UNIVERSITY OF KOTA, KOTA

Title	Dr.	First Name	Saurabh	Last Name	Dalela	Photograph

Designation	Associate Professor
Address	Department of Pure & Applied Physics University of Kota, Near Kabir Circle, Kota-324010 Rajasthan, India
Phone No. Office	+91-744-2471038
E-mail	sdalela@uok.ac.in, sdphysics@rediffmail.com

Educational Qualifications

Degree	Institution	Year
Ph.D.	University of Rajasthan, Jaipur	2005
Title: Study of Some Dependence of Electronic Structure on Substitution Orientation and Temperature in Various High T_c Cuprate Perovskites		
M.Sc. (Physics)	University of Rajasthan, Jaipur	1996
B.Sc. (Physics, Chemistry and Mathematics)	University of Rajasthan, Jaipur	1994

Career Profile

Academic experience:

- Worked as Associate Professor, Department of Physics, Banasthali University, Banasthali Vidyapith-304022 from August 2010 to July 2012.
- Worked as Assistant Professor, Department of Physics, Banasthali University, Banasthali Vidyapith-304022 from Sep 2006 to July 2010.
- Worked as Assistant Professor, Department of Physics, Kautilya Institute of Technology and Engineering, Jaipur, Rajasthan from July 2002 to August 2006.
- Worked as Lecturer, Department of Physics, Mohta College, Sadulpur, Churu, Rajasthan from Dec 1997 to March 1999.

Administrative experience:

- Working as Head, Department of Pure & Applied Physics, University of Kota, Kota since April 2015.
- Worked as Head, Department of Physics, Banasthali University from July 2008 to July 2012.
- Worked as Head, Department of Physics, Kautilya Institute of Technology and

Engineering, Jaipur, Rajasthan from July 2002 to August 2006.

Area of Interest/ Specialization

Structural, Optical and magnetic properties of High temperature Superconductors and Dilute Magnetic Semiconductors, X-ray absorption spectroscopy (XANES & EXAFS), X-ray photoelectron spectroscopy, XMCD using synchrotron radiation.

Subject Taught

PG Level:	**UG Level:**
1. Optical Fiber Communication 2. Physics of Lasers 3. Solid State Physics 4. Classical Electrodynamics 5. Atomic & Molecular Physics 6. Computer Oriented Numerical Methods 7. Fundamentals of Material Science & Engineering	1. Quantum Mechanics 2. Optics 3. Solid State Physics 4. Electricity and Magnetism. 5. Electromagnetic Field Theory 6. Engineering Physics

Research Guide:

Awarded (04)**, Ongoing** (04)

Publication Profile

(a) Research Papers published in Refereed/Peer Reviews Journals:

1. Polarised XAS study of anomalous temperature dependence of aggregation of itinerant holes and pair formation in a $YBa_2Cu_3O_{\sim 6.5}$ single crystal
   K.B. Garg, **S. Dalela**, N.L. Saini, R.K. Singhal, D.C. Jain and C.T. Chen
   Physica C Vol 399/3-4 (2003) 98 - 106.
2. Study of anomalous temperature dependence of itinerant holes in under- and over-doped $La_{2-x}Sr_xCuO_4$ single crystals using polarised soft x-ray absorption spectroscopy.
   R.K. Singhal, N.L. Saini, **S. Dalela**, B. Sekhar, D.C. Jain and K.B. Garg
   Nucl. Inst. and Methods in Physics Research B 199 (2003) 280 - 285.
3. Polarised x-ray absorption Study of importance of Inter-block vis-à-vis Intra- block Coupling in Evolution of Tc in Halide Molecules Intercalated BSCCO (2212).
   R.K. Singhal, N L Saini, B. Dalela, **S. Dalela**, J.H. Choy, D. Chaturvedi, D C Jain and K.B. Garg
   J. of Physics: Cond.-Mat. **14** (2002) 6675 - 6688.
4. An Electronic Structure Study of c-axis Oriented NdBCO (123) Thin Films Using Polarized Soft X-ray Absorption Spectroscopy on Cu L_3 and O K Edges.
   R K Singhal, **S Dalela**, D Chaturvedi, B Dalela, N L Saini, B.R. Sekhar, K B Garg V Beaumount, B Mercey, C T Chen, Hong-Ji Lin
   J. Phys. Cond. Matter 13 (2001) 6865 - 6874.
5. Polarization/ Dependent XANES Study of $Bi_2Sr_2Ca_{1-x}Pr_xCu_2O_{8-\square}$ Insulating Single Crystal.
   K.B. Garg, **S. Dalela**, B. Dalela, S. Venkatesh, J.F. Lee, J.H. Choy, D. Chaturvedi, R.K. Singhal and J. Garcia-Ruiz
   Journal of Synchrotron Radiation 8 (2001) 842 – 844.
6. Simultaneous Measurement of XANES In Halide-Intercalated BSCCO (2212) using Electron and Fluorescence Yield to Compare Their Performance.
   S.G. Saxena, B. Dalela, **S. Dalela**, D. Chaturvedi, R.K. Singhal , P. Parikh, D.C. Jain

and K.B. Garg
Journal of Synchrotron Radiation 8 (2001) 821 – 823.

7. O K and Cu L_{III} Edge Study of Itinerant Holes in I_2-, HgI_2- and $HgBr_2$-Intercalated BSCCO (2212) Single Crystals.
   K.B. Garg, B. Dalela, **S. Dalela**, S. Venkatesh, J.H. Choy, D. Chaturvedi, R.K. Singhal and J. Garcia-Ruiz
   Journal of Synchrotron Radiation 8 (2001) 818 - 820.
8. Polarised EXAFS Study of In-Plane Distortion In a Pr-Doped BSCCO (2212) Single Crystal.
   S. Dalela, J.F. Lee, J.H. Choy, B. Dalela, D. Chaturvedi, R.K. Singhal, D. C. Jain & K.B. Garg
   International Journal of Modern Physics B 14 Nos.29, 30 & 31 (2000) 3432 – 3437.
9. Using XAFS, EDAX and AFM in comparative study of various natural and synthetic emeralds. (**GEMS**)
   P. Parikh, N.L. Saini, **S. Dalela**, D.M. Bhardwaj, S. Fernandes, R.P. Gupta and K.B. Garg
   Nucl. Inst. and Methods in Physics Research B 199 (2003) 489 - 493.
10. Core level photoemission study of polycrystalline MgB_2.
    K.B. Garg, T. Chatterji, **S.Dalela**, M. Heinonnen, J. Leiro, B. Dalela, and R.K. Singhal
    Solid State Communication.131 (2004) 343 – 347
11. Temperature dependent study of itinerant holes in $Bi_2Sr_2Ca_1Cu_2O_{8-\square}$
    B. Dalela, R. K. Singhal, **S. Dalela**, N.L. Saini, C.T. Chen and K. B. Garg
    Solid State Communication 130 (2004) 143 -148.
12. Study of itinerant holes in planar and apical oxygens in two different BSCCO (2212) single crystals using polarised x-ray absorption
    B. Dalela, **S. Dalela,** N.L. Saini, R.K. Singhal, C. T. Chen and K.B. Garg
    Int. J. Mod Phys. B 18 (2004) 2841 – 2848.
13. Photoluminescence study of Ruby at 4.2 K. (**GEMS**)
    D. M. Bhardwaj, **S. Dalela** and D. C. Jain
    Modern Physics Letter B 17 (2003) 1 - 4.
14. Study of the effect of swift heavy Ni^{+6} ion irradiation on ruby single crystal by using XANES and EXAFS techniques (**GEMS**)
    D.M. Bhardwaj, D. C. Jain, **S. Dalela**, Ravi Kumar, N.L. Saini, and K.B. Garg
    Physica B 350 (2004) 366 - 374.
15. Study of Local Structure in Under-doped $La_{2-x}Sr_xCuO_{4-y}$ by Polarised EXAFS.
    K. B. Garg, C. Sanchez, J. Garcia, J. Blasco, R. K. Singhal, **S. Dalela** and N. L. Saini.
    International Journal of Modern Physics B 16 (2002) 1641- 1648.
16. Electronic structure study of $La_{8-x}Sr_xCu_8O_{20-\delta}$ (8820) single crystal using polarized X-ray absorption spectroscopy.
    S. K. Gaur, R. K. Sighal, N. L. Saini, **S. Dalela**, C. T. Chen, H. J. Lin, and K. B. Garg
    Solid State Communication 132 (2004) 279 – 283.
17. XANES study of the dependence of the itinerant hole density in the superconducting $Hg_{0.5}Bi_{0.5}Sr_2Ca_{1-x}R_xCu_2O_{7-\delta}$ (R = Nd and Pr) system
    S.K. Gaur, D. Chaturvedi, R. K. Singhal, B. Dalela, S. Dalela, N.L. Saini, D. Pelloquin, F. Studer, C.T. Chen, A. Gupta, S. K. Agrawal, K. B. Garg.
    International Journal of Modern Physics B, Volume 18, Issue 20, 21 (2004) 2849-2862
18. An EXAFS study on Pr doped $Bi_2Sr_2Ca_{1-x}Pr_xCu_2O_{8-\delta}$ Single Crystal using polarized synchrotron radiation.
    S. Dalela, B. Dalela and P. A. Alvi

Physica C 471 (2011) 137-142.

19. Role of MEMS in Biomedical application: A Review
Himani Sharma, P. A. Alvi, **S. Dalela** and J. Akhtar
Sensors & Transducers journal 115 (2010) 1 – 10.
20. Electronic Structure of $FeSe_{1-x}Te_x$ studied by Fe $L_{2,3}$ X-ray Absorption Spectroscopy
N. L. Saini, Y. Wakisaka, B. Joseph, **S. Dalela**, P. Srivastava, E. Magnano, M. Malvestuto, Y. Mizuguchi, Y. Takano, T. Mizokawa, and K. B. Garg
Physical Review B 83 (2011) 50502 (1-4).
21. Modelling and Simulation of GaN /$Al_{0.3}Ga_{0.7}N$ Multilayer new Nano- Hetero-structures.
P.A. Alvi, Sapna Gupta, G. Sharma, J. Akhtar, and **S. Dalela**
Physica B 405 (2010) 2431- 2435.
22. A comparative study of oxygen loss on *in-situ* heating in $PrMnO_3$ and $BaMnO_3$
K. B. Garg, M. Heinonen, P. Nordblad, **S. Dalela**, N. Panwar, V. Sen, S. K. Agarwal, and Neha Sharma
International Journal of Modern Physics B Vol. 25 No. 9 (2011) 1235- 1250.
23. Mathematical simulation of graphene with modified c-c Bond length and transfer energy
P.A. Alvi, S.Z. Hashmi, **S. Dalela**, F. Rahman
Journal of Nano-Electronics & Physics Volume 3 No. 4 (2011) 43-51.
24. An extensive study on simple and GRIN SCH-based In0.71Ga0.21Al0.08As/InP lasing Heterostructures.
P.A. Alvi, Pyare Lal, S. Dalela, M. J. Siddiqui
Physica Scripta 85 (2012) 035402 (1-9).
25. Role of Co doping on structural, optical and magnetic properties of TiO2
A. Kaushik, B. Dalela, Sudhish Kumar, P.A. Alvi, **S. Dalela**
Journal of Alloys and Compounds 552 (2013) 274–278.
26. Electronic Structure of Iron- Pnictide $SmO_{1-x}F_xFeAs$ Superconductor Using XAS.
Neena D., Alvi P.A., Garg K.B. and Dalela S
***Research Journal of Recent Sciences,* Vol. 2(ISC-2012),** (2013) 15-17.
27. Mettalophilicity in $[CdBr]^-$: A case study of hybrid materials
Mukesh Kumar, **S. Dalela,** Dinesh
International Journal of Scientific and Research Publications, Vol. 3(2) (2013) 1-7.
28. Gain simulation of lasing nano-heterostructure Al0.10Ga0.90As/GaAs
Pyare Lal, ShobhnaDixit, **S.Dalela**, F.Rahman, P.A.Alvi
Physica E 46 (2012) 224–231.
29. Analysis of Mercurophilic Interactions in [HgBr]-Hybrid Materials
Mukesh Kumar, Dinesh, **S. Dalela**
International Journal of Advanced Materials Science, ISSN 2231-1211 Volume 4, Number 1 (2013), pp. 23-35.
30. Hg…Hg Interactions in Mercuric Chloride Based Hybrid Materials
Dinesh, Mukesh Kumar, **S. Dalela**
International Journal of Materials Physics, ISSN 0974-309X Volume 4, Number 1 (2013), pp. 11-21
31. Influence of Co doping on the structural, optical and magnetic properties of ZnO nanocrystals
A. Kaushik, B. Dalela, R. Rathore, V.S. Vats, B.L. Choudhary, P.A. Alvi, Sudhish Kumar, **S. Dalela**
Journal of Alloys & Compounds 578 (2013) 328–335.
32. Modal gain characteristics of GRIN-InGaAlAs/InP lasing nano-heterostructures

P.A. Alvi, Pyare Lal, Rashmi Yadav, Shobhna Dixit, **S. Dalela**
Superlattices and Microstructures 61 (2013) 1–12.

33. Detection of Pathogenic Escherichia coli (E.c oli) Strain Using Robust Silver and Gold Nanoparticles
Boken J, Dalela S, Sharma C K and Kumar D
Journal of Chemical Engineering & Process Technology 4(8) (2013) 1000175.

34. Lasing Characteristics of InGaP/GaAs Nanoscale Heterostructures
Meha Sharma, Rashmi Yadav, Pyare Lal, M. J. Siddiqui, S. Dalela, and P. A. Alvi
Advanced Science, Engineering and Medicine 6 (2014) 1 – 7.

35. Study of the Electronic Structure of Various RE-doped Oxypnictide Superconductors Using X- Ray Absorption Spectroscopy
Neena D., P.A.Alvi, K. B. Garg and S. Dalela
Journal of Superconductivity & Novel Magnetism (2014)

36. Well Width Effects on Material Gain and Lasing Wavelength in InGaAsP / InP Nano-Heterostructure.
Rashmi Yadav, Pyare Lal, F. Rahman, **S. Dalela,** P. A. Alvi
Journal of Optoelectronics Engineering Vol. 2, No. 1 (2014) 1-6.

37. Study of Band Structure properties of Pnictide $LaO_{1-x}F_xFeAs$ (x=0, 0.2) Superconducting Compound
Neena D, K. B. Garg, D. Kumar, K Jerath, M. A. Samek and **S. Dalela**
Journal of Superconductivity & Novel Magnetism (2014)

38**.** Synthesis of nanoparticles for Plasmonics Applications: A Microfluidic Approach
J. Boken, D. Kumar, C.K. Sharma, S. Dalela
Synthesis and Reactivity in Inorganic, Metal-Organic, and Nano-Metal Chemistry (2014)

39. Investigation of material gain of In0.90Ga0.10As0.59P0.41/InP lasing nano-heterostructure
Rashmi Yadav, Pyare Lal, F. Rahman, S. Dalela And P. A. Alvi
International Journal of Modern Physics B Vol. 28, No. 10 (2014) 1450068 (14 pages)

40. Qualitative analysis of gain spectra of InGaAlAs/InP lasing nano-heterostructure
Pyare Lal_, Rashmi Yadav_, Meha Sharma†, F. Rahman‡, S. Dalela§ and P. A. Alvi_
International Journal of Modern Physics B Vol. 28, No. 29 (2014) 1450206 (17 pages**)**

41. Tunability of Optical Gain (SWIR region) in Type-II In0.70Ga0.30As/GaAs0.40Sb0.60 Nano-heterostructure under High Pressure
H.K. Nirmal, Nisha Yadav, S. Dalela, Amit Rathi, M.J. Siddiqui, P.A. Alvi
Physica E Low-dimensional Systems and Nanostructures Vol. 80 (2016) 36–42.

42. Study of electronic structure and magnetic properties of epitaxial Co2FeAl Heusler Alloy Thin Films
S. Soni, S. Dalela, S.S. Sharma, E.K. Liu, W.H. Wang, G.H. Wu, M. Kumar, K.B. Garg
Journal of Alloys & Compounds Vol. 674 (2016) 295-299.

43. Investigation of gain characteristics of GRIN-InGaAsP/InP nano-heterostructure.
Rashmi Yadav, Meha Sharma, Swati Jha, Pyare lal, M.J. Siddiqui, F. Rahman, S. Dalela, P.A. Alvi
Indian Journal of Pure & Applied Physics, Vol. 53, (2015) 447-455

44. Field effective band alignment and optical gain in type-I $Al_{0.45}Ga_{0.55}As$/ $GaAs_{0.84}$ $P_{0.16}$ nano-heterostructures
H.K. Nirmal, S.G. Anjum, Pyare Lal, Amit Rathi, S. Dalela, M.J. Siddiqui, P.A. Alvi
Optik - International Journal for Light and Electron Optics, Volume 127, Issue 18, [2016] 7274–7282.

(b) Other Publications in International/National Conferences/Symposium/Schools:

45. Polarization Dependent EXAFS Study of $Bi_2Sr_2Ca_{0.4}Pr_{0.6}Cu_2O_{8-\delta}$ Insulating Single Crystal.
S. Dalela, J.F. Lee, S. Venkatesh, J. -H. Choy, B. Dalela, R. K. Singhal and K.B. Garg
American Institute of Physics, AIP Conference Proceedings 554 (2001) 217 - 221.
46. A study on temperature dependent 1-D simulation for $GaN/Al_{0.3}Ga_{0.7}N$ Multilayer Nano- Heterostructures.
Sapna Gupta, P.A. Alvi and **S. Dalela**
Proceedings of XV international workshop on the Physics of semiconductor devices (2009) 741-744
47. 3D isostructurality of inorganic-organic hybrid materials
Dinesh, M. Redemeyer, M. Kumar, **S. Dalela**
American Institute of Physics, AIP Conference Proceedings 1393 (2012) 227-228.
48. Doping induced Structural Disorder and Defects in Transition metal doped Oxide: TiO_2
A. Kaushik, P.A. Alvi and **S. Dalela***
Proceedings of ETRMS conference, SKIT, Jaipur (2011)
49. Structure-property-relationship of p-toluidinium tetrachloromercurate(II)
Dinesh, Mukesh Kumar, and **S. Dalela**
AIP Conference Proceedings 1591, 1247 (2014).
50. Interplay of Structural, Optical and Magnetic properties in Gd doped CeO2
S. Soni, Sudish Kumar, R.S. Meena, V. S. Vats and **S. Dalela**
AIP Conference Proceedings 1665, (2015) 130029.
51. Changes in optical behaviour of iron pyritohedron upon microwave treatment
Hemant K Arvind, BL Choudhary, SN Dolia, S Dalela, SR Jakhar, Sudhish Kumar
AIP Conference Proceedings, 1728, 1 (2016) 020169.

(c) Citations	H-index	i10-index
254	**09**	**08**

Conference Organization/Presentations

(a) Organization of a conference:

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- Worked as a **Convener** of Organizing Committee for the "National School on Quantum Mechanics (NSQM-2014)" held at Department of Pure & Applied Physics, University of Kota, Kota during 1-22 February 2014
- Worked as a **Joint-Coordinator** of Refresher Course in Experimental Physics Jointly organised by Sciences' Academy, Bangalore and Department of Pure & Applied Physics, University of Kota, Kota during 09-25 January 2014.
- Worked as a **Coordinator** of Organizing Committee for the "Energy Meet 2013" held at Department of Pure & Applied Physics, University of Kota, Kota on 02 December 2012.
- Worked as a **Convener** of Organizing Committee for the "National School on Quantum Mechanics (NSQM-2013)" held at Department of Pure & Applied Physics, University of Kota, Kota during 05-09 March 2013.
- Worked as a **Convener** of Organizing Committee for the "Energy Meet 2012" held at Department of Pure & Applied Physics, University of Kota, Kota on 23 November 2012.
- Worked as a **Convener** of Organizing Committee for the "National Symposium on Materials for Advanced Technology (NSMAT-2011)" held at Department of Physics, Banasthali University during 29-31, March 2011.
- Worked as a **member** of Organizing Committee for the "National Workshop of Radiochemistry and Applications of Radioisotopes (NWRAR) held by Department of Physics, Banasthali University during 07-15, Feb 2008

- Worked as **Organising Secretary** of the one day Seminar on "IT application & Resource-sharing in Libraries-2006" organized at Kautilya Institute of Technology and Engineering, Sitapura, Jaipur on 20 August 2006.

(b) **Participation as Paper/Poster Presenter:**

43. Paper entitled "Electronic structure of $FeSe_xTe_{1-x}$ superconducting compounds using X- ray Photoelectron Spectroscopy" at National Conference on Current Trends in Material Research, Dept. of Physics, University of Rajasthan, Jaipur in March 2012.
44. Paper entitled "Interplay of dopants with defects in structural properties of Mn, Co-doped oxide: ZnO" at National Conference on Current Trends in Material Research, Dept. of Physics, University of Rajasthan, Jaipur in March 2012.
45. Paper entitled "Positron Annihilation and Raman Spectroscopy studies on Co- doped ZnO sample" at National Symposium on Materials for Advanced Technology, Organised by Department of Physics, Banasthali University, P.O. Banasthali Vidyapith in march 2011.
46. Paper entitled "Crystal engineering of few organic and organic-inorganic hybrid materials by X-ray crystallographic techniques" at National Symposium on Materials for Advanced Technology, Organised by Department of Physics, Banasthali University, P.O. Banasthali Vidyapith in march 2011.

Award and Distinctions

- Indo-Italian POC Visiting Scientist at Elettra Synchrotron Trieste, Italy in Dec2012, Nov-Dec 2011 and Dec 2009.
- Certificate of Appreciation for giving some talks at Department of Physics, Royal University of Phnom Penh, Combodia.
- Visiting Scientist to do some experiment at National Synchrotron radiation Research Centre, Hsinchu, Taiwan in Nov-Dec 2000.
- Research Fellowship from Council of Scientific & Industrial Research (CSIR), New-Delhi.

Association with Professional Bodies

(a) Reviewer

Worked as a reviewer of following SCI journals and ISBN publications:

- Journal of Applied Physics, American Institute of Physics (AIP) Publishers
- Journal of Solid State Chemistry (Elsevier)
- Journal of Alloys and Compounds (Elsevier)
- American Journal of Material Science
- Powder Technology (Elsevier)
- Journal of Physics: Condensed-Matter
- APL Materials (American Institute of Physics)
- Chemical Physics Letters (Elsevier)
- Materials Science-Poland (Elsevier)
- International Journal of Electronics and Communications (Elsevier)
- Pearson Publication

(b) Committees and Boards

- Member, Academic Council, University of Kota, Kota (2012-2014).
- Member, Board of Studies (BOS)-Physics, University of Kota, Kota (2012- till date).
- Member, Committee of Curriculum-Physics (Energy Studies), University of Kota, Kota (2012- 2013).
- Member, Admission Committee, University of Kota, Kota

- Member, Anti-Ragging Committee, University of Kota, Kota (2012- till date).
- Member in various committees for smooth conduction of various activities in University such as Student Union Election, Inauguration of Solar Power Plant, Convocation, 12(b) team visit etc.
- Coordinator, M.Sc.(Physics) Energy programme at University of Kota, Kota (2012-2015).
- Convener of Board of Studies in Physics at Banasthali University from 2008-2011.
- Member of Board of Studies in Physics at Banasthali University from 2006-2007.
- Member of Faculty Meetings, Banasthali University from 2007-2012.
- Member of Academic council, Banasthali University from 2008-2012.

(b) Memberships

International XAFS Society

(c) Other Activities:

- Delivered some Invited Talks on "Fundamentals of Fiber Optics Communication" at Department of Physics, RUPP, Combodia during Dec-Jan 2012.
- Invited talk during Research Course work on "**Writing a Scientific Manuscript & Review Process**" at University of Kota, Kota on 03 August 2013
- Invited talk during Research Course work on "**Execution of Projects**" at University of Kota, Kota on 06 May 2016.
- Invited talk "**Experimental Characterization of Materials using X-ray Photoelectron Spectroscopy [XPS]**" during UGC-HRDC, MDSU, Ajmer sponsored one week short-term course entitled "Separation Techniques and Instrumental Methods of Analysis" from 30 Jan-4 Feb, 2017.
- Invited talks " **1. How to write a Research Manuscript and review process, 2. X-ray Photoelectron Spectroscopy**" during National Workshop on Research Methodology in Natural and Applied Sciences [15-29 April 2017] Sponsored by Ministry of Human Resource Development, organized by Faculty Development Center, Banasthali Vidyapith, India on 22 April 2017.