

## BIO-DATA

1. **Name** : **DR. BAL KRISHAN**
2. **Designation** : Associate Professor (Physics)
3. **Department** : Department of Physics,  
Punjabi University, Patiala.
4. **Date of Birth** : March 25, 1971
5. **Address for Correspondence** : Department of Physics,  
Punjabi University,  
Patiala-147002 (Pb.) India
- Mobile** : 81460-25600
- E-mail** : [bkrishanyce@gmail.com](mailto:bkrishanyce@gmail.com),  
[bkrishan@yahoo.com](mailto:bkrishan@yahoo.com)
6. **Areas of Specialization** : Condensed Matter Physics/ Materials Science



### 7. Academic Qualifications:

S. No.	Degree Held	Year	Board/Univ./Inst.	Division	Subjects Taken
1	Matric	1985	PSEB, Mohali	Ist	--
2	B. Sc	1991	Punjabi University, Patiala	IInd	Physics, Chemistry, Math
3	B.Ed.	1992	Punjabi University, Patiala	IInd	Teaching of Science & Math
4	M.Sc. (Physics)	1998	Anna. University, Annamalai Nagar	IInd	Physics
5	Ph.D.	2003	Punjabi University, Patiala	--	--

### 9. Membership of Professional Bodies/Organizations:

- i) Indian Association of Physics Teachers
- ii) Punjab Academy of Sciences

### 10. Details of Experience:

S. No.	Name of the Inst./Employer	Position Held	Duration	Job Responsibilities
1.	Sant Longowal Institute of Engineering & Technology, Longowal (Sangrur) Pb.	Lecturer (Physics) on ad-hoc basis	Aug 2004 – May 2006	Teaching and Research
2.	Punjabi University, Patiala	Assistant Professor (Physics)	July 2006- June 2018	Teaching, Research and Administration
3.	Punjabi University, Patiala	Associate Professor (Physics)	July 2018 – Till date	Teaching, Research and Administration

## 11. Administrative/Academic Experience

1. **Incharge**, Accounts, Audit and Stores at YCOE, Talwandi Sabo.
2. **Administrative Officer** at YCOE, Talwandi Sabo.
3. **Section Incharge**, Applied Science Section, YCOE, Talwandi Sabo.
4. **Nodal Officer**, Elections at YCOE, Talwandi Sabo.
5. **Convener**, Admission Core Committee at YCOE and UCCK.
6. **Member**, ACD committee at YCOE, Talwandi Sabo.
7. **President**, Science and Environment Club, YCOE, Talwandi Sabo.
8. **Incharge**, Timetable Committee.
9. **Coordinator**, IQAC.
10. **Evaluator** at 23<sup>rd</sup> National Children Science Congress organized by DST, New Delhi.
11. **Chief Coordinator**, Physical Verification of Golden Hearts Scholarship Scheme students.
12. **Coordinator**, UGC Committee
13. **Observer** during different exams such as JEE Mains, UGC-NET, NEET, conducted by NTA.
14. **Centre Supdt.** during different recruitment exams conducted by PPSC, SSSB and other recruitment agencies.
15. **Member**, College Development Committee.
16. **Head of Department**, Science Departments at University College, Chunni Kalan.
17. **Nodal Officer**, Buddy Programme at University College, Chunni Kalan.
18. **Principal-Incharge**, University College, Benra-Dhuri.
19. **Incharge (School)**, Senior Secondary Model School. Punjabi University.
20. **Member**, Academic Council, Punjabi University, Patiala.
21. **Member**, Board of Studies in Basic and Applied Sciences, PUP.
22. **Member of Society** as Educationist at SDSE Sr. Sec. School, Patiala.
23. **Secretary**, ACD Committee, Department of Physics, Punjabi University.
24. **Secretary**, Alumni Committee, Department of Physics, Punjabi University.
25. **Liaison Officer**, Department Website, Department of Physics, Punjabi University.
26. **Member, Governing Body**, Islamia Girls College, Malerkotla.

## 12. Published Work:

- a. Research Papers i) International: **14**
- b. Conference/Seminar Presentation: **19**
- c. Books Published: **03**

## 13 List of Papers/Courses taught at U.G. Level

S. No.	Paper	Class
1.	Physics-I	B.Tech.-I
2.	Physics-II	B.Tech.-I
3.	Waves & Vibrations	B. Sc
4.	Optics and Lasers	B. Sc
5.	Condensed Matter Physics	B. Sc

6.	Electricity and Magnetism	B. Sc
7.	Thermal Physics	B. Sc. (Honours)

#### 14 List of Papers Published in International Journals

1. Sahil, Sukhjinder Singh, Khushdeep Goyal, Deepak Bhandari and **Bal Krishan**, *Hot Corrosion Behaviour of Thermal -Sprayed TiO<sub>2</sub>-Reinforced Cr<sub>2</sub>O<sub>3</sub> Composite Coatings on T-22 Boiler Steel at Elevated Temperature* Journal of Bio-and Tribo-Corrosion, 7,100, 1-9, 2021.
2. Gagandeep Singh, Khushdeep Goyal, Baljinder Ram and **Bal Krishan**, *Microstructural Characterization and Mechanical Properties in Friction Stir Welding of AA6061 and AA6101 Aluminum Alloys* Advanced Engineering Forum, 40, 1-11, 2021.
3. Prince Puri, Khushdeep Goyal, Rakesh Goyal and **Bal Krishan**, *Experimental Analysis of Hot Corrosion Behaviour of Some Composite Coatings on Boiler Steel at Elevated Temperature* Advanced Engineering Forum, 41, 43-54, 2021
4. Mandeep Singh, Khushdeep Goyal, **Bal Krishan** and Rakesh Goyal, *Effect of Carbon Nanotubes on Erosive Wear Properties of NiCr Coatings on Turbine Steel Under Hydro Accelerated Conditions* International Journal of Mechanical and Production Engineering Research and Development, 10, 14643-14656, 2020.
5. Amritveer Singh, Khushdeep Goyal, Rakesh Goyal and **Bal Krishan**, *Hot Corrosion Behaviour of Different Ceramics Coatings on Boiler Tube Steel at 800<sup>o</sup>C Temperature* Journal of Bio-and Tribo-Corrosion, 7, 21, 1-9, 2020.
6. Anju Saini, Raj Pal Sharma, Parmjeet Kaur, Priti Bansal, **Bal Krishan**, Paramjeet Kaur, Valeria Ferretti & Pankaj Kandwal, *Synthesis, Characterization, X-ray Structural Analysis, DFT and BSA Binding Study of a Zn(II) Complex, [Zn(II)Cl<sub>2</sub>(nia)<sub>2</sub>].2nia* Journal of Coordination Chemistry, 74, 2741-2763, 2021.
7. Anju Saini, P Gupta, Priti Bansal, Raj Pal Sharma, **Bal Krishan**, Paramjeet Kaur, V Ferretti, *Syntheses, Characterization, X-ray Structural Determination, and Packing Analyses of Ternary Copper(ii) Complexes: [cu(2-phenoxyacetate/4-chlorobenzoate) 2 (temed)]*, Journal of Structural Chemistry, 62, 1495-1507, 2021.
8. Ramandeep Kaur, **Bal Krishan**, Rajesh Khatri and Ashok Kumar, *Gamma Ray Shielding Studies of (100-x) TeO<sub>2-x</sub> ZnCl<sub>2</sub> Glasses*, International Journal for Research in Applied Science & Engineering Technology 6, 1279-1284, 2018.
9. Ramandeep Kaur, **Bal Krishan** and Ashok Kumar, *The Study of Gamma Ray Absorption Parameters of Heavy Metal Oxide Thin Films*, International Journal for Research in Engineering Application & Management, 4, 618-620, 2018.
10. Ramandeep Kaur, **Bal Krishan** and Ashok Kumar, *Gamma Ray Shielding Properties of (100-x)TeO<sub>2-x</sub> BaO Glasses*, International Journal for Research in Engineering Application & Management, 4, 801-804, 2018.
11. Gurdip Singh, Gagandeep Kaushal and **Bal Krishan**, *Characterization of As-sprayed Stellite-6 Coating Deposited by D-Gun Spray Process for Perspective Wear Application* International Journal of Latest Trends in Engineering & Technology, 131-136, 2017.
12. Sangeet Markanda and **Bal Krishan**, *An Analytic Analysis of z-effective for the Series of Glass [Li<sub>2</sub>O-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2-x</sub>O] with First (3d) d-block (Sc-Zn) Transition Metals Elements* International Journal of Latest Trends in Engineering & Technology, 313-315, 2017.

13. Ashok Kumar, B S Salaria, Sukhpal Singh, **Bal Krishan**, Charanjit Singh & GS Mudahar, *Study of CDSA and extrapolated ranges of electrons in some selected solvents in the energy range of 0.01 – 100MeV*, Asian Journal of Chemistry, 21, S130-134, 2009.
14. **Bal Krishan**, P B Barman, Gurmel S. Mudahar and N P Singh, *Growth of Ga<sub>x</sub>In<sub>1-x</sub>Sb bulk crystals for infrared device applications by vertical Bridgman technique*, Materials Letters, 58, 1441-1445, 2004

**15. Papers presented/accepted in International/National Conferences:**

1. *International conference on Materials for Advanced Technologies (ICMAT-2003)*, December 7-12, 2003 at Singapore (**Paper accepted**).
2. *Fifteenth American Conference on Crystal Growth & Epitaxy (ACCGE-15)*, July 20-24, 2003 at Keystone, Colorado, USA (**Paper accepted**).
3. National Conference on *Precision Manufacturing* at SLIET, Longowal from December 11-12, 2004 (**Paper Presented & Published in Proceedings**).
4. The 15<sup>th</sup> International Conference On *Crystal Growth (ICCG-15)* August 12 - 17, 2007, Salt Lake City, Utah, USA (**Paper accepted**).
5. 2<sup>nd</sup> National Conference on Advanced Materials and Radiation Physics from Nov 4-5, 2011 at SLIET, Longowal (**Paper Presented**).
6. International Conference on *Advancements & Futuristic Trends in Mechanical & Materials Engineering* by PTU, Jalandhar from October 5-7, 2012. (**Paper Presented**)
7. 4<sup>th</sup> *International Conference* on Advancements and Futuristic Trends in Mechanical and Materials Engineering (AFTMME-2016) by Baba Farid College of Engineering & Technology, Bathinda (**Paper Presented**).
8. Advanced Materials & Radiation Physics by Sant Longowal Institute of Engineering & Technology, Longowal from Nov 4-5, 2011 (**Paper Presented**).
9. *Global Upcomings in Environment, Science & Technology-2012* by PTU GZS Campus, Bathinda from April 13-14, 2012 (**Paper Presented**).
10. International Conference on *Advancement & Futuristic Trends in Mechanical & Materials Engineering* by PTU, Jalandhar from October 3-6, 2013 (**Papers Presented**).
11. International Conference on *Advancement & Futuristic Trends in Mechanical & Materials Engineering* by PTU, Jalandhar from October 16-18, 2014 (**Papers Presented**).
12. *International Thermal Spray Conference & Exposition (ITSC-2017)* at Dusseldorf, Germany from June 7-9, 2017 (**Paper Accepted**).
13. *National Conference on Emerging Scenario in Basic and Applied Sciences for Sustainable Development* at DAV College, Bathinda on March 05, 2018 (**Paper Presented**).
14. International Conference on *Advancements & Futuristic Trends In Mechanical & Materials Engineers* organised by *Society of Materials & Mechanical Engineers* from Dec 19-20, 2020 (**Papers Presented**).

**16. Seminars/Short-term courses/Workshops/FDP's Organized:**

1. Organized *Technical Festival Savigya-2011* as *Vice-Chairman* at YCOE, Talwandi Sabo from Nov 16-17, 2011.
2. Organized *Technical Festival aaVeg-2013* as *Chief Coordinator* at YCOE, Talwandi Sabo from Oct. 24-25, 2013.

3. Organized Two-Weeks *Faculty Development Programme* on **Entrepreneurship Development** organized by NITCON (Govt. of India) at YCOE, Talwandi Sabo from Jan 15-28, 2014.
4. Attended One Day Seminar on **Promotion & Popularization of Science** by YCOE, Talwandi Sabo on Sept 18, 2014.
5. Organized Three Days Workshop on **Innovations in Science** at YCOE, Talwandi Sabo from Nov 12-14, 2014.
6. Organized Two Days *National Workshop* on **Innovations in Science** at YCOE, Talwandi Sabo in 2015.
7. Organized Two Days *National Workshop* on **Innovations in Science** at YCOE, Talwandi Sabo in 2016.
8. Organized One-day *National Seminar* on **Higher Education For Development & Role of Teachers** at GSSDGS Khalsa College, Patiala on July 16, 2017.
9. Celebrated **National Science Day** at University College, Chunni Kalan on Feb 28, 2019.
10. Organized **Mega Blood Donation Camp** at University College, Benra-Dhuri on Oct. 11, 2022.
11. Organized *Seminar* on **Mobilization of College Students under Crop Residue Management Project** in association with PAU, Ludhiana at University College, Benra-Dhuri on Nov 7, 2022.

### 17. Seminars/Conferences/STC/Refresher Courses/Trainings attended:

1. Attended **National Seminar** on *Materials Science: Trends & Future (MSTF-2000)* held at Sant Longowal Institute of Engineering & Technology, Longowal, Sangrur (Pb.) from February 24-25, 2000.
2. Visited Crystal Growth Centre, Anna University, Chennai for **Two-weeks Training** on **crystal growth** from June 9- 23, 2000 under **UGC-AU-Facility Visitors Programme**.
3. Attended **6<sup>th</sup> Punjab Science Congress** from February 7-9, 2003 held at Sant Longowal Institute of Engineering & Technology, Longowal, Sangrur (Pb.)
4. Attended **One Day seminar** on *Recent Advances in Radiation Physics* on March 25, 2003 held at Department of Physics, Punjabi University, Patiala (Pb.).
5. Attended AICTE sponsored **Two-Weeks short term course** on *Growth and Characterisation of Semiconductor Devices* organized by Department of Physics, Sant Longowal Institute of Engineering & Technology, Longowal, Sangrur (Pb.) from November 7-18, 2004.
6. Attended **National Conference** on *Laser, Smart Materials and Radiation Physics* organized by Department of Physics, Sant Longowal Institute of Engineering & Technology, Longowal, Sangrur (Pb.) from March 17-18, 2006.
7. Attended **UGC sponsored Four-weeks General Orientation Course** organized by Academic Staff College, **Punjabi University, Patiala** from July 6, 2009 to August 1, 2009.
8. Attended **One-day Workshop** on *Patent Awareness* organized by Department of Science & Technology, Punjab at Yadavindra College of Engineering, Talwandi Sabo on December 12, 2009.
9. Attended **DST & CSIR** sponsored **National Conference** on *Advancements and Futuristic Trends in Mechanical and Materials Engineering* at Yadavindra College of Engineering, Talwandi Sabo from February 19-20, 2010.

10. Attended **UGC sponsored Three-weeks Refresher Course on Environmental Studies** organized by Academic Staff College, **Punjabi University, Patiala** from Nov 10, 2010 to Nov 30, 2010
11. Attended and acted as **Rapporteur** in **14<sup>th</sup> Punjab Science Congress** from February 7-9, 2011 held at SLIET, Longowal, Sangrur (Pb.).
12. Attended **Two-day Workshop on Use and Deployment of NPTEL Web and Video Courses for Effective Teaching** by NPTEL at **Indian Institute of Technology (IIT), Delhi** from July 18-19, 2011.
13. Attended **One-week Short Term Course on Soft Computing and Product Optimization (SCPPPO-2012)** organized by Department of Food Engineering & Technology, Sant Longowal Institute of Engineering & Technology, Longowal, Sangrur (Pb.) from February 6-10, 2012.
14. Attended *One Day Seminar* on **Promotion & Popularization of Science** by YCOE, Talwandi Sabo on Sept 18, 2014.
15. Attended *Three Days Workshop* on **Innovations in Science** at YCOE, Talwandi Sabo from Nov 12-14, 2014.
16. Attended One-Week *short term course* on **Engineering Today** from Sept. 26-Oct. 1, 2015 at YCOE, Talwandi Sabo.
17. Attended *Three-days workshop* on **Drug Abuse: Problem, Management and Prevention** from Jan 18-20, 2016 organized by Department of Pharmaceutical Science, Punjabi University, Patiala.
18. Appointed as **Evaluator** for *State Level Children Science Congress* from Nov 26-27, 2016 at Chitkara University, Rajpura organized by Punjab State Council for Science & Technology, Chandigarh.
19. Attended one-week *short term course* on **Engineering Today** from Nov. 21-25, 2016 at YCOE, Talwandi Sabo.
20. Completed a course on **Learning Physics Through Simple Experiments** by *Centre for Development of Technical Education, IIT, Kanpur* from Sept 20- Nov 20, 2016.
21. Attended MHRD Sponsored *International Summer Course* on **Nanotechnology: Synthesis, Characterisation, Fabrication and Applications** under GIAN at Dr BR Ambedkar NIT, Jalandhar from June 6-11, 2016.
22. Attended *National Seminar* on **Contemporary Issues in Education** at Panjab University, Chandigarh on July 10, 2016.
23. Attended one-day *workshop* on **Intellectual Property Rights (IPR)** at YCOE, Talwandi Sabo on Nov 18, 2016.
24. Attended Two days *National Workshop* on **Innovations in Science** from Nov 6-7, 2017 at YCOE, Talwandi Sabo.
25. Attended one-week *short term course* on **Research Methodology** by UGC-HRDC, Punjabi University, Patiala from Nov 24-30, 2017.
26. Participated in the online course on **Physics of Semiconductors** by *Centre for Development of Technical Education, IIT, Kanpur* from Aug 15 - Nov 20, 2017.
27. Attended *International Conference* on **AFTMME'17** at *SUS GOI, Tangori (Mohali)* from Nov 2-4, 2017.
28. Attended *one-day workshop* on **Computer Interfaced Science Experiments for Physics Teachers & Engineers** at Khalsa College, Patiala on December 22, 2017.
29. Appointed as Expert in **Rationalization Committee** for LCET, Ludhiana by **IKG-PTU, Kapurthala**.

30. Attended *STC for Assistant Professor Grade III* on “**Research Methodology**” at HRDC, Punjabi University, Patiala from Nov. 23-30, 2017.
31. Participated in *Two days Special Training* on **Buddy Programme** from August 7-8, 2018 by STF, Govt of Punjab at MGSIPA, Sector-26, Chandigarh.
32. Appointed as an **Evaluator** for *State Level Children Science Congress* from Dec. 5-6, 2018 at **CSIO, Sector-30**, Chandigarh organized by *Punjab State Council for Science & Technology, Chandigarh*.
33. Participated in *Two Days National Workshop* on **Innovations in Science (IIS-2018)** from Oct.16-17, 2018 at YCOE, Talwandi Sabo.
34. Participated in *Three Days National Workshop* on **LaTex and Technical Writing** from Nov. 23-25, 2018 organized by *Department of Basic and Applied Sciences, PUP*.
35. Delivered *Lectures and imparted Training* during special Training on **Anti-Drug Campaign** by **Govt of Punjab** as **Master Trainer** in **05 Colleges** from Nov. 9-30, 2019.
36. Attended Workshop on *MOOCs, e-Content Development and Open Educational Resources* at HRDC, Punjabi University, Patiala from Jan. 14-19, 2019.
37. Participated in *one day Capacity Building Workshop* for **NAAC Accreditation of Colleges** held at **Punjabi University, Patiala** on September 30, 2019.
38. Participated in *one week FDP* on **Smart Materials and Nanotechnology** organized by **NITTTR, Chandigarh** from December 2-6, 2019.
39. Completed Course on **Learning Physics Through Simple Experiments** organized by **IIT, Kanpur** from April 2- June 10, 2020.
40. Participated in *one day webinar* on **Teaching and Learning Modes Post Covid-19** organized by **ECE Department, PUP** on April 29, 2020.
41. Participated in *one day National Webinar* on **Intellectual Property Rights and Patenting** organized by **YCOE, Talwandi Sabo** on May 23, 2020.
42. Participated in *National Webinar* on **Covid-19: Lesson For Educators** organised by **PCMA** on May 25, 2020.
43. Participated in *one week FDP* on **Operational Research: An Introduction** organised by **NITTTR, Chandigarh** from April 20-24, 2020.
44. Participated in *one week FDP* on **Nanomaterials and Devices** organised by **NITTTR, Chandigarh** from April 27-May 1, 2020.
45. Participated in *one week FDP* on **Quantum and Energy Materials: potential & Applications** organised by **NITTTR, Chandigarh** from May 4-8, 2020.
46. Participated in *one week FDP* on **Communication and Presentation Skills** organised by **NITTTR, Chandigarh** from May 18-22, 2020.
47. Participated in FDP on **Teaching in Digital Era-Hands on Session on an Online Interactive Tool** organized by **NITTTR and University College Chunni Kalan** on July14, 2020.
48. Participated in *Two Days Capacity Building Programme on Online Teaching* organized by **Centre for E-Learning and Teaching Excellence, PUP** from July 25-26, 2020.
49. Participated in **Governing Council meeting** of **District Bureau of Employment and Enterprise, Fatehgarh Sahib** on September 4, 2020.
50. Participated in *One-week Short Term Programme* on **Covid Appropriate Behaviour** organized by **University College, Chunni Kalan** from May 24-30, 2021.
51. Participated in **Capacity Building Programme on How to Incorporate MOOCs/SWAYAM Courses in University Curriculum** organized by **Centre for E-Learning and Teaching Excellence, PUP** on June 10, 2021.

52. Participated in **Inaugural Session of Leader 'S'Peak Series** organized by **Centre for E-Learning and Teaching Excellence, PUP** on May 29, 2021. `