

Dr. Abhijit Ray
List of publications

Books & Chapters:

1. **Book:** *Cuprates and Manganites: Application in Magnetic Sensors, Materials, Fabrication and Thermo-physical properties* by Abhijit Ray; Scholars Press, Germany (2013) **ISBN:** 978-3-639-51817-7
2. **Chapter:** *Electrodeposition of thin films for low cost solar cells* by Abhijit Ray in *Electroplating of nanostructures*, Ed. M. Aliofkhaezrai, Intech (*Under preparation*, 2014)

Refereed full papers (Journals):

1. P. Mahala, S.K. Behura, C. Dhanavantri, **A. Ray** and O. Jani, *Metal/InGaN Schottky Junction Solar Cells—An Analytical Approach*, (**Appl. Phys. A-Mater.** Accepted In press)
2. M. Patel and **A. Ray**, *Junction and back contact properties of spray deposited M/SnS/In₂S₃/SnO₂:F/Glass (M = Cu, Graphite) devices: A consideration to improve photovoltaic performance* (**J. Electron. Mater.** In press, DOI. 10.1007/s11664-014-3489-3)
3. M. Patel, I. Mukhopadhyay and **A. Ray**, *Molar optimization of spray pyrolyzed SnS thin films for photoelectrochemical applications*, **J. Alloys & Comp.** 619 (2015) 458–463.
4. M. Patel and **A. Ray**, *Magnetron sputtered Cu doped sprayed SnS thin film for enhanced photoelectrochemical and heterojunction solar cells*, **RSC Advances** 4 (2014) 39343.
5. M. Patel and **A. Ray**, *Evaluation of back contact in SnS solar cells by impedance spectroscopy*, **ACS Appl. Mater. Interface** 6 (2014) 10099-10106.
6. P. Mahala, S. K. Behura, **A. Ray**, C. Dhanavantri and O. Jani, *GaN/In_xGa_{1-x}N/GaN P-I-N Solar Cell with Indium Compositional Grading*, **Opt. Quantum Electron.** (2014) Springer In-press (IOP).
7. A. K. Yadav, V. Mehra, **A. Ray**, A. Markana and M. Lokhande, *Paralleled DC Boost Converters with Feedback Control using PSO Optimization Technique for Photovoltaic Module Application*, **Int. J. Comp. Appl.** 84 (2013) 12-18.
8. P. Mahala, **A. Ray**, O. Jani and C. Dhanavantri, *Theoretical study on the effect of graded In_yGa_{1-y}N layer on p-GaN/In_yGa_{1-y}N/n-GaN p-i-n Solar Cell*, **Phys. Status Solidi A** 12 (2013) 2656-2661.
9. A. K. Yadav, V. Mehra, **A. Ray**, M. Lokhande, *Operation of Paralleled DC-DC Converters Taking into Account Cable Resistances for Load Sharing Applications*, **Int. J. Adv. in Engg. & Technol.**, 6 (2013) 2134-2144.
10. M. Patel, I. Mukhopadhyay and **A. Ray**, *Annealing influence over structural and optical properties of sprayed SnS thin films*, **Optical Materials** 35 (2013) 1693–1699.

11. P. Mahala, S. K. Behura, A. S. Kushwaha, **A. Ray**, O. Jani and C. Dhanavantri, *A study on the 2D simulation of Pt/ InGaN/ GaN/ metal Schottky junction solar cell*, **Semicond. Sci. & Technol.** 28 (2013) 055012.
12. M. Patel, I. Mukhopadhyay and **A. Ray**, *Study of junction and carrier lifetime properties of spray deposited CZTS thin-film solar cell*, **Semicond. Sci. & Technol.** 28 (2013) 055001.
13. S.K. Behura, P. Mahala, I. Mukhopadhyay, **A. Ray** and O. Jani, *Theoretical simulation of photovoltaic response of Graphene-on-Semiconductors*, **Applied Physics A**, 111 (2013) 1159.
14. B. Tripathi, M. Patel, **A. Ray** and M. Kumar, *Influence of optical properties of ZnO thin-films deposited by spray pyrolysis and RF magnetron sputtering on the output performance of silicon solar cell*, **IOP Conf. Ser.: Mater. Sci. Eng.** 43 (2013) 012002.
15. M. Patel, I. Mukhopadhyay and **A. Ray**, *Structural, electrical and optical properties of spray deposited CZTS thin films in non-equilibrium growth condition*, **Jour. Phys. D: Appl. Phys.** 45 (2012) 445103-10pp.
16. M. Patel and **A. Ray**; *Enhancement of output performance of Cu₂ZnSnS₄ thin film solar cells – A one dimensional numerical optimization approach and comparison to experiments* **Physica B: Cond. Mat.** 407 (2012) 4391-4397.
17. O. Jani, P. Mahala, S. K. Behura, **A. Ray** and C. Dhanavantri , *Effect of Indium concentration on Metal/n-In_xGa_{1-x}N Schottky Junction Solar Cell under low level injection*; **AIP Conf. Proc.** 1451 (2012) 85-87.
18. M. Patel, **A. Ray**, B. Tripathi and M. Kumar, *A study of the applicability of ZnO thin-films as anti-reflection coating on Cu₂ZnSnS₄ thin-films solar cell*, **AIP Conf. Proc.** 1451 (2012) 97-99.
19. Hari S. Sahoo and **A. Ray**; *Simulation of IPV effect in In-doped c-Si with optimized Indium concentration and layer thickness*, **Physica B: Cond. Mat.**, 406 (2011) 4221-4226.
20. S. Behura, P. Mahala and **A. Ray**; *A model on the effect of injection levels over the open-circuit voltage of Schottky barrier solar cells*, **J. Electron Device**, 10 (2011) pp. 471-482.
21. Pramila, S.K. Behura and **A. Ray**; *ANALYTICAL ESTIMATE OF OPEN-CIRCUIT VOLTAGE OF A SCHOTTKY-BARRIER SOLAR CELL UNDER HIGH LEVEL INJECTION*, **J. Nano- Electron. Phys.**3 (2011) 979-991.
22. **A. Ray**, P. Barat, P. Mukherjee, A. Sarkar, S.K. Bandyopadhyay; *Effect of transient change in strain rate on plastic flow behavior of low carbon steel*, **Bull. Mater. Sci.**, 30 (2007) 69.
23. M. Battabyal, **A. Ray** and T. K. Dey; *Magneto-transport studies in yttrium doped lanthanum manganites between 10-300K*, **Indian J. Pure & Appl. Phys.**, 41 (2003) pp. 443-447.
24. **A. Ray** and T. K. Dey; *Thermal Conductivity of La_{0.67}(Ca_xSr_{1-x})_{0.33}MnO₃(x=0,0.5,1) and La_{0.6}Y_{0.07}Ca_{0.33}MnO₃ pellets between 10 and 300K*, **Solid State Commun.** 126 (2003) pp. 147-152.

25. **A. Ray** and T. K. Dey; *Annealing time dependence of electrical resistivity and magneto-resistance of $La_{0.6}Y_{0.07}Ca_{0.33}MnO_3$ pellets prepared by “Pyrophoric” method*, **Journal of Magnetism and Magnetic Materials** 266 (2003) pp. 268-277.
26. **A. Ray**, T.K. Dey and S.K. Ghatak; *Low field second harmonic response and ac susceptibility of (Bi,Pb)-2223 pellet in a Generalized Critical State Model*. **Int. Jour. Modern Phy. B**, 21 (2003) pp. 3831-3846.
27. **A. Ray** and T.K. Dey ; *Non destructive evaluation of defects in ferromagnetic plates using a sensitive magnetic sensor based on second harmonic response of superconducting $Bi_{1.6}Pb_{0.4}Sr_2Ca_2Cu_3O_{10+\delta}$ pellet*; **Bull. Mater. Sci.** 25 (2002) pp.101-107.
28. **A. Ray** and T.K. Dey ; *Estimation of nonlinear effective flux diffusion barrier $U(J, H_d, T)$ and critical current density of polycrystalline (Bi-Pb)-2223 using a. c. susceptibility measurements*; **Mater. Res. Bull.** 37 (2002) pp. 833-839.
29. **A. Ray**, T. K. Dey and S. K. Ghatak; *A novel method for sensing rotational speed, linear displacement and current using superconductive BPSCO magnetic sensor*. **Bull. Mater. Sci.** 25 (2002) pp. 463-467.
30. **A. Ray**, T. K. Dey and S. K. Ghatak; *Inter-garnular Critical Current Density in Polycrystalline (Bi-Pb)-2223 High Temperature Superconductor by ac Susceptibility Measurements*; **Journal of Superconductivity** 15 (2002) pp. 201-206.
31. S.V. Srinivas, **A. Ray** and T. K. Dey; *A highly sensitive magnetic field sensor using thick film BPSCCO superconductor*; **Bull. Mater. Sci.** 24 (2001) pp. 385-388.

Conference proceedings:

1. **A. Ray** and **T. K. Dey**; *Effective flux creep barrier $U(J,H,T)$ in bulk polycrystalline (Bi,Pb)-2223 by ac susceptibility measurements*; Eighth National Symposium in Cryogenics (ENSC) November 21-23 (2001), New Delhi, India.
2. **T.K. Dey** and **A. Ray**; *Harmonic response in high temperature superconductors and its application in non-destructive evaluation of materials*; Proceedings of The 6th. Asian Thermophysical Properties Conference (ATPC) ‘2001, Guwahati, India , Vol. II , pp 592-603.
3. **T. K. Dey**, **A. Ray** and **S. K. Ghatak**; *A novel method for sensing rotational speed and linear displacement using superconductive magnetic sensor*; National Conference on Frontiers in Materials Science and Technology (FMST) February 22-23 (2002), Kharagpur, India.
4. **M. Battabyal**, **A. Ray** and **T.K. Dey**; *Magneto-transport studies in Yttrium doped Lanthanum manganites between 10-300K*; National Conference on Thermophysical Properties (NCTP) September 19-21 (2002), Jaipur, India
5. **P. Barat**, **P. Mukherjee**, **A. Ray**, **A. Sarkar** and **A. Banerjee**; *Analysis of Portevin Le-Chattelier Effect in Low Carbon Steel in the light of Chaos*; Shanghai International Symposium on Nonlinear Science and Applications – 2003 Ocean Hotel, Shanghai, China, November 9–13, 2003. (Accepted for oral presentation.).

6. **S.K. Bandyopadhyay, A. Ray, Pintu Sen, P. Barat, P. Mukherjee and T.V. Chandrashekhara;** *Magnetism Studies of Oxygen Ion Irradiated BSCCO Superconductors through SQUID*; Condensed Matter and Materials Physics Conference (CMMP'04) April, 4-7 (2004), University of Warwick, Warwick, U.K.
7. **S.K. Bandyopadhyay, A. Ray, Pintu Sen, P. Barat, P. Mukherjee and T.V. Chandrashekhara;** *Assay of Stored Energy, Dissipation and J_c in Oxygen Ion Irradiated BSCCO Superconductor*, National Conference on Materials and their Applications (NCMA'04) March, 11-13 (2004), Kurukshetra University, Kurukshetra, India.
8. **P.K. Barhai, A. Ray, B. Pathak and N. Kumari;** *Corrosion Behavior of Stainless Steel (AISI-304) Coated with Al-bronze using Anodic Vacuum Arc Plasma Technique*; DAE-BRNS Workshop on Surface Engineering, September 23-25, 2004, BARC, Mumbai, India.
9. **A. Ray and T.K. Dey;** *Heat Conduction in the Doped Perovskite Manganites at Low temperatures and Possibilities for Thermoelectric Applications*; International Conference on Perovskite, September 5-7, 2005, E.M.P.A., Dubendorf, Zurich, Switzerland.
10. **Brijesh Tripathi, Malkesh Patel, Abhijit Ray, Manoj Kumar;** *Influence of Optical Properties of ZnO Thin-Films deposited by Spray Pyrolysis and RF Magnetron Sputtering on the Output Performance of Silicon Solar Cell*, Accepted for oral presentation in International Conference Current Trend in Materials Science (ICCTMS-2011), August 3-6, 2011, Chengannur, Kerala, and to be published in AIP Conf. Proc
11. **M. Patel and A. Ray;** *Electrodeposited Czts Thin Film on Metallic Substrates Using Ionic Liquid for Solar Cells*; Presented on 26th European Photovoltaic Solar Energy Conference & Exhibitions; Visual presentation Session, Reference: 3DV.1.39, September, 5-9, 2011, Hamburg, Germany.
12. **P. Mahala, S. K. Behura, O. Jani, A. Ray, and C. Dhanavantri,** *Effect of Indium concentration on Metal/n-InxGa1-xN Schottky Junction Solar Cell under low level injection*; Accepted for oral presentation in Intl. Conf. on Advances in Energy Res (ICARE-2011), Paper No. : MS#ICAER11/013, December 9-11, 2011, IIT-Bombay, Mumbai
13. **S. K. Behura, P. Mahala, O. Jani, A. Ray, I. Mukhopadhyay;** *Photovoltaic Response of Graphene-on-Semiconductor: A model calculation of its injection dependent open circuit voltage*; Accepted for oral presentation in Intl. Conf. on Advances in Energy Res (ICARE-2011), Paper No. : MS#ICAER11/014, December 9-11, 2011, IIT-Bombay, Mumbai.
14. **M. Patel, K. Patel, K.D. Patel, I. Mukhopadhyay and A. Ray,** *Fabrication of SnS/CdS heterojunction diode by spray pyrolysis technique for possible low cost solar cell*; Proc. of Int. Congress in Renewable Energy (ICORE-2012), Paper No.1, December 6-7, 2012, PDPU, Gandhinagar.
15. **J. Gajjar, D. Patel, B. Tripathi and A. Ray,** *Current Losses at String Combiner Boxes in a 5 MW Grid Connected Photovoltaic Power Plant*, Proc. of Int. Congress in Renewable Energy (ICORE-2012), Paper No.1, December 6-7, 2012, PDPU, Gandhinagar.

16. **Tulshi Shiyani, Malkeshkumar Patel, Indrajit Mukhopadhyay and Abhijit Ray;** *Co-electrodeposited Cu_2ZnSnS_4 in non-equilibrium growth conditions and the effect of annealing;* 28th European Photovoltaic Solar Energy Conference & Exhibitions; Visual presentation Session, Reference: 3BV5.7, September-October, 2013, Paris.
17. **Tulshi Shiyani, Malkeshkumar Patel, Indrajit Mukhopadhyay and Abhijit Ray;** *All Spray Deposited SnS/In₂S₃ Heterojunction Solar Cells with Device Optimization;* 28th European Photovoltaic Solar Energy Conference & Exhibitions; Visual presentation Session, Reference: 3BV5.9, September-October, 2013, Paris.
18. **Kandarp Mehta, Kumar Abhishek, Prashant Mishra, Indrajit Mukhopadhyay, Abhijit Ray;** *SIMULATION OF GENERATION CHARACTERISTICS FROM A 1MW PV POWER PLANT WITH OPTIMAL TRACKING SYSTEMS IN PADALIYA, GUJARAT;* International Conference on Advances in Renewable Energies (ICARE-2013); December 2013, IIT Bombay.
19. **Prashant Mishra, Kumar Abhishek, Pankaj Pandey Kandarp Mehta, Abhijit Ray,** *Medium temperature collecting performance of Non Imaging Concentrating collector;* IEEE SPONSORED NATIONAL CONFERENCE ON ENERGY, POWER AND INTELLIGENT CONTROL SYSTEMS (EPICS-2014), 28-29 March, 2014, Galgotias College of Engineering and Technology, Noida.
20. **Abhijit Ray and Malkeshkumar patel,** RF-magnetron sputtered Cu doped SnS thin films for enhanced photovoltaic performance, ISPlasma2014/IC-PLANTS2014, 2-6 March, 2014, Meijo University, Japan.