

CURRICULAM VITAE of Prof. BALAK DAS

Personal Details: -

(1) **Name:** Prof. BALAK DAS

(2) **Date of Birth:** Dec. 23, 1959.

(3) **Nationality:** Indian

(4) **Place of Birth:** Mohan Sarai, Gangapur-Varanasi, U.P., India

(5) **Marital Status:** Married

(6) **Present Employment:** Department of Physics, University of Lucknow-226007

(7) **Email ID:** bdas226010@gmail.com, **Mob. No.** 9415375890, 8604630992

Education: -

1. **Doctor of Philosophy (Ph. D. 1990)** in Physics (Experimental Solid-State Physics)

Department of Physics, Banaras Hindu University (B.H.U.), Varanasi-221005

Thesis Title: “**Investigations on Some Materials with Layered Structures (a)**

Transition Metal Dichalcogenides- $Ti_{1+x}S_2$ and (b) High Temperature

Superconductors- $YBa_2Cu_3O_{7-x}$ and $(Bi, Tl)_2(Sr, Tl)_2Ca_{n-1}Cu_nO_{2n+4}$.”

2. **Master of Science (M.Sc. 1984)** in Physics (Solid State Physics)

Banaras Hindu University (B.H.U.), Varanasi-221005

3. **Bachelor of Science (B. Sc.1981)** in **Physics (Hons)**, Chemistry, Mathematics.

Banaras Hindu University, Varanasi-221005

Employments and Teaching/Research Experience: - 27/35 years

1. Professor, Department of Physics, University of Lucknow, Lucknow-226007 from March 1, 2009- till date.
2. Associate Professor, Department of Physics, University of Lucknow, Lucknow-226007 from Jan.,1, 2006- March 1, 2009.
3. Reader, Department of Physics, University of Lucknow, Lucknow-226007 from March 1, 2001-Dec. 31, 2005.
4. Lecturer Department of Physics & Electronics, Dr. Ram Manohar Lohia Avadh University, Faizabad-224005 from Jan.7, 1994- Feb. 28, 2001.
5. Research Associate (CSIR), Department of Physics, Banaras Hindu University (B.H.U.), Varanasi-221005 from July 1, 1992-Jan.6, 1994.

6. Senior Research Fellow (MNES, Govt. of India), Department of Physics, Banaras Hindu University (B.H.U.), Varanasi-221005, from July 21,1987- June 30, 1992.
7. Junior Research Fellow (DAE, Govt. of India), Department of Physics, Banaras Hindu University (B.H.U.), Varanasi-221005 from Nov. 14,1984- Nov. 13, 1987.
8. Research Assistant (DNES, Govt. of India), Department of Physics, Banaras Hindu University (B.H.U.), Varanasi-221005 from Dec.1, 1983- Nov.13,1984.

Research Publications and Books: -

Research articles	Review articles	Conference Papers	Books at U.G. level
52	05	63	08

No. of Ph.D. Students: - (a) Awarded- 10; (b) Registered- 05 (five)

Awards/Prizes: -

1. **Second Prize** for Best Paper in National Seminar on Crystallography (INSA)-1992.
2. **First Prize** for Best Paper in National Seminar on Crystallography (INSA)-1989.
3. **Second Prize** for Best Paper in National Seminar on Crystallography (INSA)-1986.

Professional Membership: -

1. Materials Research Society of India, Bangalore
2. Indian Physics Association, Mumbai
3. Semiconductor Society of India, Kolkata.

Research Projects Completed: -

1. UGC Major Research Project on “Synthesis and Structure- Properties Correlation of Some Complex Nanostructured Oxide Materials” 2009-12.
2. UGC-IUAC Research Project on” Tailoring the Structural/Microstructural and hence the Physical Properties of Pure and Doped SnO₂ Thin Films at Nanoscale by High Dose Ni, Fe, Co & Mn Implantation” 2011-14.

Visit Abroad: -

The Abdus Salam International center for Theoretical Physics (ICTP), Trieste, ITALY.

Courses Taught: -

- (i) **At UG Level-** Mechanics, Modern Physics, Quantum Mechanics, Atomic & Molecular Spectroscopy, Materials Science, Nanotechnology.
- (ii) **At PG Level-** Solid State Physics, Materials Science, Nanotechnology, X-ray Crystallography, Electromagnetic Theory, Microwaves, Plasma Physics and

Electrodynamics.

Member of Statutory Bodies: -

1. **Executive Council** of Lucknow University from Nov.18, 2005-Dec30, 2006.
2. **Executive Council** of Lucknow University from Dec.10, 2011-July 3, 2012.
3. **Executive Council** of Lucknow University from Sept.9, 2016-Sept.8, 2017.
4. **Executive Council**, VBS Purvanchal University, Jaunpur, Nov. 2011-Nov. 2012.
5. **Academic Council** of Lucknow University from July 4 2012-till date.
6. **Science Faculty Board, Board of Studies/Departmental committee/ Departmental Research committee of Physics**, Lucknow University from August, 2005-till date.
7. **Research Degree Committee (RDC)**, VBS Purvanchal University, Jaunpur, 2011-13.
8. **Research Degree Committee (RDC)** of U.P. Technical University (UPTU), Lucknow, for the session 2012-2014.
9. **Board of Studies in Physics**, Abdul Kalam Technical University (AKTU), Lucknow, for the session 2015-2019.
10. **Board of Studies in Physics**, Shakuntala Devi Mishra Rehabilitation University (SMRU), Allahabad, 2017-2019.
11. **Board of Studies in Physics**, Choudhary Charan Singh Meeruth University Meeruth, 2017-2019. ;
12. **Board of Studies in Physics**, Allahabad State University, Allahabad, 2017-2019.
13. **Board of Studies in Physics**, VBS Purvanchal University, Jaunpur. 2019-2021.

Administrative Assignments: -

1. Hostel Superintendent of Girls Hostel, Dr. R.M.L. Avadh University, Faizabad.
2. Assistant Provost of Balarampur Management Hall at Lucknow University, from Feb.2002- May 2006.
3. Assistant Proctor, at Lucknow University, From March 2006- Dec.2009.
4. Coordinator, for conducting B.Sc. Physics Practical Exams. 2008-09 & 2009-10.
5. O.S.D of Unfair Means Committee (UFM)-2010-11.
6. Director, Equal Opportunity Cell (EOC) -2013-till date.

Place: Lucknow

Date: 09.07.2018



(BALAK DAS)

Name of Candidate and Title of Research Guidance: -

1. **Dr. B. S. Yadav:** - “Investigation on synthesis and characterization of Tl- based high Tc superconductors” (2009).
2. **Dr. R. S. Yadav:** - “Some studies on synthesis and characterization of Y-based high Tc superconductive oxide” (2009).
3. **Dr. Rita Singh:** - “Synthesis and characterization of some exotic nanostructured oxide (Cu₂O, SnO₂, etc.) materials (bulk and thin film)” (2011).
4. **Dr. Indu Verma:** - “Synthesis & characterization of Bi-based high temperature Superconductors” (2012).
5. **Dr. Manju Verma:** - “Synthesis and Characterization of Pure and Doped Nanostructured Zinc Oxide Materials” (2014).
6. **Dr. Sudhir Kumar:** - “Synthesis and Characterization of Nanocomposite Bulk and Thin films ZnO-TiO₂-SnO₂” (2015).
7. **Dr. Sushant Gupta:** - “Synthesis, Ion Beam Irradiation and Characterization of 3d Transition Metal Doped Tin Oxide” (2018).
8. **Dr. Shrayn Kumar:** - Synthesis and Characterization of La_{1-x}Sr_xMO_{3-y} (M=Mn, Co and Ni) Solid Oxide Fuel Cell Cathod Materials.
9. **Dr. R. R. Awasthi:** - Synthesis and Characterization of Multiferroic Nanomaterials.
10. **Dr. Bharti Singh:** - Synthesis and Characterization of Polymer Nanocomposite of SnO₂

Research papers published in Referred National/International Journals.

1. Metal to semiconductor transition in TiS_{1.7} crystals
K.S. Bartwal, **B. Das** and O. N. Srivastava;
Crystal. Research. and Technology, **20**, K87-K90 (1985)
2. Metal-Insulator transition in titanium disulphide crystals.
B. Das, K.S. Bartwal, and O. N. Srivastava;
Phys. Status Solidi (b), **136**, 365-371, (1986).
3. Electron microscopic studies on local structures of high Tc superconductor- YBa₂Cu₃O_{7-x}.
K. Ramakrishna, **B. Das**, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
Solid State Communication **65**, 831-834, (1988).
4. On the formation of Y-Ba-Cu-O superconducting thin films.

- A.K. Saxena, **B. Das**, S.P.S. Arya, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
Solid State Communication **66**, 1063-1065, (1988).
5. Electron microscopic investigations on structural characteristics of high Tc
Superconductor-YBa₂Cu₃O_{7-x} and Bi₂(Ca,Sr)₃Cu₂O₈.
B. Das, K. Ramakrishna, S. K. Singh, A. K. Singh, R. S. Tiwari and O.N. Srivastava;
Review of Solid State Sciences, **2**, 161-172, (1988).
6. Studies on structural characteristics of high Tc superconducting Bi-Sr-Ca-Cu-O
phases. K. Ramakrishna, **B. Das**, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
Solid State Communication **68**, 629-34, (1988).
7. On the formation of Y-Ba-Cu-O superconducting thin films.
A.K. Saxena, **B. Das**, S.P.S. Arya, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
Review of Solid State Sciences **2**, 497-502, (1988).
8. Electron microscopic investigations of Bi- and Tl- bearing cuprate superconductors.
B. Das, K. Ramakrishna, G. D. Varma, R. S. Tiwari and O. N. Srivastava;
Bulletin of Material Sciences **14**, 585-92, (1991).
9. Synthesis and Electron microscopic characterization of Tl-bearing cuprate
superconducting Tapes/Wires prepared by Doctor Blade Process.
B. Das, G. D. Verma and O. N. Srivastava; Indian Journal of Physics **76A**, 95-99,
(2002).
10. Zero-spin-Photon Hypothesis: “Zero-spin-Photon Generation in Pair-production and
its Subsequent Decay into Neutrinos & Antineutrinos Solves Many riddles of
Physics and Universe. R.C. Gupta, Ruchi Gupta, Sanjay Gupta, V.P. Gautam and **B.**
Das; [www.arxiv.org/physics 0511514](http://www.arxiv.org/physics/0511514) Version-1[Cond-mat. other],17April, (2006).
11. Effect of Zn & Co doping on the Structure/Microstructures of Y, Bi and Tl- based
High Temperature Superconductors.
Das, B., B. S. Yadav, R. S. Yadav and Indu Verma;
Proceeding of 53rd DAE Solid State Physics Symposium [ISBN: 978-81-8372-044-
1] **53**, 909-910, (2008).
12. Zero-spin Photon Hypothesis: Zero-spin Photon Generation in Pair-Production and
its Subsequent Decay into Neutrinos & Antineutrinos -Solves Many-riddles of
Physics & Universe.
R.C. Gupta, Anirudh Pradhan, Ruchi Gupta, Sanjay Gupta, V.P. Gautam, **B. Das** and
Sushant Gupta; www.arxiv.org/physics/0511214 Version-2 [physics. gen-physics],

22July, (2009).

13. Zero-Spin-Photon Hypothesis - Finds another Important Application: Could Possibly Solve the 'Infinity - Problem' of QED without the need of Renormalization.
R.C. Gupta, Anirudh Pradhan, V.P. Gautam, M.S. Kalara, **B. Das** and Sushant Gupta;
www.arxiv.org/physics/0901.3330 [physics. gen-ph], 21Sept. (2009).
14. Synthesis, Characterization and the Structure-Properties Correlation of Nano-Structured Copper Oxide.
Rita Singh and **B. Das**;
Proceeding of International Workshop on the Physics of Semiconductor Devices (IWPSD) [ISBN: 978-93-80043-60-9], 391-394, 2009.
15. Effect of partial substitution of Mn on the physical properties and surface morphology of nanostructured Bi-based high temperature superconductor.
Indu Verma, N. P. Lalla, R. Rawat, V. Ganesan, D.M. Phase and **B. Das**;
Mindshare International Refereed Journal (Proceeding of National conference Nanomaterials and Nanotechnology-ISSN-2229-4872) 1, 268-273, (2010).
16. A synthesis and structural/microstructural Characteristics of Antimony doped tin oxide ($\text{Sn}_{1-x}\text{Sb}_x\text{O}$) Semiconductors.
Rita Singh, N. P. Lalla, D.M. Phase and **B. Das**;
Mindshare International Refereed Journal (Proceeding of National conference Nanomaterials and Nanotechnology-ISSN-2229-4872) 1, 274-279, (2010).
17. A Comparative Study of Monthly Mean Daily Clear Sky Radiation Over India.
A.K. Katiyar, Akhilesh Kumar, Chanchal Kumar Pandey and **B. Das**;
International Journal of Energy and Environment 1, 177-182, (2010).
18. Microstructural and Superconducting Properties of $\text{YBa}_2\text{Cu}_{3-x}\text{Co}_x\text{O}_{7-\delta}$ System.
R.S. Yadav, Sushant Gupta, N.P. Lalla, G.D. Verma and B. Das
International Journal of Integrated Ferroelectrics 116, 68-81, (2010).
19. Effect of Site Selective Doping of Co on the Physical and Structural/Micro structural Properties of Bi-Based High Temperature Superconductors.
Indu Verma, R. Rawat, V. Ganesan, D.M. Phase, A. Banerjee and **B. Das**;
AIP Conf. Proceeding. (INTERNATIONAL CONFERENCE ON PHYSICS OF EMERGING FUNCTIONAL MATERIALS-PEFM-2010), 13, 195-198, (2010).
18. Flux Pinning by Nano Particles Embedded in Polycrystalline Y-123 Superconductors
Sushant Gupta, R. S. Yadav and **B. Das**;

- ISST Journal of Applied Physics (IJAP): **2**, 1-5, (2011).
18. Effect of Co Doping at Cu Site on Structural/Microstructural Characteristics of Tl-based High T_c Superconductors.
B. S. Yadav, D.M. Phase, N.P. Lalla, G.D. Verma and **B. Das**;
Int. J. Mod. Phys. B, **25**, 3583-3594 (2011).
 19. Synthesis, Growth and Characterization of tunable bandgap nanostructured copper(I) oxide (Cu₂O) Semiconductor. Rita Singh, V. Ganesan and **B. Das**
Journal of Advance Microscopic Research (JAMR), **6**, 1-7 (2011).
 20. Surface morphology and physical properties of partially melt textured Mn doped Bi-2223 superconductor. Indu Verma, R. Kumar, R. Rawat, V. Ganesan and **B. Das**;
AIP Advances **1**, 032176 (2011).
 21. Structural/Microstructural, Optical and Electrical Investigations of Sb-SnO₂ Thin Films deposited by Spray Pyrolysis. Sushant Gupta, B. C. Yadav, Prabhat K Dwivedi and **B. Das**; www.arxiv.org/physics 1208.4094 [cond-mat.mtrl-sci] (2012).
 22. Synthesis and structural/microstructural characteristics of antimony doped tin oxide (Sn_{1-x}Sb_xO_{2-δ}). Rita Singh, Sushant Gupta and **B. Das**; www.arxiv.org/physics 1107.1807 [cond-mat.mtrl-sci] (2012).
 23. The Effect of Mn Substitution on Properties of Bi_{1.6}Pb_{0.4}Sr₂Ca_{2-x}Mn_xCu₃O_y Superconductors.
Indu Verma, R. Rawat, V. Ganesan, D.M. Phase and **B. Das**;
Journal of Superconductivity and Novel Magnetism, **25**, 85-90, (2012).
 24. Synthesis and Magnetic Properties of (Bi, Pb)₂Sr₂Ca₂Cu₃O_{10+δ} Superconductor.
Indu Verma, R. Kumar, V. Ganesan, A. Banerjee and **B. Das**;
Journal of Superconductivity and Novel Magnetism, **25**, 785-789, (2012).
 25. Structure property correlation of pure and Sn-doped ZnO nanocrystalline materials prepared by co-precipitation.
Manju Verma, Prabhat K. Dwivedi & **B. Das**;
Journal of Experimental Nanoscience, **10**, 438–448, (2013).
 26. Microstructural, optical and electrical investigations of Sb-SnO₂ thin films deposited by spray pyrolysis. Sushant Gupta, B.C. Yadav, Prabhat K. Dwivedi, **B. Das**; Materials Research Bulletin, **48**, 3315–3322, (2013).
 27. Pure and Sn-doped ZnO Transparent Nanocrystalline Thin Films.
Manju Verma, Bharti Singh, R. R. Awasthi and **B. Das**;

- J. Sci. & Tech. Res. **4**, 29-31, (2013).
28. Effects of Sb, Zn doping on structural, electrical and optical properties of SnO₂ thin films.
Rita Singh, Manish Kumar, S. Shankar, Rajeev Singh, Anup K. Ghosh, O. P. Thakur and **B. Das**;
Materials Science in Semiconductor Processing, **31**, 310–314, (2015).
29. Study of the structural phase transformation, and optical behavior of the as synthesized ZnO–SnO₂–TiO₂ nanocomposite.
Sudhir Kumar, M. Gupta, V. Sathe, T. Shripati, D.M. Phase and **B. Das**;
Phase Transitions A Multinational Journal, **88**, 1122-1136, (2015).
30. Swift heavy ion irradiation induced modifications in structural, microstructural, electrical and magnetic properties of Mn doped SnO₂ thin films.
Sushant Gupta, Fouran Singh, N.P. Lalla, and **B. Das**;
Nuclear Instruments and Methods in Physics Research B, **400**, 37-57, (2017).
31. Role of carrier concentration in swift heavy ion irradiation induced surface modifications.
Sushant Gupta, V. Ganesan, Indra Sulania and **B. Das**;
Surface Science, **664**, 137-146, (2017).
32. Structural and morphological study of Bi₂Fe₄O₉ and La_{2-x}Sr_xNiO₄ system (x= 0.3) bulk materials.
Shravn Kumar, R. R. Awasthi and **B. Das**
Accepted for publication in International Journal of Essential Sciences (IJES), (2018).
33. Experimental Investigations on La₂NiO₄ Cathode for Solid Oxide Fuel Cell
Shravn Kumar, R. R. Awasthi and B. Das
Accepted for publication in International Journal of Essential Sciences (IJES), (2018).
34. Effect of molar concentration on structural, magnetic domain and optical properties of BiFeO₃ thin films, R. R. Awasthi, K. Asokan, B. Das
Applied Physics A, **125** (5), 338, 2019).
35. The synthesis and study of structural, optical and electrical behaviours of tin oxide/ polyaniline (SnO₂/PANI) nanocomposites
B. Singh and B. Das, Pramana –Journal of Phys. **93**, 32, (2019).
36. Structural transition and tunable optical, morphological and magnetic properties of Mn-doped BiFeO₃ films,

- R. R. Awasthi, and B Das, Optik- An International Journal for Light and Electron Optics, 194, 162973, (2019)
37. Structural, dielectric and magnetic domains properties of Mn-doped BiFeO₃ materials
R.R. Awasthi, K Asokan, B. Das,
International Journal of Applied Ceramic Technology, 17, 1410-1421 (2020)
38. Effect of temperature on physical properties of Bi₂Fe₄O₉ polycrystalline materials
RR Awasthi, and B Das ,
Journal of the Australian Ceramic Society, 56, 243–250, (2020)

Research papers Presented in seminars / Conferences / Workshops etc.: -

1. Electronic transitions and its correlation with structural behavior in TiS_{1.7} crystals.
K. S. Bartwal, **B. Das** and O. N. Srivastava;
XV National Seminar on crystallography held on April 17-19, 1984 at Department of Physics, Indian Institute of Science, Bangalore-560012, India.
2. Semimetal to semiconductor transition in Ti_{1.16}S₂ crystals at high temperatures.
K. S. Bartwal, **B. Das** and O. N. Srivastava;
XVI National Seminar on crystallography held on Jan. 2-4, 1985 at Department of Physics and Astronomy, Delhi University, Delhi-110001, India.
3. Disorder effects and its influence on Metal-Insulator transition in titanium disulphide.
B. Das, K. S. Bartwal, and O. N. Srivastava;
V National Seminar on Physics of Semiconductors and devices held on Dec. 5-7, 1986 at Department of Physics, Banaras Hindu University, Varanasi, India.
4. Further studies on Metal-Insulator transition in titanium disulphide crystals.
B. Das, K. S. Bartwal, R. S. Tiwari and O. N. Srivastava;
XVII National Seminar on crystallography held on Oct. 7-9 1986 at Department of Physics, Jammu University, Jammu-180001, India (**2nd Prize for the BEST Paper Presentation**).
5. Electron microscopic studies on high T_c superconductor-YBa₂Cu₃O_{7-x}.
K. Ramakrishna, **B. Das**, R. S. Tiwari and O. N. Srivastava;
XIX National Seminar on crystallography held on Dec. 18-20, 1987 at Department of Physics S. B. College campus, Gandhiji University, Changanacherry-686101, India (**First Prize for the BEST Paper Presentation**).
6. Electron microscopic investigations on structural characteristics of high T_c

Superconductor-YBa₂Cu₃O_{7-x} and Bi₂(Ca,Sr)₃Cu₂O₈.

B. Das, K. Ramakrishna, S. K. Singh, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
International Workshop on high T_c superconductors held on may 2-4, 1988 at
Centaur Hotel, Srinagar-1900001, India.

7. Formation of Y-Ba-Cu-O thin films by spray pyrolysis.
A.K. Saxena, **B. Das**, S.P.S. Arya, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
International Workshop on high T_c superconductors held on may 2-4, 1988 at
Centaur Hotel, Srinagar-1900001, India.
8. Modification of superconducting transition temperature (T_c) of Yba₂Cu₃O_{7-x} on
Hydrogenation.
S. K. Singh, **B. Das** and O. N. Srivastava;
National Workshop on high T_c superconductivity held on Dec. 14-15, 1988 at
Department of Physics, Banaras Hindu University, Varanasi-221005, India.
9. Formation of high T_c superconducting Y-Ba-Cu-O thin film by flash evaporation.
A.K. Saxena, **B. Das**, S.P.S. Arya, A. K. Singh, R. S. Tiwari and O. N. Srivastava;
XXXI DAE Symposium on Solid State Physics, held on Dec. 17-20, 1988 at the
Department of Physics, Bhopal University, Bhopal-462026, India.
10. On thallium toxicity and its possible prevention in the synthesis of thallium based
superconductors.
B. Das, K. S. Chandrababu, G. D. Verma, K. K. Verma and O. N. Srivastava;
Second one Day Meeting of UGC Standing Committee on High T_c
Superconductivity held on Jan. 23, 1989 at INSA Building, New Delhi.
11. Electron microscopic investigations of Bi- and Tl- bearing cuprate superconductors.
B. Das, K. Ramakrishna, G. D. Verma, R. S. Tiwari and O. N. Srivastava;
International Conference on high T_c superconductivity held on Jan. 10-14, 1990, at
Indian Institute of Science, Bangalore-560012, India.
12. Synthesis and Characterization of Bi- and Tl- based cuprate superconductors.
B. Das, G. D. Verma and O. N. Srivastava
X National Symposium on Cryogenics (Focal Theme: - High Temperature
Superconductors) held on Jan.29-31,1990, at Dept. of Physics, B.H.U. Varanasi.
13. Synthesis and Electron Microscopic Characterization of Tl(Bi)-Sr-Cu-O and
Tl(Bi,Pb)-Sr-Ca-Cu-O high temperature superconductors.
G. D. Verma, **B. Das** and O. N. Srivastava;

XXXIV DAE Symposium on Solid State Physics, held on Dec. 21-24, 1991 at the Department of Physics, Bhopal University, Bhopal-462026, India.

14. Some studies on growth and characterization of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ and $\text{Bi}_2\text{Sr}_2\text{Ca}_1\text{Cu}_2\text{O}_8$ single crystals.

Ram Janam, **B. Das** and O. N. Srivastava;

XXIII National Seminar on Crystallography held on March 23-25, 1992, at Department of Physics, MMM Regional Engineering College, University of Rajasthan, Jaipur-302017, India. (**2nd Prize for the BEST Paper Presentation**).

15. Structural/microstructural characterization of high J_c Bi-Sr-Ca-Cu-O superconducting tape prepared by Doctor Blade Process.

B. Das and O. N. Srivastava;

XVIV National Seminar on crystallography held on Oct. 22-24 1992, at Department of Physics Jammu University, Jammu-180001, India.

16. Single crystal growth and structural/microstructural characterization of high T_c superconducting Bi-Sr-Ca-Cu-O system.

B. Das and O. N. Srivastava;

XVVI National Seminar on crystallography held on Dec. 21-23, 1994, at Department of Studies in Physics, university of Mysore, Mysore-570006, India.

17. Preparation and characterization of high T_c , Tl(Hg)-Ba-Ca-Cu-O superconductors.

B. Das, G. D. Verma and O. N. Srivastava;

XXVII National Seminar on crystallography held on Jan. 29-31, 1995 at Department of Physics, Banaras Hindu University, Varanasi-221005, India.

18. Fabrication and Electron Microscopic characteristics of Ti-based cuprate high T_c superconducting tapes/wires.

B. Das, G. D. Verma and O. N. Srivastava;

Second International Workshop on High Temperature Superconductivity-Ten Years After its Discovery held on Dec. 16-21, 1996 at Department of Physics, University of Rajasthan, Jaipur-302004, India.

19. Synthesis and electron Microscopic characteristics of Tl-based cuprate superconducting tapes/wires.

B. Das, G. D. Verma and O. N. Srivastava

Conference on Superconductivity held on Dec. 13-15, 1997 at School of Physics, University of Hyderabad, Hyderabad-500046, India.

20. Electronic transitions in some semiconducting oxides and sulphides of transition metals.
B. Das and O. N. Srivastava;
National Seminar on Emerging Trends in Electronics and Computers held on March 11 & 12, 1999 at Department of Physics and Electronics, Dr. R. M. L. Avadh University, Faizabad-224001, India.
21. Fabrication and structural characterization of high Tc superconducting Bi-Sr-Ca-Cu-O tapes and wires.
B. Das, A. Srivastava, L. K. Singh and O. N. Srivastava;
National Seminar on Emerging Trends in Electronics and Computers held on March 11 & 12, 1999 at Department of Physics and Electronics, Dr. R. M. L. Avadh University, Faizabad-224001, India.
22. Some studies on Bi- bearing High Tc Superconductors.
B. Das and O. N. Srivastava
3rd International Academy of Physical Sciences meeting (Symposium on recent trends in Material Science) held on Dec.17-19, 1999 J. K. Institute of Applied Physics, University of Allahabad, India.
23. Some Properties, synthesis and characterization of II-VI, $Cd_xZn_{1-x}Te$ crystals.
Manish Verma and **B. Das**;
XIX Annual General Meeting of Materials Research Society India, held on Feb. 13-15, 2006 at Department of Physics University of Lucknow, India.
24. Some studies of synthesis growth and characterization of high Tc superconductors $Y_1Ba_2Cu_3O_{7-x}$ and $Tl_2Ba_2Ca_2Cu_3O_{10-x}$.
B. Das, B.S. Yadav & R.S. Yadav;
35th National Seminar on Crystallography (NSC-35) held on February 22-24 2006, at National Physical Laboratory New Delhi- 110012, India.
25. Synthesis & Characterization of Y & Tl-based Nano-structured Zn substituted high Tc Superconductors.
B. S. Yadav, R. S. Yadav and **B. Das**;
National Workshop on Nanomaterials and Nanotechnology held on 24-25 March 2007, at Department of Physics, University of Lucknow, Lucknow, India.
26. Electron Microscopic Investigations of Zn and Co doped Y, Bi and Tl-based High Tc Superconductors.
B. Das, B. S. Yadav and R.S. Yadav;

National Conference on Electron Microscopic & related Fields and XXIX Annual Meeting of EMSI held on Nov. 26-28, 2007 at Department of Physics, University of Delhi, Delhi-110007, India.

27. Effect of Zn & Co doping on the Structure/Microstructures of Y, Bi and Tl- based High Temperature Superconductors.
B. Das, B. S. Yadav, R. S. Yadav and Indu Verma;
DAE Solid State Physics Symposium (ISBN-978-81-8372-044-1) held on Dec.16 -20, 2008 at Bhabha Atomic Research Centre &Tata Institute of Fundamentals Research Mumbai, India.
28. Synthesis and Characterization of Some Complex Nanostructured Oxide (High Tc Superconductors, Cu₂O, ZnO etc) Materials.
Indu Verma, Rita Singh, Sushant Gupta, V. Pandey and **B. Das**;
National Symposium on Current Trends in Nano Science and Technology (CTNT-09) held on Jan. 15-16, 2009 at Atal Bihari Vajpayee (ABV)- Indian Institute of Information Technology and Management, Gwalior- 474010, India.
29. Electron Microscopy Studies of some 3d-Transition Metals Doped High Temperature Superconductors.
B. Das, Indu Verma and Sushant Gupta;
National Conference on Electron Microscope Society of India and XXX Annual Meeting of EMSI held on Jan.17 -20, 2009 at Department of physics, Institute of Basic Sciences, Bundelkhand University, Jhansi- 284128, India.
30. Synthesis and Electron Microscopic Characteristics of Some Exotic Nanostructured Oxide (Cu₂O, ZnO etc.) Materials.
B. Das, Rita Singh and V. Pandey;
National Conference on Electron Microscope Society of India and XXX Annual Meeting of EMSI held on Jan.17 -20, 2009 at Department of physics, Institute of Basic Sciences, Bundelkhand University, Jhansi- 284128, India.
31. Effect of Co doping on Structure/Microstructure of Y-based High Tc Superconductor.
Sushant Gupta and **B. Das**
National Conference on Application of Material Science in Service of Society- Second Series held on Sept. 12 -13, 2009 at Department of Chemistry
C.M.P. Degree College, Allahabad-211002, India.
32. Effect of Site Selective Doping of Co & Zn on the Micro Structural Characteristics

of Nano-structural Bi-Based High Temperature Ceramic Superconductors.

Indu Verma and **B. Das**

International Conference on Electro ceramics (ICE- 09) held on Dec 13- 17, 2009 at University of Delhi, Delhi-110007, India.

33. Microstructural and Superconducting Properties of $\text{YBa}_2\text{Cu}_{3-x}\text{Co}_x\text{O}_{7-\delta}$ System.

R.S. Yadav, Sushant Gupta, N.P. Lalla, G.D. Verma and **B. Das**;

International Conference on Electro ceramics (ICE- 09) held on Dec 13- 17, 2009 at University of Delhi, Delhi-110007, India.

34. Synthesis, Characterization and the Structure-Properties Correlation of Nano-Structured Copper (I) Oxides (Cu_2O)

Rita Singh and **B. Das**

International Workshop on the Physics of Semiconductor Devices (IWPSD-09) held on Dec.15-19, 2009 at Jamia Mallia Islamia, New Delhi, India.

35. Synthesis, Growth and Characterization of Tunable Band Gap Nanostructured Copper(I) oxide (Cu_2O) Semiconductor.

Rita Singh and **B. Das**

National Symposium on Synthesis, Characterization and Applications of Technologically Important Materials held on Jan.4 & 5, 2010 at Department of Physics, Banaras Hindu University, Varanasi-221005, India.

36. Electron Microscopic Investigations on Zinc and Cobalt Doped Nanostructural Y-based High Temperature Ceramic Superconductors.

Sushant Gupta and **B. Das**;

International Conference on Advances in Electron Microscopy and Related Techniques held on March 8-10, 2010, at BARC, Mumbai-400085, India.

37. Structural/Micro structural Characteristics & its Correlation with Physical Properties of Co & Zn Doped Bi- Based cuprate Superconductors

Indu Verma and **B. Das**

International Conference on Advances in Electron Microscopy and Related Techniques held on March 8-10, 2010, at BARC, Mumbai-400085, India.

38. Electron Microscopic Investigations of Nano-Structured Tunable Band Gap Semiconducting Copper (I) Oxide (Cu_2O)

Rita Singh and **B. Das**

International Conference on Advances in Electron Microscopy and Related

Techniques held on March 8-10, 2010, at BARC, Mumbai-400085, India.

- 39.** Synthesis and Characterization of Tunable Band Gap Nanostructured Copper (I) Oxide (Cu_2O) Semiconductor.

Rita Singh, V. Ganesan and **B. Das**

National Conference on Recent Trends in Exotic Materials held at **SHARDA** University, Noida, during August 25-27, 2010.

- 40.** Studies on the synthesis, surface morphology and magnetic properties of partially melt textured $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_{3-x}\text{Mn}_x\text{O}_{10+\delta}$ superconductor

Indu Verma, R. Rawat, V. Ganesan, D. M. Phase, A. Banerjee and **B. Das**

National Conference on Recent Trends in Exotic Materials held at **SHARDA** University, Noida, during August 25-27, 2010.

- 41.** Effect of Site Selective Doping of Co on the Physical and Structural /Microstructural Properties of Bi-based High Temperature Superconductors.

Indu Verma, R. Rawat, V. Ganesan, D. M. Phase, A. Banerjee and **B. Das**

International Conference of Physics of Emerging Functional Materials (PEFM-2010) held at BARC, Trombay, Mumbai during Sept. 22-24, 2010.

- 42.** Synthesis and Structural/Micro structural Characteristics of Antimony Doped Tin Oxide ($\text{Sn}_{1-x}\text{Sb}_x\text{O}_2$) Semiconductor.

Rita Singh, N. P. Lalla, D. M. Phase and **B. Das**

International Conference of Physics of Emerging Functional Materials (PEFM-2010) held at BARC, Trombay, Mumbai during Sept. 22-24, 2010.

- 43.** Structural/Microstructural, Optical and Electrical Investigations of Sb-SnO₂ Thin Films Deposited by Spray Pyrolysis.

Sushant Gupta, B.C. Yadav, Prabhat K. Dwivedi and **B. Das**

National Conference on Chemistry Life held on Sept. 16-17, 2012 at C.M.P. Degree College, University of Allahabad, Allahabad, India.

- 44.** The Influence of Antimony Dopant on the Microstructural, Optical and Electrical Properties of Thin Films Deposited by Spray Pyrolysis

Sushant Gupta, Prabhat K. Dwivedi and **B. Das**

One Day National Seminar on Newer Trends in Physico-Chemical Techniques held on August 07, 2013 at Department of Chemistry, University of Lucknow, Lucknow, India.

- 45.** Some studies on the Structural/microstructural and optical properties of Al- and Cu-doped ZnO films.

B. Das and Manju Verma

XXXII National Seminar on crystallography held on Nov. 21-23, 2013, New Delhi-94

- 46.** Effect of Antimony Doping on the Structural/Microstructural, Optical and Electrical Properties of Spray Deposited SnO₂ Thin Films.

Sushant Gupta, B.C. Yadav, Prabhat K. Dwivedi and **B. Das**

International Conference on Chemistry and Materials Prospects and Perspectives (ICCMPP-2012) held on December 14-16, 2012 at Babasaheb Bhimrao Ambedkar Central University, Lucknow, India.

- 47.** An Investigation on the Variations in Microstructural, Optical and Electrical Properties of SnO₂ due to the Incorporation of Sb into the Lattice.

Sushant Gupta and **B. Das**

International Seminar on Advances in Bio Nano Materials (ISABNM-2013) held on November 17, 2013, Department of Physics, University of Lucknow, Lucknow, India.

- 48.** An Investigation on the Variations in Microstructural, Optical, Electrical and Magnetic Properties of Sn_{0.9}Mn_{0.1}O₂ Thin Films due to the Au³⁺ Ion Beam Irradiation.

Sushant Gupta, F. Singh, I. Sulania, D.K. Awasthi, P.K. Kulariya and **B. Das**

International Conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC 2014) held on October 14-17, 2014 at Inter-University Accelerators Centre (IUAC), New Delhi, India.

- 49.** The effect of 120 MeV Au⁹ Ion Beam Irradiation on Microstructural, Optical, Electrical and Magnetic Properties of Sn_{0.9}Mn_{0.1}O₂ Thin Films.

Sushant Gupta, F. Singh and **B. Das**

International Conference on Advances in Light Technologies and Spectroscopy of Materials (ICALTSM-2016) held on January 16-18, 2016 at Department of Physics, University of Lucknow, Lucknow, India.

Books/ Chapters in Books: -

1. Avadh Mechanics by Rajeev Srivastava, R.K. Tiwari and **B. Das**
2. Avadh Thermal Physics by Rajeev Srivastava, R.K. Tiwari and **B. Das**
3. Avadh Waves & Oscillations by Rajeev Srivastava, R.K. Tiwari and **B. Das**
4. Avadh Optics by Rajeev Srivastava, R.K. Tiwari and **B. Das**
5. Avadh Electricity & Magnetism, Rajeev Srivastava, R.K. Tiwari and **B. Das**
6. Avadh Modern Physics by Rajeev Srivastava, R.K. Tiwari and **B. Das**

7. Avadh Atomic Physics by Rajeev Srivastava, R.K. Tiwari and **B. Das**

8. Avadh Electronics by Rajeev Srivastava, R.K. Tiwari and **B. Das**

Invited Lectures or Presentation by Dr. B. Das at Conferences/Symposia.

1. Investigations on high Tc superconductors $(\text{Bi, Tl, Pb})_m(\text{Sr, Ba})_2\text{Ca}_{n-1}\text{Cu}_n\text{O}_{2n+m+4}$; $m=1, 2$ and $n=1, 2, 3$.
National Workshop on high Tc superconductivity held on Dec. 14-15, 1988 at Department of Physics, Banaras Hindu University, Varanasi-221005, India.
2. Synthesis and Characterization of Bi- and Tl- based cuprate superconductors.
X National Symposium on Cryogenics (Focal Theme: - High Temperature Superconductors) held on Jan. 29-31, 1990, at Department of Physics, Banaras Hindu University, Varanasi-221005, India.
3. Synthesis and electron Microscopic characteristics of Tl-based cuprate superconducting tapes/wires.
Conference on Superconductivity held on Dec. 13-15, 1997 at School of Physics, University of Hyderabad, Hyderabad-500046, India.
4. Some studies on Bi-based high Tc superconducting Tapes/Wires.
3rd International Academy of Physical Sciences meeting (Symposium on recent trends in Material Science) held on Dec.17-19, 1999 J. K. Institute of Applied Physics, University of Allahabad, India.
5. Synthesis and Characterization of Some Complex Nanostructured Oxide (High Tc Superconductors, Cu_2O , ZnO etc) Materials.
National Symposium on Current Trends in Nano Science and Technology (CTNT-09) held on Jan. 15-16, 2009 at Atal Bihari Vajpayee (ABV)- Indian Institute of Information Technology and Management, Gwalior- 474010, India.
6. High Temperature Oxide Superconductors.
National Conference on Application of Material Science in Service of Society- Second Series held on Sept. 12 -13, 2009 at Department of Chemistry C.M.P. Degree College, Allahabad-211002, India.

Refresher Courses, Workshops, Trainings, Faculty Developments: -

1. I.A.E.A. Regional (RCA) Training Course on "On the Use of Reactor Neutron Beams in Study of Materials" held on June 16- July12, 1986 at Bhabha Atomic Research Centre (BARC), Trombay, India.

2. . Refresher Course (RC-P-07) in PHYSICS held on Dec.12,1996 to Jan.1997 at UGC Academic Staff College, Banaras Hindu University, Varanasi-221005, India.
3. IUC-DAEF-CAT Annual School on Science with Synchrotron Radiation held on Jan. 27- Feb.2, 2000 at Centre for Advance Technology, Indore-452001, India.
4. Winter School on Synchrotron Radiation (Elletra) held on Nov.6 – Dec. 8, 2000 at the abduS Salam International Centre for Theoretical Physics, Trieste, Italy.
5. UGC sponsored Orientation Course (No. 29) held on Jan.31-Feb.27, 2001 at UGC Academic Staff College, Banaras Hindu University, Varanasi-221005, India.
6. One day workshop on ‘NANOSCIENCE’ held on Nov. 30, 2002, at Department of Physics, Banaras Hindu University, Varanasi-221005, India.
7. Four days winter school on “Computational Approaches to Material Science” (CAMS-06) held on Jan. 18-21, 2006 at Jawaharlal Nehru Centre of Advance of Scientific Research (JNCASR), Jakkur, Bangalore-560064, India.
