Kangayam, Erode, Caimbatore (Tamil Nadu), India

Dr. Nilay Khare

Assoc. Professor & Head, Department of Computer Science, MANIT, Bhopal (M.P.), India

Dr. Sandra De Iaco

Professor, Dip.to Di Scienze Dell'Economia-Sez. Matematico-Statistica, Italy

Dr. Yaduvir Singh

Associate Professor, Department of Computer Science & Engineering, Ideal Institute of Technology, Govindpuram Ghaziabad, Lucknow (U.P.), India

Dr. Angela Amphawan

Head of Optical Technology, School of Computing, School Of Computing, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

Dr. Ashwini Kumar Arya

Associate Professor, Department of Electronics & Communication Engineering, Faculty of Engineering and Technology, Graphic Era University, Dehradun (U.K.), India

Dr. Yash Pal Singh

Professor, Department of Electronics & Communication Engg, Director, KLS Institute Of Engg.& Technology, Director, KLSIET, Chandok, Bijnor, (U.P.), India

Dr. Ashish Jain

Associate Professor, Department of Computer Science & Engineering, Accurate Institute of Management & Technology, Gr. Noida (U.P.), India

Dr. Abhay Saxena

Associate Professor&Head, Department. of Computer Science, Dev Sanskriti University, Haridwar, Utrakhand, India

Dr. Judy. M.V

Associate Professor, Head of the Department CS &IT, Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Brahmasthanam, Edapally, Cochin, Kerala, India

Dr. Sangkyun Kim

Professor, Department of Industrial Engineering, Kangwon National University, Hyoja 2 dong, Chunche0nsi, Gangwondo, Korea

Dr. Sanjay M. Gulhane

Professor, Department of Electronics & Telecommunication Engineering, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal, Maharastra, India

Dr. K.K. Thyagarajan

Principal & Professor, Department of Informational Technology, RMK College of Engineering & Technology, RSM Nagar, Thiruyallur, Tamil Nadu, India

Dr. P. Subashini

Assoc. Professor, Department of Computer Science, Coimbatore, India

Dr. G. Srinivasrao

Professor, Department of Mechanical Engineering, RVR & JC, College of Engineering, Chowdavaram, Guntur, India

Dr. Rajesh Verma

Professor, Department of Computer Science & Engg. and Deptt. of Information Technology, Kurukshetra Institute of Technology & Management, Bhor Sadian, Pehowa, Kurukshetra (Haryana), India

Dr. Pawan Kumar Shukla

Associate Professor, Satya College of Engineering & Technology, Haryana, India

Dr. U C Srivastava

Associate Professor, Department of Applied Physics, Amity Institute of Applied Sciences, Amity University, Noida, India

Dr. Reena Dadhich

Prof. & Head, Department of Computer Science and Informatics, MBS MArg, Near Kabir Circle, University of Kota, Rajasthan, India

Dr. Aashis. S. Roy

Department of Materials Engineering, Indian Institute of Science, Bangalore Karnataka, India

Dr. Sudhir Nigam

Professor Department of Civil Engineering, Principal, Lakshmi Narain College of Technology and Science, Raisen, Road, Bhopal, (M.P.), India

Dr. S. Senthil Kumar

Doctorate, Department of Center for Advanced Image and Information Technology, Division of Computer Science and Engineering, Graduate School of Electronics and Information Engineering, Chon Buk National University Deok Jin-Dong, Jeonju, Chon Buk, 561-756, South Korea Tamilnadu, India

Dr. Gufran Ahmad Ansari

Associate Professor, Department of Information Technology, College of Computer, Qassim University, Al-Qassim, Kingdom of Saudi Arabia (KSA)

Dr. R. Navaneetha krishnan

Associate Professor, Department of MCA, Bharathiyar College of Engg & Tech, Karaikal Puducherry, India

Dr. Hossein Rajabalipour Cheshmejjaz

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Skudai, Malaysia

Dr. Veronica McGowan

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Sanjay Sharma

Associate Professor, Department of Mathematics, Bhilai Institute of Technology, Durg, Chhattisgarh, India

Dr. Taghreed Hashim Al-Noor

Professor, Department of Chemistry, Ibn-Al-Haitham Education for pure Science College, University of Baghdad, Iraq

Dr. Madhumita Dash

Professor, Department of Electronics & Telecommunication, Orissa Engineering College, Bhubaneswar, Odisha, India

Dr. Anita Sagadevan Ethiraj

Associate Professor, Department of Centre for Nanotechnology Research (CNR), School of Electronics Engineering (Sense), Vellore Institute of Technology (VIT) University, Tamilnadu, India

Dr. Sibasis Acharya

Project Consultant, Department of Metallurgy & Mineral Processing, Midas Tech International, 30 Mukin Street, Jindalee-4074, Queensland, Australia

Dr. Neelam Ruhil

Professor, Department of Electronics & Computer Engineering, Dronacharya College of Engineering, Gurgaon, Haryana, India

Dr. Faizullah Mahar

Professor, Department of Electrical Engineering, Balochistan University of Engineering and Technology, Pakistan

Dr. K. Selvaraju

Head, PG & Research, Department of Physics, Kandaswami Kandars College (Govt. Aided), Velur (PO), Namakkal DT. Tamil Nadu, India

Dr. M. K. Bhanarkar

Associate Professor, Department of Electronics, Shivaji University, Kolhapur, Maharashtra, India

Dr. Sanjay Hari Sawant

Professor, Department of Mechanical Engineering, Dr. J. J. Magdum College of Engineering, Jaysingpur, India

Dr. Arindam Ghosal

Professor, Department of Mechanical Engineering, Dronacharya Group of Institutions, B-27, Part-III, Knowledge Park, Greater Noida, India

Dr. M. Chithirai Pon Selvan

Associate Professor, Department of Mechanical Engineering, School of Engineering & Information Technology Manipal University, Dubai, UAE

Dr. S. Sambhu Prasad

Professor & Principal, Department of Mechanical Engineering, Pragati College of Engineering, Andhra Pradesh, India.

Dr. Muhammad Attique Khan Shahid

Professor of Physics & Chairman, Department of Physics, Advisor (SAAP) at Government Post Graduate College of Science, Faisalabad.

Dr. Kuldeep Pareta

Professor & Head, Department of Remote Sensing/GIS & NRM, B-30 Kailash Colony, New Delhi 110 048, India

Dr. Th. Kiranbala Devi

Associate Professor, Department of Civil Engineering, Manipur Institute of Technology, Takyelpat, Imphal, Manipur, India

Dr. Nirmala Mungamuru

Associate Professor, Department of Computing, School of Engineering, Adama Science and Technology University, Ethiopia

Dr. Srilalitha Giriya Kumari Sagi

Associate Professor, Department of Management, Gandhi Institute of Technology and Management, India

Dr. Vishnu Narayan Mishra

Associate Professor, Department of Mathematics, Sardar Vallabhbhai National Institute of Technology, Ichchhanath Mahadev Dumas Road, Surat (Gujarat), India

Dr. Yash Pal Singh

Director/Principal, Somany (P.G.) Institute of Technology & Management, Garhi Bolni Road, Rewari Haryana, India.

Dr. Sripada Rama Sree

Vice Principal, Associate Professor, Department of Computer Science and Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh. India.

Dr. Rustom Mamlook

Associate Professor, Department of Electrical and Computer Engineering, Dhofar University, Salalah, Oman. Middle East.

Managing Editor

Mr. Jitendra Kumar Sen

International Journal of Advanced Engineering and Nano Technology (IJAENT)

Editorial Board

Dr. Saeed Balochian

Associate Professor, Gonaabad Branch, Islamic Azad University, Gonabad, Iratan

Dr. Mongey Ram

Associate Professor, Department of Mathematics, Graphics Era University, Dehradun, India

Dr. Arupratan Santra

Sr. Project Manager, Infosys Technologies Ltd, Hyderabad (A.P.)-500005, India

Dr. Ashish Jolly

Dean, Department of Computer Applications, Guru Nanak Khalsa Institute & Management Studies, Yamuna Nagar (Haryana), India

Dr. Israel Gonzalez Carrasco

Associate Professor, Department of Computer Science, Universidad Carlos III de Madrid, Leganes, Madrid, Spain

Dr. Guoxiang Liu

Member of IEEE, University of North Dakota, Grand Forks, N.D., USA

Dr. Khushali Menaria

Associate Professor, Department of Bio-Informatics, Maulana Azad National Institute of Technology (MANIT), Bhopal (M.P.), India

Dr. R. Sukumar

Professor, Sethu Institute of Technology, Pulloor, Kariapatti, Virudhunagar, Tamilnadu, India

Dr. Cherouat Abel

Professor, University of Technology of Troyes, France

Dr. Rinkle Aggrawal

Associate Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Parteek Bhatia

Associate Professor, Department of Computer Science & Engineering, Thapar University, Patiala (Punjab), India

Dr. Manish Srivastava

Professor & Head, Computer Science and Engineering, Guru Ghasidas Central University, Bilaspur (C.G.), India



S. No	Volume-1 Issue-9, August 2014, ISSN: 2347-6389 (Online) Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.		Page No.
1.	Authors:	Sneha P. Hirkane, N. G. Gore, P. J. Salunke	
	Paper Title:	Combine Application of Stone Column and PVD	
	<p>Abstract: Ground Improvement techniques are often used to improve sub soil properties in terms of their bearing capacity, shear strength, settlement characteristics, drainage, etc. These techniques have a wide range of applicability from coarse grained soils to fine grained soils. Depending upon the loading conditions and nature of soil, a suitable technique which is also economical needs to be adopted. This paper gives the concept and theory of a two ground improvement technique and their combine application for improving the ground.</p> <p>Keywords: Improve, capacity, shear strength, settlement characteristics, drainage, and techniques.</p> <p>References:</p> <ol style="list-style-type: none"> Hughes, J.M.O. and Withers, N.J.: Reinforcing of soft cohesive soils with stone columns, <i>Ground Engineering</i>, (1974). (7), 3, p 42-49 Slocombe, B.C., Bell, A.L. and Baez, J.I. The densification of granular soil using Vibroreplacement, <i>Geotechnique</i>, (2000), L, 6, p 715-726 Hamed Niroudmand, Khairul Anuar Kassim, "Soil improvement by reinforced stone column based on experimental work", <i>EJGE</i>, (2011), 16 V. R. Raju, Y. Hari Krishna. Ground Improvement Techniques for Infrastructure Projects in Malaysia The 12th International Conference of International Association for Computer Methods and Advances in Geomechanics (IACMAG) 1-6 October, 2008 Goa, India SinaKazemian, Bujang. B. K. Huat Assessment and Comparison of Grouting and Injection Methods in Geotechnical Engineering <i>European Journal of Scientific Research</i>. (2009), 27, (2) Lo, S.R., Mak, J., 2010. Geosynthetic-encased stone column in soft clay: a numerical study geotextiles and geomembrane 28,292-302. Dhar, A.S., Siddique, A., Ameen, S.F., (2011). Ground Improvement using Pre-loading with Prefabricated Vertical Drains. <i>International Journal of Geoengineering Case Histories</i>. (2011), 2, (2), pg no 86-104 Foundation design manual. Foundation engineering by S.B. More and S.S. Jahagirdhar Nirali Prakashan. IS 15284(part 1):2003, design and construction for Ground improvement guideline. 		1-3
2.	Authors:	Kurapati Srinivas	
	Paper Title:	Reliable Gas Sensors using ZNO Nanostructures	
	<p>Abstract: Gas sensors are devices that can convert the concentration of an analyte gas into an electronic signal. Zinc oxide (ZnO) is an important n-type metal oxide semiconductor which has been utilized as sensor for several decades. In recent years, there have been extensive investigations of nanoscale semiconductor gas sensors. The size reduction of ZnO sensors to nanometer scale provides a good opportunity to dramatically increase their sensing properties in comparison with their macro scale counterparts. Among the semiconductor metal oxides, zinc oxide (ZnO) is one of the most widely used gas sensing material. Before making any gas sensor, it is very much necessary to know the sensitivity, selectivity of the sensor and their optimization. In this paper, we present the growth of ZnO nanostructures by thermal evaporation technique and investigation of their gas sensing properties. It is observed that the sensing characteristics of single nanowires and films made using nanowires to clearly differentiate the intra grain and grain boundary contributions as well as to develop sensors with better sensitivity/ selectivity. This paper is very much useful for those who would like work on gas sensors for better gas sensing performances.</p> <p>Keywords: Gas sensor, Nanowires, ZnO.</p> <p>References:</p> <ol style="list-style-type: none"> Y.W. Chen, Q. Qiao, Y.C. Liu, G.L. Yang, Size-controlled synthesis and optical properties of small-sized ZnO nanorods, <i>Journal of Physical Chemistry C</i> 113(2009) 7497-7502. R. Hong, J. Li, L. Chen, D. Liu, H. Li, Y. Zheng, et al., Synthesis, surface modification and photocatalytic property of ZnO nanoparticles, <i>Powder Technology</i> 189 (2009) 426-432. X.B. Zhao, G.M. Ashley, G.G. Luis, H. Jin, J.K. Luo, J.R. Lu, Protein functionalized ZnO thin film bulk acoustic resonator as an odorant biosensor, <i>Sensors and Actuators B</i> 163 (2012) 242-246. S.S. Nath, M. Choudhury, D. Chakdar, G. Gope, R.K. Nath, Acetone sensing property of ZnO quantum dots embedded on PVP, <i>Sensors and Actuators B</i> 148(2010) 353-357. A. Forleo, L. Francioso, S. Capone, P. Siciliano, P. Lommens, Z. Hens, Synthesis and gas sensing properties of ZnO quantum dots, <i>Sensors and Actuators B</i> 146(2010) 111-115. S.L. Bai, J.W. Hu, D.Q. Li, R.X. Luo, A.F. Chen, C.C. Liu, Quantum-sized ZnO nanoparticles: synthesis, characterization and sensing properties for NO₂, <i>Journal of Materials Chemistry</i> 21 (2011) 12288-12294. A. Moulahi, F. Sediri, N. Gharbi, Hydrothermal synthesis of nanostructured zinc oxide and study of their optical properties, <i>Materials Research Bulletin</i> 47 (2012) 667-671. G.X. Du, L.D. Zhang, Y. Feng, Y.Y. Xu, Y.X. Sun, B. Ding, Q. Wang, Control-lable synthesis of ZnO architectures by a surfactant-free hydrothermal process, <i>Materials Letters</i> 73 (2012) 86-88. Z. Gergintschew, H. Forster, J. Kositzka, D. Schipanski, Two-dimensional numerical simulation of semiconductor gas sensors, <i>Sensors and Actuators B</i> 26 (1995) 170-173. M. Egashira, Y. Shimizu, Y. Takao, S. Sako, Variations in I-V characteristics of oxide semiconductors induced by oxidizing gases, <i>Sensors and Actuators B</i> 35(1996) 62-67. Greene, L. E.; Yuhas, B. D.; Law, M.; Zitoun, D.; Yang, P., "Solution-Grown Zinc Oxide Nanowires", <i>Inorg. Chem.</i> 2006, 		4-8

45, 7535-7543.

12. Wang, Z. L., "Novel nanostructures of ZnO for nanoscale photonics, optoelectronics, piezoelectricity, and sensing", Appl. Phys. A: Mater. Sci. Process. 2007, 88, 7-15.
13. Özgür, Ü.; Alivov, Y. I.; Liu, C.; Teke, A.; Reshchikov, M. A.; S. Doğan, V. A.; Cho, S. J.; Morkoç, H. A comprehensive review of ZnO materials and devices, J. Appl. Phys. 2005, 98, 041301-103.
14. Look, D. C. "Recent advances in ZnO material and devices", Mater. Sci. Eng., B 2001, 80, 383-387.
15. Pearton, S. J.; Norton, D. P.; Ip, K.; Heo, Y. W.; Steiner, T. "Recent progress in processing and properties of ZnO", Superlattices Microstruct. 2003, 34, 3-32.
16. Kohl, D. "Surface processes in the detection of reducing gases with SnO₂-based devices". Sens. Actuators 1989, 18, 71-113.
17. Zhang, Y.; Yu, K.; Jiang, D.; Zhu, Z.; Geng, H.; Luo, L. "Zinc oxide nanorod and nanowire for humidity sensor", Appl. Surf. Sci. 2005, 242.
18. Harrison, P. G.; Willett, M. J., "The mechanism of operation of tin(IV) oxide carbon monoxide sensors," Nature 1988, 332, 227-339.
19. Kolmakov, A.; Zhang, Y.; Cheng, G.; Moskovits, "Detection of CO and O₂ Using Tin Oxide Nanowire Sensors "M. Adv. Mater. 2003, 15, 997-1000.
20. Wan, Q.; Li, Q. H.; Chen, Y. J.; Wang, T. H.; He, X. L.; Li, J. P.; Lin, C. L. "Fabrication and ethanol sensing characteristics of ZnO nanowire gas sensors", Appl. Phys. Lett. 2004, 84, 3654-3656.
21. Rout, C. S.; Krishna, S. H.; Vivekchand, S. R. C.; Govindaraj, A.; Rao, C. N. R., "Hydrogen and ethanol sensors based on ZnO nanorods, nanowires and nanotubes", Chem. Phys. Lett. 2006, 418, 586-590.
22. Wang D, Zhu R, Zhou Z and Ye X, "Controlled assembly of zinc oxide nanowires using dielectrophoresis", 2007 Appl. Phys. Lett. 90 (p. 3), 103110.
23. S K Gupta, Aditee Joshi and Manmeet Kaur, "Development of gas sensors using ZnO nanostructures", J. Chem. Sci., Vol. 122, No. 1, January 2010, pp. 57-62.

Authors:	Kurpapti Srinivas
Paper Title:	Possible Lead-Free Nanocomposite Polymer Dielectrics for High Energy Storage Applications

Abstract: There is an increasing demand to improve the energy density of dielectric capacitors for satisfying the next generation material systems. One effective approach is to embed high dielectric constant inclusions such as lead zirconia titanate in polymer matrix. However, with the increasing concerns on environmental safety and biocompatibility, the need to expel lead (Pb) from modern electronics has been receiving more attention. Using high aspect ratio dielectric inclusions such as nanowires could lead to further enhancement of energy density. Therefore, the present brief review work focuses on the feasibility of development of a lead-free nanowire reinforced polymer matrix capacitor for energy storage application. It is expected that Lead-free sodium Niobate nanowires (NaNbO₃) will be a future candidate to be synthesized using simple hydrothermal method, followed by mixing them with polyvinylidene fluoride (PVDF) matrix using a solution-casting method for Nanocomposites fabrication. The energy density of NaNbO₃/PVDF composites are also be compared with that of lead-containing (PbTiO₃/PVDF) Nano composites to show the feasibility of replacing lead-containing materials from high-energy density dielectric capacitors. This paper is very much useful researchers who would like to work on polymer nanocomposites for high energy storage applications.

Keywords: Polymer nanocomposite, high energy, storage capacitors.

References:

1. K. M. Slenes, P. Winsor, T. Scholz, and M. Hudis, "Pulse power capability of high energy density capacitors based on a new dielectric material." IEEE Trans. Magn. 37, 324 2001.
2. C. A. Randall, S. Miyazaki, K. L. More, A. S. Bhalla, and R. E. Newnham, "Structural-Property Relations in Dielectrophoretically Assembled BaTiO₃ Nanocomposites," Mater. Lett. 15, 26 _1992.
3. C. P. Bowen, R. E. Newnham, and C. A. Randall, Dielectric properties of dielectrophoretically assembled particulate-polymer composites. J. Mater. Res. 13, 205 1998.
4. A. Randall, D. V. Miller, J. H. Adair, and A. S. Bhalla, Processing of electroceramic-polymer composites using the electrorheological effect., J. Mater. Res. 8, 899 _1993.
5. Application Note 1217-1, "Basics of Measuring the Dielectric Properties of Materials," Hewlett Packard Literature Number 5091-3300E, Pp. 6 (1992).
6. G. J. Johnson, Solid State Tesla Coil, Chap. 3 Lossy Capacitors (2001), available at www.eece.ksu.edu/~gjohnson/.
7. O. E. Gouda, A. M. Thabet and H. H. El-Tamaly, "How to Get Low Dielectric Losses in Binary and Multi-mixtures Dielectrics at High Frequency," 39th International Universities Engineering Conference, Vol. 3, Pp. 1237-1240 (2004).
8. M. Lanagan, "Glass Ceramic Materials for Pulsed Power Capacitors," NSF Center for Dielectric Studies Meeting, Albuquerque, NM, May (2004).
9. Y. Xiaojun, Y. Zhimin, M. Changhui and D. Jun, "Dependence of Dielectric Properties of BT Particle Size in EP/BT Composites," Rare Metals, Vol. 25, Pp. 250 (2006).
10. Y. Cao, P. C. Irwin and K. Younsi, "The Future of Nanodielectrics in the Electrical Power Industry," IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 7, Pp. 797 (2004).
11. F. Ciuprina, I. Plesa, P. V. Notingher, T. Tudorache and D. Panaitescu, "Dielectric Properties of Nanodielectrics with Inorganic Fillers," CEIDP Annual Report Conference on Electrical Insulation and Dielectric Phenomena, Pp. 682-685 (2008).
12. P. Kim, S. C. Jones, P. J. Hotchkiss, J. N. Haddock, B. Kippelen, S. R. Marder and J. W. Perry, "Phosphonic acid-modified Barium Titanate Polymer Nanocomposites with High Permittivity and Dielectric Strength," Advanced Materials, Vol. 19, Pp. 1001-1005 (2007).
13. S. Ramesh, B. A. Shultzberg, C. Huang, J. Gao and E. P. Giannelis, "Dielectric Nanocomposites for Integral Thin Film Capacitors: Materials Design, Fabrication and Integration Issues," IEEE Transactions on Advanced Packaging, Vol. 26, Pp. 17 (2003).
14. Y. Bai, Z.-Y. Cheng, V. Bharti, H. S. Xu and Q. M. Zhang, "High-Dielectric-Constant Ceramic-Powder Polymer Composites," Applied Physics Letters, Vol. 76, Pp. 3804 (2000).
15. S. Liang, S. R. Chong and E. P. Giannelis, "Barium Titanate/Epoxy Composite Dielectric Materials for Integrated Thin Film Capacitors," In Proceedings of 48th Electronic Components and Technology Conference, Pp. 171 (1998).
16. T. J. Lewis, "Interfaces: nanometric dielectrics," Journal of Physics D: Applied Physics, Vol. 38, Pp. 202 (2005).

3.

9-14

17. J. K. Nelson and Y. Hu, "Nanocomposite dielectrics – properties and implications," *Journal of Applied Physics D: Applied Physics*, Vol. 38, Pp. 318 (2005).
18. M. Roy, J. K. Nelson, R. K. MacCrone, L. S. Schadler, C. W. Reed, R. Keefe and W. Zenger, "Polymer Nanocomposite Dielectrics – The Role of the Interface," *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 12, Pp. 629 (2005).
19. R. C. Smith, C. Liang, M. Landry, J. K. Nelson and L. S. Schadler, "The Mechanisms Leading to the Useful Electrical Properties of Polymer Nanodielectrics," *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 15, Pp. 187-196 (2008).
20. J. K. Nelson, "Overview of Nanodielectrics: Insulating Materials of the Future," *IEEE Electrical Insulation Conference and Electrical Manufacturing Expo*, Pp. 229-235 (2007).
21. L. J. Gilbert, T. P. Schuman and F. Dogan, "Dielectric Powder/Polymer Composites for High Energy Density Capacitors," *Advances in Electronic and Electrochemical Ceramics: Proceedings of the 107th Annual Meeting of the American Ceramic Society*, Wiley, Baltimore, Maryland, USA (2005).
22. P. M. Ajayan, L. S. Schadler and P. V. Brawn, *Nanocomposite Science and Technology*, Wiley-VCH: Weinheim, Germany (2003).
23. M.-A. Neouze and U. Schubert, "Surface Modification and Functionalization of Metal and Metal Oxide Nanoparticles by Organic Ligands," *Monatshefte fur Chemie*, Vol. 139, No. 3, Pp. 183-195 (2008).
24. M. Hosokawa, K. Nogi, M. Naito and T. Yokoyama, (Ed) *Nanoparticle Technology Handbook*, Elsevier: Oxford, UK (2007).
25. T. P. Schuman, S. Siddabattuni, O. Cox and F. Dogan, "Improved Dielectric Breakdown Strength of Covalently-Bonded Interface Polymer-Particle Nanocomposites," *Composite Interfaces*, Vol. 17, No. 8, Pp. 719-731 (2010).
26. N. Jayasundere and B. V. Smith, "Dielectric Constant for Binary Piezoelectric 0-3 Composites," *Journal of Applied Physics*, Vol. 73, No. 5, Pp. 2462-2466 (1993).
27. Y. Rao, J. Qu, T. Marinis and C. P. Wong, "A Precise Numerical Prediction of Effective Dielectric Constant for Polymer-Ceramic Composite Based on Effective Medium Theory," *IEEE Transactions on Advanced Packaging Technologies*, Vol. 23, No. 4, Pp. 680-683 (2000).
28. J. P. Calame, "Finite Difference Simulations of Permittivity and Electric Field Statistics in Ceramic-Polymer Composites for Capacitor Applications," *Journal of Applied Physics*, Vol. 99, 084101 (2006).
29. C. Huang, Q. Zhang, "Enhanced Dielectric and Electromechanical Responses in High Dielectric Constant All-Polymer Percolative Composites," *Advanced Functional Materials*, Vol. 14, No. 5, Pp. 501-506 (2004).
30. J. G. Head, N. M. White and P. S. Gale, "Modification of the Dielectric Properties of Polymeric Materials," *5th International Conference on Dielectric Materials, Measurement and Applications*, Issue. 27-30, Pp. 61-64 (1988).
31. D. S. McLachlan, M. Blaskiewicz and R. E. Newnham, "Electrical Resistivity of Composites," *Journal of American Ceramic Society*, Vol. 73, No. 8, Pp. 2187-2203 (1990).
32. J. R. Kokan, R. A. Gerhardt, R. Ruh and D. S. McLachlan, "Dielectric Spectroscopy of Insulator/Conductor Composites," Pp. 341-346 in *Materials Research Society Symposium Proceedings*, Vol. 500, Electrically Based Microstructural Characterization II, Edited by R. A. Gerhardt, M. A. Alim and S. R. Taylor, Materials Research Society, Pittsburgh, PA (1998).
33. R. Zallen, *The Physics of Amorphous Solids*, John Wiley & Sons: New York (2004).
34. S. Kirkpatrick, "Percolation and Conduction," *Reviews of Modern Physics*, Vol. 45, No. 4, Pp. 574-588 (1973).
35. C. Mukherjee, K. Bardhan and M. Heaney, "Predictable Electrical Breakdown in Composites," *Physical Review Letters*, Vol. 83, No. 6, Pp. 1215-1218 (1999).
36. M. Lanagan, "High Power Capacitors and Energy Storage," presented at Materials Day, University Park, Penn State University, April 14 (2008).
37. L. A. Dissado and L. C. Fothergill, *Electrical Degradation and Breakdown in Polymers*, Peter Peregrins Ltd.: London, UK (1992).
38. S. Li, G. Yin, G. Chen, J. Li, S. Bai, L. Zhong, Y. Zhang and Q. Lei, "Short-term Breakdown and Long-term Failure in Nanodielectrics," *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 17, No. 5, Pp. 1523-1535 (2010).
39. J. J. O'Dwyer, *The Theory of Dielectric Breakdown of Solids*, Oxford University Press: London, UK (1964).
40. J. Claude, Y. Lu and Q. Wang, "Effect of Molecular Weight on the Dielectric Breakdown Strength of Ferroelectric Poly(vinylidene fluoride-chlorotrifluoroethylene)s," *Applied Physics Letters*, Vol. 91, Issue. 21, 212904 (2007).
41. Z. Tian, X. Wang, L. Shu et al., "Preparation of nano BaTiO₃-based ceramics for multilayer ceramic capacitor application by chemical coating method," *Journal of the American Ceramic Society*, vol. 92, no. 4, pp. 830-833, 2009.
42. M. Unruan, T. Sareein, J. Tangsitrakul et al., "Changes in dielectric and ferroelectric properties of Fe³⁺/Nb⁵⁺ hybrid doped barium titanate ceramics under compressive stress," *Journal of Applied Physics*, vol. 104, no. 12, Article ID 124102, 2008.
43. O. Guillon, J. Chang, S. Schaab, and S.-J. L. Kang, "Capacitance enhancement of doped barium titanate dielectrics and multilayer ceramic capacitors by a post-sintering thermo mechanical treatment," *Journal of the American Ceramic Society*, vol. 95, no. 7, pp. 2277-2281, 2012.
44. S. S. Ibrahim, A. A. Al Jaafari, and A. S. Ayeshe, "Physical characterizations of three phase polycarbonate nanocomposites," *Journal of Plastic Film and Sheeting*, vol. 27, no. 4, pp. 275-291, 2011.
45. L. Xie, X. Huang, C. Wu, and P. Jiang, "Core-shell structured poly(methyl methacrylate)/BaTiO₃ nanocomposites prepared by in situ atom transfer radical polymerization: a route to high dielectric constant materials with the inherent low loss of the base polymer," *Journal of Materials Chemistry*, vol. 21, no. 16, pp. 5897-5906, 2011.
46. P. Kim, N. M. Doss, J. P. Tillotson et al., "High energy density nanocomposites based on surface-modified BaTiO₃ and a ferroelectric polymer," *ACS Nano*, vol. 3, no. 9, pp. 2581-2592, 2009.
47. Y. P. Mao, S. Y. Mao, Z.-G. Ye, Z. X. Xie, and L. S. Zheng, "Sizedependences of the dielectric and ferroelectric properties of BaTiO₃/polyvinylidene fluoride nanocomposites," *Journal of Applied Physics*, vol. 108, no. 1, Article ID 014102, 2010.
48. Z.-M. Dang, J.-K. Yuan, J.-W. Zha, T. Zhou, S.-T. Li, and G.-H. Hu, "Fundamentals, processes and applications of 8 ISRN Nanomaterials high-permittivity polymer-matrix composites," *Progress in Materials Science*, vol. 57, no. 4, pp. 660-723, 2012.
49. L. Ni and X. M. Chen, "Dielectric relaxations and formation mechanism of giant dielectric constant step in CaCu₃Ti₄O₁₂ ceramics," *Applied Physics Letters*, vol. 91, no. 12, Article ID 122905, 2007.
50. A. Chen, K. Kamata, M. Nakagawa, T. Iyoda, H. Wang, and X. Li, "Formation process of silver-poly pyrrole coaxial nanocables synthesized by redox reaction between AgNO₃ and pyrrole in the presence of poly(vinylpyrrolidone)," *Journal of Physical Chemistry B*, vol. 109, no. 39, pp. 18283-18288, 2005.
51. P. Barber, S. Balasubramanian, Y. Anguchamy et al., "Polymer composite and nanocomposite dielectric materials for pulse power energy storage," *Materials*, vol. 2, pp. 1697-1733, 2009.
52. D. K. Das-Gupta and K. Doughty, "Polymer-ceramic composite materials with high dielectric constants," *Thin Solid Films*, vol. 158, no. 1, pp. 93-105, 1988.
53. C. Andrews, Y. Lin, and H. A. Sodano, "The effect of particle aspect ratio on the electroelastic properties of piezoelectric nanocomposites," *Smart Materials and Structures*, vol. 19, no. 2, Article ID 025018, 2010.
54. H. Tang, Y. Lin, C. Andrews, and H. A. Sodano, "Nanocomposites with increased energy density through high aspect ratio PZT nanowires," *Nanotechnology*, vol. 22, no. 1, Article ID 015702, 2011.
55. MiguelMendoza, Md Ashiqur Rahaman Khan, Mohammad Arif Ishitiaeque Shuvo,

	56. Alberto Guerrero, and Yirong Lin, "Development of Lead-Free Nanowire Composites for Energy Storage Applications", International Scholarly Research Network ISRN Nanomaterials Volume 2012, Article ID 151748, 8 pages.					
4.	<table border="1"> <tr> <td>Authors:</td> <td>Payam Vahedi</td> </tr> <tr> <td>Paper Title:</td> <td>Electronic Commutation Consideration in Modeling of Radial-Flux Surface Mounted PM Machines</td> </tr> </table> <p>Abstract: In order to keep the permanent magnet motor running, the magnetic field produced by the windings should shift position, as the rotor moves to catch up with the stator field. Rotor position is sensed using Hall effects sensors. With these sensors 6 different commutation are possible every 15°. Hence, this paper presents a model procedure for these 6 points. The aim of this paper is presented a magnetic model of surface mounted permanent magnet machine for different rotor positions. This paper is presented a PM machine with double layer concentrated winding with 8 poles and 12 slots. The FEM analysis is used for validation of models.</p> <p>Keywords: Finite element method, Modeling Permanent magnet machine, Radial flux.</p> <p>References:</p> <ol style="list-style-type: none"> Jabbari, Ali, M. Shakeri, A. S. Gholamian, 2009. Rotor pole shape optimization of permanent magnet brushless DC motor using the reduced basis technique. <i>Advances in electrical and computer engineering</i>, 9: 75-81. Hassanpour Isfahani, Arash, and Sadeghi, Siavash, 2008. Design of a Permanent Magnet Synchronous Machine for the Hybrid Electric Vehicle. <i>World Academy of Science, Engineering and Technology</i> 45: 566-570. Meessen, K. J., Thelin, P., Soulard, J. and Lomonova, E. A., 2008. Inductance Calculations of Permanent-Magnet Synchronous Machines Including Flux Change and Self- and Cross-Saturations. <i>IEEE Transaction on magnetic</i>, 44: 2324-2331. Krishnan, R., 2001. <i>Switched Reluctance Motor Drives: Modeling, Simulation, Analysis, Design and Applications</i>. 1st Edn. CRC Press, New York. ISBN-13: 978-0849308383, pp: 432. Sadeghierad, M., H. Lesani, H. Monsef and A. Darabi, 2008. Leakage in modeling of high speed axial flux PM generator. <i>Proceedings of the IEEE International Conference on Industrial Technology</i>, April 21-24, Chengdu, pp: 1-6. 	Authors:	Payam Vahedi	Paper Title:	Electronic Commutation Consideration in Modeling of Radial-Flux Surface Mounted PM Machines	15-21
Authors:	Payam Vahedi					
Paper Title:	Electronic Commutation Consideration in Modeling of Radial-Flux Surface Mounted PM Machines					
5.	<table border="1"> <tr> <td>Authors:</td> <td>Mohamad Owais Raja, Tazeem A Khan, Junaid Geelani</td> </tr> <tr> <td>Paper Title:</td> <td>Analytical Study of Watermarking Techniques</td> </tr> </table> <p>Abstract: The increasing amount of research on watermarking over the past decade has been largely driven by its important applications in digital copyrights management and protection. One of the first applications for watermarking was broadcast monitoring. In this paper presented LSB substitution and threshold-based correlation techniques, performance analysis on the basis of their various types of noises. In this analysis, Different image simulated using two watermarks techniques. We used simulation through using Matlab Simulator.</p> <p>Keywords: Digital watermarking, LSB substitution, threshold based correlation.</p> <p>References:</p> <ol style="list-style-type: none"> M. D. Swanson, M. Kobayashi, and A. H. Tewfik, "Multimedia Data Embedding and Watermarking Technologies", <i>IEEE Proc.</i> 86, (6), pp. 1064-1087, 1998. F. Mintzer, W. Braudaway, and M. M. Yeung, "Effective and Ineffective Digital watermarks", <i>Proc. ICIP'97</i>, Santa Barbara, CA, pp. 9-12, 1997. A. Piva, M. Barni, F. Bartolini, V. Cappellini, "Threshold Selection for Correlation-Based Watermark Detection", <i>Proceedings of COST 254 Workshop on Intelligent Communications</i>, L'Aquila, Italy, June 4-6, 1998. M. G. Kuhn, "Stirmark", available at http://www.cl.cam.ac.uk/~mgk25/stirmark/, Security Group, Computer Lab, Cambridge University, UK (E-mail: mkuhn@acm.org), 1997. M. J. J. Maes and C. W. A. M. van Overveld, "Digital watermarking by geometric warping", <i>Proc. of the ICIP'98</i>, Chicago, Illinois, 1998. J. J. K. Ó Ruanaidh and T. Pun, "Rotation, scale and translation invariant digital image watermarking", <i>Proc. of the ICIP'97</i>, vol. 1, pp. 536-539, Santa Barbara, California, 1997. J. J. K. Ó Ruanaidh, W. J. Dowling, and F. M. Boland, "Watermarking digital images for copyright protection", <i>IEE Proc. Vision, Image and Signal Processing</i>, 143(4), pp. 250-256, 1996. A. Herrigel, J. Ó Ruanaidh, H. Petersen, S. Pereira, T. Pun, "Secure copyright protection techniques for digital images," <i>Proc. of the 2nd Int. Information Hiding Workshop</i>, Portland, Oregon, 1998. H. Choi, H. Kim, and T. Kim, "Robust Watermarks for Images in the Subband Domain", <i>Proc. of The 6th IEEE International Workshop on Intelligent Signal Processing and Communication Systems (ISPACS'98)</i>, Melbourne, Australia, pp. 168-172, 1998. D. J. Fleet and D. J. Heeger, "Embedding Invisible Information in Color Images", <i>ICIP '97</i>, pp.523-535, Santa Barbara, California, 1997. N.F. Johnson, S.C. Katzenbeisser, "A Survey of Steganographic Techniques" in <i>Information Techniques for Steganography and Digital Watermarking</i>, S.C. Katzenbeisser et al., Eds. Northwood, MA: Artec House, Dec. 1999, pp 43-75. Kamran Ahsan, Deepa Kundur. <i>Workshop Multimedia and Security at ACM Multimedia'02</i>, December 6, 2002. Emil Frank Hembrooke. Identification of sound and like signals. United States Patent, 3,004,104, 1961, quoted in "The first 50 years of electronic watermarking". Ingemar J. Cox, Matt L. Miller, published in the <i>Journal of Applied Signal Processing</i>, IEEE, 2002. "USC-SIPI image database," available at http://sipi.usc.edu/services/database/Database.html. Dr. M. A. Dorairangaswamy, "A Robust Blind Image Watermarking Scheme in Spatial Domain for Copyright Protection", <i>International Journal of Engineering and Technology</i> Vol. 1, No.3, August, 2009. [A. Al-Haj, "Combined DWT-DCT Digital Image Watermarking", <i>Journal of Computer Science</i> 3 (9): 740-746, 2007. [15] M. Calagna, H. Guo, L. V. Mancini and S. Jajodia, "A Robust Watermarking System Based on SVD Compression", <i>Proceedings of ACM Symposium on Applied Computing (SAC2006)</i>, Dijon, France, pp. 1341-1347, 2006. F. Cayre, C. Fontaine and T. Furon, "Watermarking security: theory and practice", <i>Signal Processing, IEEE Transactions on</i>, vol. 53, no. 10, pp. 3976-3987, Oct. 2005. P. Taaand and A. M. Eskicioglu, "A robust multiple watermarking scheme in the Discrete Wavelet Transform domain", <i>Internet Multimedia Management Systems Proceedings of the SPIE</i>, Volume 5601, pp. 133-144 (2004). 	Authors:	Mohamad Owais Raja, Tazeem A Khan, Junaid Geelani	Paper Title:	Analytical Study of Watermarking Techniques	22-25
Authors:	Mohamad Owais Raja, Tazeem A Khan, Junaid Geelani					
Paper Title:	Analytical Study of Watermarking Techniques					

	<p>19. Pradhan, C., Rath, S., Bisoi, and A. K., "Non Blind Digital Watermarking Technique Using DWT and Cross Chaos", Journal of Procedia Technology, vol. 6, pp. 897- 904, 2012.</p> <p>20. Keyvanpour, M., Bayat, F. M., "Robust Dynamic Block-Based Image Watermarking in DWT Domain", Journal of Procedia Computer Science, vol. 3, pp. 238-242, 2011.</p>	
<p>Authors:</p> <p>Paper Title:</p> <p>6.</p>	<p>Mohammad Sharear Kabir, Tamzid Ibn Minhaj, Ehsan Ahmed Ashrafi, Md. Maruf Hossain</p> <p>Influence of Sintering Routes on the Structure and Indentation Hardness of Nano α-Al₂O₃ Particles</p> <p>Abstract: In this study, the influence of single stage and double stage sintering routes on the microstructure and indentation hardness of nanoscale α-Al₂O₃ particles have been investigated. The nanoscale alumina particles were compacted by Uniaxial pressing technique. Sintered nanoscale α-Al₂O₃ particles have been shown to have excellent mechanical properties to be used in the manufacture of nanotubes and nanowires. Among the sintering routes, α-Al₂O₃ ceramic particles sintered by double stage sintering route showed comparatively higher resistance to indentation than single stage sintering route. The densification achieved by double stage sintering route is higher than single stage sintering route. Based on scanning electron microscope images, the microstructure of samples sintered by double stage sintering route contained less porosity than conventional/ single stage sintering route. The increase in hardness achieved by double stage sintering route can be attributed to higher densification and suppressed grain growth during final stage sintering.</p> <p>Keywords: α-Al₂O₃, Uniaxial pressing, indentation hardness, double stage sintering route, single stage sintering route.</p> <p>References:</p> <ol style="list-style-type: none"> 1. W.D. Kingery, H.K. Bowen, D.R. Uhlmann, Introduction to Ceramics, Wiley, New York, 1976. 2. M.N. Rahaman, Ceramic Processing and Sintering, M. Dekker, New York, 2003. 3. N.J. SHAW, R.J. BROOK, Structure and Grain Coarsening during the Sintering of Alumina J Am Ceram Soc. 69 (1986) page 107-110. 4. R.M. German, Sintering Theory and Practice, Wiley, New York, 1996. 5. R. Vila, E. R. Hodgson. In-beam dielectric properties of alumina at low frequencies. J. Nucl. Mater. V., 283-287, 903-606 (2000). 6. L. Jiang, P. Yubai, X. Changshu, G. Qiming, and J. Jingkun, "Low temperature synthesis of ultrafine α-Al₂O₃ powder by a simple aqueous sol-gel process," Ceramics International, vol. 32, no. 5, pp. 587-591, 2005. 7. G. M. Ming, J. Z. Ying, and L. X. Zi, "A new route to synthesis of γ-alumina nanorods," Materials Letters, vol. 61, no. 8-9, pp. 1812-1815, 2007. 8. D. G. Wang, F. Guo, J. F. Chen, H. Liu, and Z. Zhang, "Preparation of nano aluminium trihydroxide by high gravity reactive precipitation," Chemical Engineering Journal, vol. 121, no. 2-3, pp. 109-114, 2006. 9. M. Hasmaliza, S. S. How, and S. Rahayu, "α-Alumina nanoparticle synthesis through sol-gel isopropoxide system," Proceedings of the International Conference on Applied Production Technology (APT '07), Beijing, China, 2007. 10. L. T. Geik, Y. L. Kong, and A. K. M. Wan, "Synthesis and characterization of sol-gel alumina nanofibers," Journal of Sol-Gel Science and Technology, pp. 1-17, 2007. 11. E. Yalamaç, Antonio Trapani, Sedat Akkurt. "Sintering and microstructural investigation of gamma-alpha alumina powders." Engineering Science and Technology, an International Journal 17 (2014) 2-7 12. K. Wefers, C. Misra, Oxides and Hydroxides of Aluminum, ALCOA Technical Paper No. 19, Rev. ALCOA Labs, 1987. 13. X. Yang, A.C. Pierre, D.R. Uhlmann, J. Non-Cryst. Sol. 100 (1988) 331, http://dx.doi.org/10.1016/0022-3093(86)90142-0. 14. S.D. Skrovaneck, R.C. Bradt, Microhardness of a grain-grain-size Al₂O₃, J. Am. Ceram. Soc. 62 (3-4) (1979) 215-216. 15. R.W. Rice, C.C. Wu, F. Borchelt, Hardness-Grain-size relations in ceramics, J. Am. Ceram. Soc. 77 (10) (1994) 2539-2553. 16. A. Krell, P. Blank, Grain size dependence of hardness in dense submicrometer alumina, J. Am. Ceram. Soc. 78 (4) (1995) 1118-1120. 17. P. Chantikul, S.J. Bennison, B.R. Lawn, Role of grain size in the strength and R-curve properties of alumina, J. Am. Ceram. Soc. 73 (8) (1990) 2419-2427. 18. J. Seidel, N. Claussen, J. Rödel, Reliability of alumina ceramics: effect of grain size, J. Eur. Ceram. Soc. 15 (1995) 395-404. 19. R.W. Rice, Review ceramic tensile strength-grain size relations: grain sizes, slopes, and branch intersections, J. Mater. Sci. 32 (1997) 1673-1692. 20. Y.T. O, J.B. Koo, K.J. Hong, J.S. Park, D.C. Shin, Effect of grain size on transmittance and mechanical strength of sintered alumina, Mater. Sci. Eng. A 374 (2004) 191-195. 21. R.S. Roy, H. Guchhait, A. Chanda, D. Basu, M.K. Mitra, Improved sliding wear-resistance of alumina with sub-micro grain size: a comparison with coarser grained material, J. Eur. Ceram. Soc. 27 (2007) 4737-4743. 22. T. Senda, E. Yasuda, M. Kaji, R.C. Bradt, Effect of grain size on the sliding wear and friction of alumina at elevated temperatures, J. Am. Ceram. Soc. 82 (6) (1999) 1505-1511. 23. A. Muchtar, L.C. Lim, Indentation fracture toughness of high purity submicron alumina, Acta Mater. 46 (5) (1998) 1683-1690. 24. R. Apetz, M.P.B. Bruggen, Transparent alumina: a light-scattering model, J. Am. Ceram. Soc. 86 (3) (2003) 480-486. 25. A. Krell, P. Blank, H. Ma, T. Hutzler, M. Nebelung, Processing of highdensity submicrometer Al₂O₃ for new applications, J. Am. Ceram. Soc. 86 (4) (2003) 546-553. 26. B.N. Kim, K. Hiraga, K. Morita, H. Yoshida, Spark plasma sintering of transparent alumina, Scripta Mater. 57 (7) (2007) 607-610. 27. S. Chang, R.H. Doremus, L.S. Schadler, R.W. Siegel, Hot-pressing of nano-size alumina powder and the resulting mechanical properties, Int. J. Appl. Ceram. Technol. 1 (2) (2004) 172-179. 28. Z. Shen, M. Johnson, Z. Zhao, M. Nygren, Spark plasma sintering of alumina, J. Am. Ceram. Soc. 85 (8) (2002) 1921-1927. 29. I.W. Chen, X.H. Wang, Sintering dense nanocrystalline ceramics without final-stage grain growth, Nature 404 (2000) 168-171. 30. X.H. Wang, P.L. Chen, I.W. Chen, Two-step sintering of ceramics with constant grain-size. I. Y₂O₃, J. Am. Ceram. Soc. 89 (2) (2006) 431-437. 31. P. Dura'n, F. Capel, J. Tartaj, C. Moure, A strategic two-stage lowtemperature thermal processing leading to fully dense and fine-grained doped-ZnO varistors, Adv. Mater. 14 (2) (2002) 137-141. 32. P.C. Yu, Q.F. Li, J.Y.H. Fuh, T. Li, L. Lu, Two-stage sintering of nanosized yttria stabilized zirconia process by powder injection moulding, J. Mater. Process. Tech. 192-193 (2007) 312-318. 	<p>26-30</p>

- | | |
|---|--|
| <ol style="list-style-type: none">33. J. Binner, K. Annapoorani, A. Paul, I. Santacruz, B. Vaidhyanathan, Dense nanocrystalline zirconia by two stage conventional/hybrid microwave sintering, <i>J. Eur. Ceram. Soc.</i> 28 (5) (2007) 973–977.34. K. Bodisova, P. S'ajgalik, D. Galusek, P.S'vanca'rek, Two-stage sintering of alumina with submicrometer grain size, <i>J. Am. Ceram. Soc.</i> 90 (1) (2007) 330–332.35. Y.I. Lee, Y.W. Kim, M. Mitomo, Effect of processing on densification of nanostructured SiC ceramics fabricated by two-step sintering, <i>J. Mater. Sci.</i> 39 (2004) 3801–3803.36. ASTM C372-73.37. BARTOSZ WÓJTOWICZ, WALDEMAR PYDA. “Two step sintering and related properties of 10 vol.% ZrO₂-Al₂O₃ composites derived from filter and cold isostatic pressing”. <i>MATERIALY CERAMICZNE /CERAMIC MATERIALS/</i>, 63, 4, (2011), 814-819.38. Ralf Reidel, I-Wei Chen. <i>Ceramics Science and Technology, Synthesis and Processing</i>. John Wiley & Sons, Dec 12, 2011, pp. 452-453 | |
|---|--|