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C.V. of G.S.S. Saini

Name : ***G.S.S. SAINI***

Age : 53 years

Position held : Professor

Institution's Address : Department of Physics
Panjab University
Chandigarh - 160 014
Ph. : +91-172-534454 (O)
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E-mail: gsssaini@pu.ac.in

Specialization

(i) Experimental Molecular Spectroscopy (Raman, Infrared, Optical)
(ii) Density functional theory calculations

Academic Qualifications :

Degree	University	College	Year of passing	class
B.Sc.	Meerut Univ.	DAV College, Muzaffarnagar	1983	First
M.Sc.	Meerut Univ.	DAV College, Muzaffarnagar	1985	First
M.Phil.	Meerut Univ.	Meerut Univ.	1988	First
Ph.D.	NEHU, Shillong	NA	1993	NA

Thesis Title: *Resonance Raman studies on photo-oxidation of some porphyrins and metalloporphyrins*

Teaching Experience:

Lecturer (Gauhati University) - Aug. 01, 1996 to Dec. 21, 1999
Lecturer (Panjab University) - Dec. 22, 1999 to Jul. 31, 2000
Lecturer (Senior scale) Aug. - 01, 2000 to Jul. 31, 2005
Reader - Aug. 01, 2005 to Jul. 31, 2008
Associate Professor - Aug. 01, 2008 to Jul. 31, 2011
Professor - Aug. 01, 2011 onward

Subjects taught :
Atomic and Molecular Physics
Laser Physics
Fibre Optics and Non-linear Optics
Mechanics and Special Theory of Relativity
Vibrations and Waves
Quantum Mechanics
Thermal Physics

Research Supervision:

Ph.D.	Awarded:	07
	Registered:	06
M.Phil.	Awarded:	02

List of Projects implemented/implementing as Principal Investigator:

Name of the agency	Year		Total amount in ₹	Project Title
	Started	Completed		
CSIR	Jan. 2005	Dec. 2008	₹ 7,65,671/-	Spectroscopic studies of photoinduced electron transfer processes in some porphyrins encapsulated in solid matrices.
DST	July 15, 2008	July15, 2011	₹42,34,488/-	Vibrational spectroscopic study of chemical sensing by porphyrins and phthalocyanines
UGC	July, 2012	Continuing upto June, 2015	₹12,22,800/-	Vibrational dynamics of some potential radio- protective an tioxidants

Facilities created:
1. Laser Raman Spectrometer
2. UV-Visible Spectrophotometer

H index as per Scopus: 10

Citations: $>$ 450

Referee for the International/national Journals::
1. Chemical Physics
2. Material research Bulletin B
3. Journal of Spectroscopy and Dynamics
4. Spectrochimica Acta A
5. European Journal Of Physics
6. Journal Of Molecular Structure
7. Journal of Association of Arab Universities in Basic Applied Sciences
8. Journal of Raman Spectroscopy
9. Solid State Science
10. Vibrational Spectroscopy
11. Sensors and Actuators B
12. High Pressure Research
13. Journal of Physics and Chemistry of Solids
14. Journal of Physical Chemistry

Membership of learned societies:
1. Indian Physics association (IPA)
2. Indian Laser Association (ILA)
3. Laser and Spectroscopy Society of India (LASSI)

4. Indian Society of Atomic and Molecular Physics
5. Indian Association of Physics Teachers

Publications list upto June 30, 2014 (Title of paper, authors, Journal details, year, pages etc.)

1. Vibrational and electronic spectroscopic studies of melatonin. G. Singh, J.M. Abbas, S.D. Dogra, R. Sachdeva, B. Rai, S.K. Tripathi, S. Prakash, V. Sathe and G.S.S. Saini, *Spectrochim. Acta A* **118** (2014) 73-81.

2. Effect of doping on trapping center parameters in nanocrystalline CdSe thin films. A.S. Al-Kabbi, K. Sharma, G.S.S. Saini, S.K. Tripathi, *J. Alloys Comp.* **555** (2013) 1-5.

3. Determination of the transport parameters of nanocrystalline CdSe:Cu thin films. A.S. Al-Kabbi, K. Sharma, G.S.S. Saini and S.K. Tripathi, *Phys. Scr.* **87** (2013) 025604 (7pp).

4. Thermally and optically induced effects on sub-band gap absorption in nanocrystalline CdSe (nc-CdSe) thin films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini and S.K. Tripathi, *Curr. Appl. Phys.* **13** (2013) 964-968.

5. Indium doping induced modification of the structural, optical and electrical properties of nanocrystalline CdSe thin films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini and S.K. Tripathi, *J. Alloys Compounds* **564** (2013) 42-48.

6. Determination of Dispersive Optical Constants of Nanocrystalline CdSe (nc-CdSe) Thin Films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini and S.K. Tripathi, *Mater. Res. Bull.* **47** (2012) 1400-1406.

7. Effects of chemical analytes on zinc tetraphenylporphine thin films studied by vibrational spectroscopy and density functional theory. G.S.S. Saini, S.D. Dogra, G. Singh, S.K. Tripathi, S. Kaur, V. Sathe and B.C. Choudhary, *Vib. Spectrosc.* **61** (2012) 188-198.

8. Electrical conduction mechanism in nanocrystalline CdTe (nc-CdTe) thin films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini, S.K. Tripathi, *Appl. Phys. A* **108** (2012) 911-920.

9. Effect of Cu incorporation on structural and optical properties of nanocrystalline CdSe (nc-CdSe:Cu) thin films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini, S.K. Tripathi, *J. Alloys Comp.* **540** (2012) 198-203.

10. Mobility lifetime product in doped and undoped nanocrystalline CdSe. S.K. Tripathi, Alaa S. Al-Kabbi, Kriti Sharma, G.S.S. Saini, *Thin Solid Films* **548** (2013) 406-410.

11. Hydrogen peroxide vapour sensor using metal-phthalocyanine functionalized carbon nanotubes. A.L. Verma, S. Saxena , G.S.S. Saini, V. Gaur and V.K. Jain, *Thin Solid Films* **519** (2011) 8144-8148.

12. Experimental and density functional theoretical study of the effects of chemical vapours on the vibrational spectra of nickel phthalocyanine thin films. G.S.S. Saini, S.D. Dogra, K. Sharma, S. Singh, V. Sathe and R. K.Singh, *Vib. Spectrosc.* **57** (2011) 61-71.

13. Effect of pyridine on zinc phthalocyanine studied by density functional theory calculations and infrared absorption spectroscopy. S.D. Dogra, S. Singh, S. Kaur, S.K. Tripathi, G.S.S. Saini, *Vib. Spectrosc.* **56** (2011) 60-65.

14. Vibrational spectroscopic and density functional theory studies of chloranil imidazole interaction, G.S.S. Saini, S. Kaur, S.K. Tripathi, S.D. Dogra, J.M.. Abbas, C.G. Mahajan, *Vib. Spectrosc.* **56** (2011) 66-73.

15. Effect of deposition parameters on structural, optical and electrical properties of nanocrystalline ZnSe thin films. C. Mehta, G.S.S. Saini, J.M. Abbas and S.K. Tripathi, *Appl. Surf. Sci.* **256** (2009) 608-614.

16. Characterization of thermally evaporated thin films of Rhodamine 6G, S.K. Tripathi, A. Monga and G.S.S. Saini, *Smart Mater. Struct.* **18** (2009) 125012 (7pp).

17. Laser induced changes on a-$Ga_{50}Se_{50}$ thin Films, S.K. Tripathi, S. Gupta, F.I. Mustafa, N. Goyal and **G.S.S. Saini**, *J. Phys. D: Appl. Phys.* **42** (2009) 185404 (7pp).

18. Effect of Ag on the electrical properties of a-$Ge_{20}Se_{80}$ glasses. G. Singh, N. Goyal, G.S.S. Saini, P.S. Chandel and S.K. Tripathi, *J. Mater. Sci.* **44** (2009) 3376-3381.

19. Rhodamine 6G interaction with solvents studied by vibrational spectroscopy and density functional theory. G.S.S. Saini, A. Sharma, S. Kaur, K.S. Bindra, V. Sathe, S.K. Tripathi, and C.G. Mahajan, *J. Mol. Struc.* **931** (2009) 10-19.

20. Zinc phthalocyanine thin film and chemical analyte interactions studies by density functional theory and vibrational techniques. G.S.S. Saini, S. Singh, S. Kaur, R. Kumar, V. Sathe and S.K. Tripathi, *J. Phys. Condens. Mater* **21** (2009) 225006.

21. Effect of Pb on the electrical properties of a-$Ge_{20}Se_{80}$ glasses. G. Singh, N. Goyal, G.S.S. Saini and S.K. Tripathi, *Physica B: Cond. Matter* **403** (2008) 599-604.

22. Optical and infrared spectroscopic studies of chemical sensing by copper phthalocyanine thin films. S. Singh, S.K. Tripathi and G.S.S. Saini, *Mater. Chem. Phys.* **112** (2008) 793-797.

23. Effect of pyridine on infrared absorption of copper phthalocyanine. S. Singh, S.K. Tripathi and G.S.S. Saini, *Spectrochim. Acta A* **69** (2008) 619-623.

24. Sensing of chemical vapors by copper phthalocyanine (CuPc) thin films. S. Singh, G.S.S. Saini and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **10** (2008) 185-189.

25. Thermally induced changes on the electrical and optical properties of nanocrystalline CdSe thin films. J. Sharma, G.S.S. Saini, N. Goyal and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **9** (2007) 3194-3199.

26. AC conductivity in a-GeSePb glassy alloys. G. Singh, N. Goyal, G.S.S. Saini and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **9** (2007) 3044-3048.

27. Fourier transform infrared spectral study of N,N′-dimethylformamide-water-rhodamine 6G mixture. A. Sharma, S. Kaur, C.G. Mahajan, S.K. Tripathi and G.S.S. Saini, *Mol. Phys.* **105** (2007) 117-123.

28. Optical properties of amorphous and $Ag_6(Ge_{20}Se_{80})_{94}$ thin films. A. Thakur, G. Singh, G.S.S. Saini, N. Goyal and S.K. Tripathi,*Opt. Mater.* **30** (2007) 565-570.

29. Resonance Raman and electronic absorption study of free-base tetraphenylporphine diacid dispersed in polymethylcyanoacrylate. G.S.S. Saini, A. Sharma, S. Singh, J.M. Abbas, S.K. Tripathi, S. Kaur, C.G. Mahajan, H.H. Thanga and A.L. Verma. *J. Raman Spectrosc.* **38** (2007) 1561-1569.

30. Effect of Cu additive on the electrical properties of Ge-Se alloy. A. Thakur, G.S.S. Saini, N. Goyal and S.K. Tripathi, *J. Non-Cryst. Solids* **353** (2007) 1326-1329.

31. AC conductivity in a-Ge-Se-Bi glasses. G. Singh, N. Goyal, G.S.S. Saini and S.K. Tripathi, *J. Non-Cryst. Solids* **353** (2007) 1322-1325.

32. Fourier transform infrared spectroscopic studies of dithia tetraphenylporphine. S. Mishra, S. Kaur, S.K. Tripathi, C.G. Mahajan and G.S.S. Saini, *J. Chem. Sci.* **118** (2006) 361-369.

33. Resonance Raman study of free-base tetraphenylporphine and its dication. G.S.S. Saini, *Spectrochim. Acta A* **64** (2006) 981-986.

34. Proton Induced changes on the Optical Parameters of a-$(Ge_{20}Se_{80})_{0.96}Ag_{0.04}$ Thin Films. S.K. Tripathi, A. Thakur, G. Singh, J. Sharma, V. Sharma, K.P. Singh, G.S.S. Saini and N. Goyal, *J. Mat. Sci. Lett.* **41** (2006) 1847-1850.

35. Photoconductivity in thin films of a-$(Ge_{20}Se_{80})_{0.90}Sn_{0.10}$. A. Thakur, P.S. Chandel, V. Sharma, G.S.S. Saini, N. Goyal, S.K. Tripathi, *J. Mat. Sci.* **41** (2006) 2327-2332.

36. Spectroscopic studies of rhodamine 6G dispersed in poly methylcyanoacrylate. G.S.S. Saini, S. Kaur, S.K. Tripathi, C.G. Mahajan, H.H. Thanga and A.L. Verma, *Spectrochim. Acta A.* **61** (2005) 653-658.

37. Infrared spectroscopic studies of free-base tetraphenylporphine and its dication, G.S.S. Saini, S. Sharma, S. Kaur, S.K. Tripathi and C.G. Mahajan, *Spectrochim. Acta A*, **61** (2005) 3070-3076.

38. Effect of Sb additive on the electrical properties of a-Se-Te alloy. S.K. Tripathi, V. Sharma, A. Thakur, G.S.S. Saini and N. Goyal, *J. Non-Cryst. Solids* **351** (2005) 2468-2473.

39. Effect of bismuth on the electrical properties of a-$Ge_{20}Se_{80}$ glasses. G. Singh, J. Sharma, A. Thakur, N. Goyal, G.S.S. Saini, S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **7** (2005) 2069-2076.

40. Calculation of optical parameters of a Ge-Se-Sn thin films. A. Thakur, V. Sharma, G.S.S. Saini, N. Goyal, S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **7** (2005) 2077-2083.

41. Preparation and characterization of SnSe nanocrystalline thin films. J. Sharma, G. Singh, A. Thakur, G.S.S. Saini, N. Goyal and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **7** (2005) 2085-2094.

42. Irradiation effects on the optical properties of a-Ge-Se-Ag thin films. S.K. Tripathi, A. Thakur, G. Singh, J. Sharma, V. Sharma, K. P. Singh, G.S.S. Saini, N. Goyal, *J. Optoelectron. Adv. Mater.* **7** (2005) 2095-2101.

43. Transient photoconductivity in $Se_{85-x}Te_{15}In_x$ thin films. V. Sharma, A. Thakur, N. Goyal, G.S.S. Saini, S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **7** (2005) 2103-2112.

44. Effect of light intensity and temperature on the recombination mechanism in a-$(Ge_{20}Se_{80})_{99.5}Cu_{0.5}$ thin film. A. Thakur, V. Sharma, G.S.S. Saini, N. Goyal and S.K. Tripathi, *J. Phys. D: Appl. Phys.* **38** (2005) 1959-1965.

45. Effect of In incorporation on the electrical properties of $Se_{85}Te_{15}$ glassy alloy. V. Sharma, A. Thakur, G.S.S. Saini, N. Goyal and S.K. Tripathi, *Semicond. Sci. Technol.* **20** (2005) 103-107.

46. Photoreduction of iron protoporphyrin IX chloride in ionic detergent micelles probed by resonance Raman spectroscopy. P.K. Shantha, G.S.S. Saini, H.H. Thanga and A.L. Verma, *J. Raman Spectrosc.* **34** (2003) 315-321.

47. Effect of thermal annealing on the electrical properties of amorphous $Se_{75}Te_{15}Sn_{10}$ thin films. V. Sharma, A. Thakur, P.S. Chandel, N. Goyal, G.S.S. Saini and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **5** (2003) 1243-1248.

48. Photophysical properties of thin films of $(Ge_{20}Se_{80})_{0.98}Sn_{0.02}$ glassy alloy. A. Thakur, P.S. Chandel, V. Sharma, N. Goyal, G.S.S. Saini and S.K. Tripathi, *J. Optoelectron. Adv. Mater.* **5** (2003) 1203-1208.

49. Photoreduction of iron protoporphyrin IX chloride in non-ionic Triton X-100 Micelle studied by electronic absorption and resonance Raman spectroscopy. P.K. Shantha, G.S.S. Saini, H.H. Thanga and A.L. Verma, *J. Raman Spectrosc.* **32** (2001) 159-165.

50. Simultaneous formation of mono and dication of free-base tetraphenyl-porphin during the photo-oxidation probed by resonance Raman and absorption techniques. G.S.S. Saini, O.K. Medhi and A.L. Verma, *Chem. Phys. Lett.* **322** (2000) 293-299.

51. Temperature Dependent Axial Ligation Changes and Photoreduction of Iron-Protoporphyrin-IX Dimethyl Ester Chloride at Low temperatures Monitored by Resonance Raman Technique. N.K. Chaudhury, G.S.S. Saini and A.L. Verma, *Inorg. Chem.* **34** (1995) 346-349.

52. Excited State properties of Thiaporphyrins and Their Dications. R.P. Pandian, T.K. Chandrashekar, G.S.S. Saini and A.L. Verma, *J. Chem. Soc. Faraday Trans.* **89** (1993) 677-682.

53. Stereochemical Aspects of Axial Ligation in Ferrous Iron Porphyrins Probed by Resonance Raman spectroscopy. N.K. Chaudhury, G.S.S. Saini and A.L. Verma, *Spectrochim. Acta A* **48** (1992) 1589-1599.

54. Laser Power-Dependent Coordination and Photooxidation of Zinc-Tetraphenyl-porphin in Alkylchlorides probed by Resonance Raman Spectroscopy. G.S.S. Saini, N.K. Chaudhury and A.L. Verma, *J. Chem. Soc. Faraday Trans.* 88 (1992) 2853-2858.

55. Photo-oxidation and Electron Transfer Processes in Free-Base Tetraphenylporphin probed by Resonance Raman Spectroscopy. G.S.S. Saini, N.K. Chaudhury and A.L. Verma, *Photochem. Photobiol.* **55** (1992) 815-822.

56. Resonance Raman Studies of Some Metalloporphyrins. A.L. Verma, G.S.S. Saini and N.K. Chaudhury, *Proc. Ind. Acad. Sci. (Chem. Sci.)* **102** (1990) 291-306.

57. Mechanism of Photoreduction and ChargeTransfer processes in Iron Porphyrins and Cytochromes as Probed by Resonance Raman Spectroscopy. A.L. Verma, N.K. Chaudhury and G.S.S. Saini, *Recent Trends in Raman Spectroscopy.* Ed. By S.B. Banerjee and S.S. Jha, World Scientific Publishing Co., Singapore (1989) 192-209.

Proceeding of Conferences/Symposiums:

1. Mechanism of Photoreduction of Iron-Protoporphyrin-IX Dimethyl Ester Probed by Resonance Raman Spectroscopy; A.L. Verma, N.K. Chaudhury and G.S.S. Saini, *Proc. Int. Conf. Raman Spectrosc.-XII* Ed. J.R. Durig and J.F. Sullivan, John Wiley and Sons, New York, (1990) p 592-593.

2. Power Dependent Coordination of Zinc-Tetraphenylporphin with Alkylchlorides Probed By Resonance Raman Spectroscopy; G.S.S. Saini and A.L. Verma, *Proc. Int. Conf. Raman Spectrosc.-XIII* Ed. W. Kiefer, John Wiley and Sons, New York, (1992) A92-93.

3. Photon-Induced Electron Transfer from Zinc Tetraphenylporphin to Potassium Ferricynide: Evidence from Resonance Raman Spectroscopy; G.S.S. Saini and A.L. Verma, *Proc. DAE-BRNS National Laser Symposium*, Dec. 19-21, 2001, Allied Publishers Ltd., New Delhi (2001) 313-314.

4. Laser Raman Studies of rhodamine 6G trapped in acrylate polymer. G.S.S. Saini, S. Kaur, S.K. Tripathi, C.G. Mahajan, H.H. Thanga and A.L. Verma, *Proceedings of Golden Jublee DAE-BRNS National Laser Symposium*, Eds. A.K. Nath and K.S. Bartwal, Allied Publishers Pvt. Ltd., New Delhi, Dec. 22-24 (2003) 491-492.

5. Electrical Properties in a-Se-Te-In Thin Films. V. Sharma, A. Thakur, N. Goyal, G.S.S. Saini and S.K. Tripathi, *Proceedings of the DAE Solid State Symposium* (2004) 348-349.

6. Effect of In impurities on the electrical properties of Se-Te alloy. V. Sharma, A. Thakur, N. Goyal, G.S.S. Saini and S.K. Tripathi, *Proceeding of National Conference on Materials and Their Applications*, Department of Physics, Kurukshetra University, March 11-13 (2004) 231-234.

7. Refractive Index of Ternary $(Ge_{20}Se_{80})_{0.90}Sn_{0.10}$ Glassy Semiconductor. A. Thakur, V. Sharma, N. Goyal, G.S.S. Saini and S.K. Tripathi, *Proceeding of National Conference on Materials and Their Applications*, Department of Physics, Kurukshetra University, March 11-13 (2004) 227-230.

8. Interaction of pyridine with copper phthalocyanine - a fourier transform infrared absorption study. S. Singh, S.K. Tripathi, G.S.S. Saini, *Proceedings of the National Conference on Recent Advances in Material Science*, Department of Physics, Kurukshetra University, September 27-29 (2006) 371-374.

9. Effect of solid matrix on fluorescence of coumarin dyes. A. Sharma, S. Kaur, S.K. Tripathi and G.S.S. Saini, *Proceeding of the National Conference on Recent Advances in condensed Matter Physics*, held at NIT, Hamirpur from 23-24 May (2009) pp97-100.

10. Effect of Complexing Agent on the Properties of ZnSe Thin Films. C. Mehta, J.M. Abbas, G.S.S. Saini, and S.K. Tripathi, *AIP Conf. Proc.* **1349** (2011) 617-618.

11. Ac Conductivity Of Pb Doped aGe20Se80 Glassy Alloys. G. Singh, N. Goyal, G.S.S. Saini and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 367-368.

12. Effect of Chemical on Conductivity of Iron Phthalocyanine Pyridine Thin Films. S. Singh, G.S.S. Saini, and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 333-334.

13. High Field Conduction in Chemically Deposited ZnSe Nanocrystalline Thin Films: Observation of Meyer Neldel Rule. C. Mehta, J.M. Abbas, G.S.S. Saini, and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 307-308.

14. Vibrational Study of Melatonin and its Radioprotective Activity towards Hydroxyl Radical. G. Singh, S. Kaur, and G.S.S. Saini, *AIP Conf. Proc.* **1393** (2011) 295-296.

15. Diffusion Length Measurement in Nanocrystalline CdSe from Steady State Photocarrier Grating Technique. A.S. AlKabbi, K. Sharma, G.S.S. Saini and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 269-270.

16. Photodarkening Effect in a(GaSe)90Ag10 Thin Films. S. Gupta, F.I. Mustafa, G.S.S. Saini, N. Goyal and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 245-246.

17. Suitability of Polymeric Media In Solid State Dye Lasers. A. Sharma and G.S.S. Saini, *AIP Conf. Proc.* **1393** (2011) 221-222.

18. Sub Band Gap Absorption in As Deposited and Annealed ncCdSe Thin Films Using Constant Photocurrent Method (CPM). K. Sharma, A.S. AlKabbi, B. Singh, G.S.S. Saini, and S.K. Tripathi, *AIP Conf. Proc.* **1393** (2011) 217-218.

19. Determination of the t products of nanocrystalline CdSe: Cu thin films using photocurrent spectroscopy. A.S. Al-Kabbi, K. Sharma, G.S.S. Saini and S.K. Tripathi, *AIP Conf. Proc.* **1451** (2012) 91.

20. Temperature variation of optical parameters in nc-CdSe thin films. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini and S.K. Tripathi, *AIP Conf. Proc.* **1447** (2012) 227.

21. Vapor sensing mechanism of acid on copper phthalocyanine thin films studied by electrical conductivity. S. Singh, G.S.S. Saini and S.K. Tripathi, *AIP Conf. Proc.* **1536** (2013) 459.

22. Tuning the optical properties in nanocrystalline Zn doped CdSe thin films by light soaking. K. Sharma, A.S. Al-Kabbi, G.S.S. Saini and S. K. Tripathi, *AIP Conf. Proc.* **1512** (2013) 200.

23. Determination of trap depth in nc-CdSe:Cu thin films using thermally stimulated current measurements. S.K. Tripathi, A.S. Al-Kabbi, K. Sharma, R. Ridhi and G.S.S. Saini, *AIP Conf. Proc.* **1591** (2014) 256.