Dr. Santosh M. Bobade

Assistant Professor(SG)

Education: M.Sc., Ph.D.

E-mail: santosh.bobade[AT]juet.ac.in

Contact No. : Ext. - 124

Areas of Interest: Solid State Ionics, Semiconducting Device Processing, Flash Memories, Thin Film Transistors, Ferroelectric Materials.

Brief Profile:

Dr. Santosh M. Bobade did his Ph.D. in the field of Solid State Ionics from IIT BOMBAY, Mumbai in the year 2007. Prior to joining JUET Guna, from 2007 to 2010, Dr. Santosh M. Bobade was working as BK-21 Fellow in Sungkyunkwan University (Suwon), Hanyang University (Seoul) and Sogang University (Seoul) South Korea. He has published over 20 research articles in the SCI journals of international repute.

Post Doctoral Experience

1. Sungkyunkwan University Suwon, South Korea 2007-2008 (High-K dielectrics for NVROM)
2. Hanyang University Seoul, South Korea 2008-2010 (Thin Film Transistor for Display Technology)
3. Sogang University Seoul 2011 to Aug 2011 (DSM and electronic materials)

Research Project:

Development of PA2200 based nano-composite materials for Selective Laser sintering (Additive manufacturing)
Amount 6.44 Lakhs (Completed)

Ph.D. Scholar

1. Dr. Sunil Kumar Tiwari has completed his Ph.D. thesis and Degree has been awarded in 2017. " Materials Optimization for Selective Laser Sintering Process"
2. Dr. Mahendra Singh Yadav has completed Ph.D. in the area of Supercapacitor as energy storage device. " Nanomaterials for energy storage devices" .
3. Dr.Mukta Tripathis has submitted her thesis on " Ion conducting Polymer electrolyte for Electrochemical device"

Publication@JUET

Journal Papers

1. Evaluation of Y2O3 gate insulators for a-IGZO thin film transistors, Cho, Young-Je and Shin, Ji-Hoon and Santosh M Bobade,Kim, Young-Bae and Choi, Duck-Kyun,Thin Solid Films,517-14,4115-4118,(2009),publisher(Elsevier)

2. Dielectric properties of A-and B-site-doped BaTiO 3 (I): La-and Al-doped solid solutions,Santosh M Bobade and Gulwade, DD and Kulkarni, AR and Gopalan, P, Journal of applied physics,97,7, 074105,year 2005,publisher (American Institute of Physics)

3. On the various approaches to enhancing the conductivity of sodium sulfate: review and current developments,Gopalan, Prakash and Saha, Sandeep and Santosh M Bobade and Kulkarni, Ajit,Journal of Solid State Chemistry,155-1,154--167,(2000),publisher (Academic Press)

4. Dielectric properties of A-and B-site doped Ba Ti O 3 (II): La-and Ga-doped solid solutions, Gulwade, DD and Santosh M Bobade and Kulkarni, AR and Gopalan, P, Journal of applied physics,97,7,074106, (2005),publisher (American Institute of Physics)

5. Role of the salt phase in GDC and alumina-based composites,Jain, Vipul and Santosh M Bobadeand Gulwade, Devidas and Gopalan, Prakash,Ionics,16,6,487-496, 2010, Pubisher (Springer-Verlag)

6. A reconstruction of cubic rs-ZnO on MgO (200) substrate through (100) plane of w-ZnO: rs-ZnO for transparent electronic application, Santosh M Bobade,Applied Physics Letters,100,7,072102,2012,publisher (American Institute of Physics)

7. Fabrication of an a-IGZO thin film transistor using selective deposition of cobalt by the self-assembly monolayer (SAM) process,Cho, Young-Je and Kim, HyunHo and Park, Kyoung-Yun and Lee, Jaegab and Santosh M Bobadeand Wu, Fu-Chung and Choi, Duck-Kyun,Journal of nanoscience and nanotechnology,11,1,787--790,2011, publisher (American Scientific Publishers)

8. Room temperature fabrication Oxide TFT with Y2O3 as a gate oxide and Mo contact,Santosh M Bobadeand Shin, Ji-Hoon and Cho, Young-Je and You, Jung-Sun and Choi, Duck-Kyun,Applied surface science,255,17,7831-7833, 2009,publisher (North-Holland)

9. Phase transition in Na2SO4: all five polymorphic transformations in DSC,Santosh M Bobade and Gopalan, P and Kulkarni, AR,Ionics,15,3,353--355,2009,publisher (Springer-Verlag)

10. Electrical properties of Na 2 SO 4-based composite systems,Santosh M Bobade and Kulkarni, AR and Gopalan, P,journal Ionics,13,4,257--262,2007,publisher (Springer-Verlag)

11. Dielectric Properties of La3+ at A Site and Al3+ and Ga3+ Doped at B Site in BaTiO3,Santosh M Bobade and Gopalan, Prakash and Choi, Duck-Kyun,Japanese Journal of Applied Physics, 48,4,41402,2009

12. The effects of rapid thermal annealing on the performance of ZnO thin-film transistors,Park, Chan Jun and Kim, Young-Woong and Cho, Young-Je and Santosh M Bobadeand Choi, Duck-Kyun and Lee, Sung Bo,Journal of the Korean Physical Society,55,5,1925,2009,publisher (Korean Physical Society)

13. Uniform Crystallization of a 3 Amorphous-Si TFT Array Employing Field-Aided Lateral Crystallization,Kim, Myeong-Ho and Jung, Jae-Hoon and Santosh M Bobade and Choi, Duck-Kyun and Kim, Young-Bae and Shin, Ji-Hoon,Journal of the Korean Physical Society,55,5,1882-1886,2009, publisher (Korean Physical Society)

14. Investigation of the conductivity of Na2SO4--PbTiO3 composite electrolyte system: Non linear electrical behavior at Curie temperature of the dispersoid,Santosh M Bobade and Kulkarni, AR and Gopalan, P,Solid State Ionics,178,29-30,1585-1589, 2007,publisher (Elsevier)

15. The effect of annealing in forming gas on the a-IGZO thin film transistor performance and valence band cut-off of IGZO on SiNx,Kamal, Raj and Chandravanshi, Piyush and Choi, Duck-Kyun and Santosh M Bobade,Current Applied Physics,15,5,648--653,year2015,publisher (North-Holland)

16. Permanent optical doping of amorphous metal oxide semiconductors by deep ultraviolet irradiation at room temperature,Seo, Hyungtak and Cho, Young-Je and Kim, Jinwoo and Santosh M Bobade and Park, Kyoung-Youn and Lee, Jaegab and Choi, Duck-Kyun,Applied Physics Letters,96,22,222101,2010,publisher (American Institute of Physics)

17. Selection of selective laser sintering materials for different applications,Tiwari, Sunil Kumar and Pande, Sarang and Agrawal, Sanat and Santosh M Bobade,Rapid prototyping journal,2015,publisher (Emerald Group Publishing Limited)

18. A Targeted Functional Value Based Nanoclay/PA12 Composite Material Development for Selective Laser Sintering Process,Tiwari, Sunil Kumar and Pande, Sarang and Santosh M Bobade and Kumar, Santosh,journal Procedia Manufacturing,21,630--637, 2018,publisher (Elsevier)

19. Zinc oxide nanoparticles and activated charcoal-based nanocomposite electrode for supercapacitor application,Yadav, Mahendra Singh and Singh, Narendra and Santosh M Bobade,Ionics,24,11,3611--3630,2018,publisher (Springer Berlin Heidelberg)

20. Preparation of polyvinylidene fluoride-co-hexafluoropropylene-based polymer gel electrolyte and its performance evaluation for application in EDLCs,Tripathi, Mukta and Santosh M Bobade and Kumar, Anuj,Bulletin of Materials Science,42,1,27,year2019,publisher (Indian Academy of Sciences)

21. Assessment of mechanical properties and flammability of magnesium oxide/PA12 composite material for SLS process,Tiwari, Sunil Kumar and Pande, Sarang and Santosh M Bobade and Kumar, Santosh, Rapid Prototyping Journal,2019,publisher (Emerald Publishing Limited)

22. Additive Manufacturing Process: Materials Status and Opportunity,Tiwari, Sunil Kumar and Pande, Sarang and Santosh M Bobade,International Journal of Production Engineering,3,1,12-28,2017

23. VxOy nanoparticles and activated charcoal based nanocomposite for supercapacitor electrode application,Yadav, Mahendra Singh and Singh, Narendra and Santosh M Bobade,journal Ionics,26,5,2581--2598,2020,publisher (Springer Berlin Heidelberg

24. Fabrication of supercapacitor using banyan leaves-based activated carbon electrode and formic acid-based polymer electrolyte,Tripathi, Mukta and Dixit, Aparajita and Santosh M Bobade, Materials Today: Proceedings,28,320--324,year2020,publisher Elsevier

25. Electrochemical analysis of CuO-AC based nanocomposite for supercapacitor electrode application,Yadav, Mahendra Singh and Singh, Narendra and antosh M Bobade,journal Materials Today: Proceedings,28,366--374,year2020,publisher Elsevier

26. Nanocomposite polymer gel with dispersed alumina as an efficient electrolyte for application in supercapacitors,Tripathi, Mukta and Santosh M Bobade, and Kumar, Anuj,journalJournal of Physics and Chemistry of Solids,152,109944,year2021,publisher Pergamon

Conference Paper

1. Conductivity and its dependence on dielectric properties of dispersoid in Na2SO4 based composite electrolyte, Santosh Bobade, and Gopalan, P and Kulkarni, AR, Ion-Conducting Materials: Theory and Applications, 201, year2001, publisher Alpha Science Int'l Ltd.

2. Comparative Studies on Ionic Liquid and Polymer Ionic Liquid Blend for Application in EDLCs, Tripathi, Mukta and, Santosh M Bobadeand Gupta, Meenal and Kumar, Yogesh, book Macromolecular Symposia, 388, 1, 1900029, year2019

3. Phase stability and Morphology of high-k gate stack of $ Si/SiO2/HfO2 $ and $ Si/SiO2/ZrO2, Lee, Seung-Hwan and Santosh M Bobade,and Yoo, WJ, book Proceedings of the Korean Institute of Surface Engineering Conference, 118--119, year2007, organizationThe Korean Institute of Surface Engineering

4. Novel ZrO2/Si3N4 dual charge storage layer to form step-up potential wells for highly reliable multi-level cell application, Cho, BJ and Zhang, G and Hwang, WS and Santosh M Bobade and Lee, SH and Yoo, WJ, (2007)

5. A targeted functional value based nano-clay/PA12 composite materials development for selective laser sintering process, Sunil Kumar Tiwari, Sarang Pande, Santosh Bobade, 15 th Golbal conference on sustainable manufacturing, Hafia, Israel-2017

6. Tiwari, S. K., Pande, S. and Bobade, S. (2013), " Selective Laser Sintering Process: Materials Status and Opportunity" in Proc. 2nd International Conference on Advanced Manufacturing and Automation (INCAMA-2013), (March 28-30), Virudhunagar, Tamil Nadu, India, pp. 108-115.

7. Tiwari, S. K., Pande, S. and Bobade, S. (2013), Material optimization in Selective Laser Sintering Process using Value Engineering approacha,National conference NCRAFT13, October 2013, OIST, Bhopal, India.

8. Raj Kamal, Piyush Chandravanshi, Duck-Kyun Choi, Santosh Bobade, The effect of annealing in forming gas on the a-IGZO thin film transistor performance and valence band cutoff of IGZO on SiNx " 3rd international conference on Nanotechnology" , Bharti Vidyapith University, Pune, Oct. 1415, 2014 (Presented)

9. Raj Kamal, Piyush Chandravanshi, Duck-kyun Choi, S. M. Bobade, Effect of Oxygen plasma treatment on the electrical performance of IGZO based thin film transistor International Conference on Recent trend in Physics (ICRTP2014), Devi Ahilya University, Indore (February 22-23, 2014)

10. Electrical and structural characterization of Na2SO4-MgO composite system, Santosh Bobade, Prakash Gopaln, Ajit Kulkrni, National Conference on Synthesis characterization of advanced materials (2012)

11. Oxide based TFT with high-k gate dielectrics, Presented at conclave of Nanotechnology, S. M.Bobade, and Duck-Kyun Choi, New Delhi, India, April 2009

12. Recent Advances in Barium Titanate based Ferroelectric Materials, P. Gopalan, D. D. Gulwade, and S. M. Bobade, National Seminar on Applications of Physics in Engineering Technology, VNIT, Nagpur (March 2005)

13. Role of dielectric constant of dispersoid in composite electrolyte, S. M. Bobade, P. Gopalan and A. R. Kulkarni, Fourth Asian national conference of Solid State Ionics, IIT Bombay 2002

14. Role of third phase in Na 2 SO 4 based composite, S. M. Bobade, P. Gopalan and A. R. Kulkarni, ICMAT Singapore-2004

15. Synthesis and characterization of La, Al doped PbTiO3, S. M. Bobade, R. Thapaliyal, P.Gopalan and A. R. Kulkarni, ICMAT Singapore -2004

16. Synthesis and Characterization of ZnO Nanoparticles and Its Application in Supercapacitor, Mahendra Singh Yadav, Narendra Singh and Santosh M Bobade, National Conference on Advance Materials and nanotechnology (AMN-2018), March 15-17, 2018, held in DPMSE, JIIT, Noida, Uttar Pradesh, India.