
Dr. Rajni Bala

Associate Professor

Department of Physics

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EDUCATIONAL QUALIFICATIONS

Degree	Year of Passing	University/Institute
Ph. D. (Physics)	2015	Guru Jambheshwar University of Science & Technology, Hisar
M. Sc. (Physics)	2008	Guru Jambheshwar University of Science & Technology, Hisar
B.Sc.	2006	M. D. University, Rohtak

ACHIEVEMENTS

Qualified CSIR-JRF (NET) in Dec 2007 (among top 25% Awardees)

ACADEMIC/RESEARCH EXPERIENCE 15+ Years

AREA OF RESEARCH Materials Science

A. Papers published in National/International journals

1. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Navneet Singh, Effect of Bi_2O_3 on nonlinear optical properties of $\text{ZnO}\cdot\text{Bi}_2\text{O}_3\cdot\text{SiO}_2$ glasses, **Optical Materials** 36 (2013) 352-356. [I.F.-4.2]
2. Neetu Ahlawat, Sujata Sanghi, Ashish Agarwal, **Rajni Bala**, Influence of SiO_2 on the structure and optical properties of lithium bismuth silicate glasses, **Journal of Molecular Structure** 963 (2010) 82-86. [I.F.-4.7]
3. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Satish Khasa, Influence of SiO_2 on the structural and dielectric properties of $\text{ZnO}\cdot\text{Bi}_2\text{O}_3\cdot\text{SiO}_2$ glasses, **Journal of Integrated Science & Technology** 3 (2015) 6-13.
4. Sanjay, Nawal Kishore, Ashish Agarwal, Inder Pal, Suman Devi, **Rajni Bala**, Characterization and optical properties of $\text{MoO}_3\text{-PbO-B}_2\text{O}_3$ semiconducting glasses, **American Institute of Physics Conf. Proc.** 1942 (2018) 140012.

5. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Sanjay, Electrical characterization and dielectric behavior of $\text{PbO} \cdot \text{Bi}_2\text{O}_3 \cdot \text{Ga}_2\text{O}_3$ glasses, **American Institute of Physics Conf. Proc.** 2142 (2019) 070032.
6. Sanjay, Suman Devi, Shalini, Sudesh Kumar, Mukesh Kumar, Nawal Kishore, **Rajni**, Arindam Ghosh, Vijender Singh, Study of dc conductivity of MoO_3 based bismuth borate and lead borate glasses, **American Institute of Physics Conf. Proc.** 2142 (2019) 070033.
7. Sumit Chauhan, **Rajni Bala**, Saroj Rani, Sanjay Gaur, Investigation of structural and optical properties of lithium lead bismuth silicate glasses, **Journal of Materials Science: Materials in Electronics** 33 (2022) 12371–12383. [I.F.-2.8]
8. Sumit Chauhan, **Rajni Bala**, Sanjay Gaur, Saroj Rani, Effect of Bi_2O_3 on structural and optical properties of $\text{Li}_2\text{O} \cdot \text{PbO} \cdot \text{Bi}_2\text{O}_3 \cdot \text{B}_2\text{O}_3$ glasses, **Journal of Materials Science: Materials in Electronics** 33 (2022) 22835-22850. [I.F.-2.8]
9. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Sanjay Gaur, Saroj Rani, Investigation of third- order nonlinear optical parameters and optical limiting behavior of $\text{PbO} \cdot \text{Bi}_2\text{O}_3 \cdot \text{Ga}_2\text{O}_3$ glasses, **Applied Physics A** 128 (2022) 1036. [I.F.-2.8]
10. Sumit Chauhan, **Rajni Bala**, Sanjay Gaur, Deepesh Sharma, Saroj Rani, Rishi Pal, Study of AC conductivity and dielectric relaxation in Bi_2O_3 modified lithium lead silicate glasses, **Applied Physics A** 129 (2023) 521. [I.F.-2.8]
11. Komal Poria, Sunil Dhankhar, Rajesh Parmar, R.S. Kundu, **Rajni Bala**, Effect of ZnCl_2 on structural and optical features of $\text{TeO}_2\text{--B}_2\text{O}_3\text{--Bi}_2\text{O}_3\text{--ZnCl}_2$ glasses, **Solid State Sciences** 142 (2023) 107239. [I.F.-3.3]
12. Deepesh Sharma, **Rajni Bala**, Surender Singh, Pardeep Sharma, Sahil Punia, Power quality improvement of PV interfaced distribution system, **International Journal of Engineering Science and Technology** 15 (3) (2023) 22-31.
13. Sumit Chauhan, **Rajni Bala**, Divya Yadav, Deepesh Sharma, Sanjay Gaur, Saroj Rani, Electrical Conduction and Dielectric Relaxation in Bismuth-Modified Lithium Lead Borate Glasses, **Journal of Electronic Materials** 52 (2023) 7952–7961. [I.F.-2.5]
14. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Sanjay Gaur, The conduction mechanism and dielectric behavior of cadmium bismuth silicate glasses, **Journal of Physics: Conference Series**, 2603 (2023) 012040.
15. **Rajni Bala**, Sujata Sanghi, Ashish Agarwal, Saroj rani, Sanjay Gaur Linear and Nonlinear Optical Characteristics of Bismuth-Modified Lead-Silicate Glasses, **Silicon** 16 (2024) 6143–6154. [I.F.-3.3]
16. Divya Yadav, **Rajni Bala**. Physical characterization of potassium modified lead Bismuth borate glass system, **American Institute of Physics Conf. Proc.** 3149(1) (2024) 030022.
17. Divya Yadav, **Rajni Bala**, Sumit Chauhan, Sanjay Gaur, Komal Poria Conductivity, dielectric, and modulus formalism in Li_2O modified $\text{PbO} \cdot \text{Bi}_2\text{O}_3 \cdot \text{B}_2\text{O}_3$ glasses, **Journal of Materials Science: Materials in Electronics** 35 (2024) 1907. [I.F.-2.8]
18. **Rajni Bala**, Ashish Agarwal, Sujata Sanghi, Electrical and Dielectric Properties of $\text{PbO} \cdot \text{Bi}_2\text{O}_3 \cdot \text{SiO}_2$ Glasses, **Indian Journal of Pure & Applied Physics** 62 (2024) 1118-1123. [I.F.-1.10]

19. Sanjay Gaur, Suman Devi, S. Kaushik, **Rajni Bala**, Sumit Chauhan, Mintu Yadav, The role of Fe_2O_3 and MoO_3 content on FTIR study of lead borate glasses, **American Institute of Physics Conf. Proc.** 3198 (2025) 020054.
20. Sumit Chauhan, **Rajni Bala**, Divya Yadav, Sanjay Gaur, Influence of Bi_2O_3 on structural and optical characteristics of $\text{PbO}\cdot\text{B}_2\text{O}_3\cdot\text{Bi}_2\text{O}_3\cdot\text{SiO}_2$ glasses, **Journal of Non-Crystalline Solids** 649 (2025) 123330. [I.F.-3.5]
21. Divya Yadav, **Rajni Bala**, Sumit Chauhan, Sanjay Gaur, Deepesh Sharma, Saroj Rani. Structural, optical, and dielectric investigations of sodium-modified lead-bismuth borate glasses, **Optical Materials** 159 (2025) 116573. [I.F.-4.2]
22. Asha Rani, Rajesh Parmar, R. S. Kundu, Rajni Bala, Investigating the influence of barium oxide on bismuth borovanadate glasses: physical, structural, optical, and dielectric properties, **Applied Physics A** 131 (2025) 250. [I.F.-2.8]
23. Divya Yadav, **Rajni Bala**, Sumit Chauhan, Sanjay Gaur, Structural and optical investigations of lithium-modified lead bismuth borate glasses, **Solid State Communications** 399 (2025) 115859. [I.F.-2.4]
24. Divya Yadav, **Rajni Bala**, Sumit Chauhan, Saroj Rani. Investigation of electrical and impedance spectroscopic properties of Na_2O modified lead-bismuth borate glasses, **Journal of Non-Crystalline Solids** 656 (2025) 123498. [I.F.-3.5]
25. Divya Yadav, **Rajni Bala**, Sanjay Gaur, R.S. Kundu, Anil K. Yadav, Rajesh Parmar, Almond-West formalism and equivalent circuit modeling of AC conductivity in $\text{K}_2\text{O}\cdot\text{PbO}\cdot\text{Bi}_2\text{O}_3\cdot\text{B}_2\text{O}_3$ glasses, **Ceramics International** 52(13) (2026) 21461-21474. [I.F.-5.6]

B. Papers published as Book Chapters

1. Saroj Rani, Sujata Sanghi, Neetu Ahlawat, Ashish Agarwal, **Rajni Bala**, A Comprehensive Analysis of Optical Properties as well as Dielectric Properties for Bismuth Ions Doped Lithium Cadmium Borate Glasses, Recent Advances in Functional Materials, Volume 1 (2025) 219-227. **(Publisher: Springer)**
2. Deepesh Sharma, **Rajni Bala**, Load Frequency Control of Interconnected Hybrid Power System, Communication and Intelligent Systems, Volume 2 (2023) 681-692. **(Publisher: Springer)**

C. Papers presented in Conferences/Symposia

1. 54th DAE-Solid State Physics Symposium organized by M. S. University of Baroda, Vadodra, December 14-18, 2009.
2. National Conference on Advances in Chemical Sciences (ACS-2013) organized by Department of Chemistry, M. D. University, Rohtak, March 1-2, 2013.
3. DAE-BRNS National Laser Symposium (NLS-22) organized by MIT, Manipal University, Manipal, January 08-11, 2014.
4. International Conference on Optics and Optoelectronics (ICOL-2014) organized by IRDE, Dehradun, March 05-08, 2014.

5. National Seminar on Advancements in Material Science (NSAIMS-2014) organized by AIJHM College, Rohtak, March 10, 2014.
6. National laser Symposium (NLS-23) organized by Sri Venkateswara University, Tirupati, Andhra Pradesh, December 03-06, 2014.
7. 2nd National Conference on Photonics & Materials Science (NCPMS-2014) organized by Guru Jambheshwar University of Science & Technology, Hisar, March 20-21, 2014.
8. 3rd National Conference on Photonics & Materials Science (NCPMS-2015) organized by Guru Jambheshwar University of Science & Technology, Hisar, November 18-19, 2015.
9. International Conference on Advances in Basic Sciences (ICABS-19) organized by GDC Memorial College, Bahal, Bhiwani, February 07-09, 2019.
10. International Conference on Cutting-edge Research in Material Science and Chemistry, (CRMSC-2021) organized by Department of Chemistry and Biosciences, School of Basic Sciences, Manipal University, Jaipur, January 11-12, 2021.
11. International Conference on Frontiers in Physics, Materials, Science and Nanotechnology (FPMSN-2022) Department of Physics, Chaudhary Devi Lal University, Sirsa, March 25-26 2022.
12. 2nd International Conference on Aerosols, Air Quality, and Climate Change (AAC-2022) over Himalayan Region of Uttarakhand organized by Department of Physics and Internal Quality Assurance Cell, HNB Garhwal University, Srinagar Garhwal, Uttarakhand, November 04-06, 2022.
13. International Symposium on Semiconductor Materials and Devices-2022 (ISSMD-2022) organized by School of Electronics Engineering, KIIT, Bhubaneswar, Odisha, December 16-18, 2022.
14. National Conference on Physics and Chemistry of Materials (NCPCM-2023) organized by Department of Physics, Department of Electronics Govt. Holkar Science College, Indore, March 16-18, 2023.
15. International Conference on Energy and Advanced Materials (ICEAM-2023) organized by Department of Physics and Material Science & Engineering, Jaypee Institute of Information Technology, Noida, November 02-04, 2023.

D. Seminar/Workshop/Symposia attended: 13

E. Research Guidance

	Completed	Ongoing
PG (Dissertation, Project Report etc.)	04	01
Ph.D.	02	03

F. Invited talks/Resource Person/Session Chair in Seminars/Conferences/Workshops

1. Delivered a talk in the National Conference on Advances in Basic Science and Technology held at GDC Memorial College, Bahal, Bhiwani, on April 10-11, 2025.

2. Chaired an academic Session in “Two Days National Conference on Advances in Basic Science & Technology (NCCBST-25)” organized by Department of Physics & Chemistry, GDC Memorial College, Bahal, Bhiwani held on 10-11 April, 2025.
3. Delivered a talk in the National Seminar on Recent Advances in Smart Materials held at Maharani Jat Kanya Mahavidyalaya, Rohtak, on April 29, 2024.
4. Delivered a Lecture on the life of Vikram Sarabhai at the Department of Physics, M. D. University, Rohtak, on August 11, 2023.
5. Chaired an Academic Session in “7 days workshop on Materials Characterization Techniques” organized by Department of Physics, M, D. University, Rohtak held from 22 to 28 September, 2022.

G. Refresher/Orientation/Short-term Courses/Faculty Development Programs

1. Participated in four weeks Orientation Programme organized by UGC-ASC, B.P.S. Mahila Vishwavidyalaya, Khanpur Kalan, Sonapat from 2nd Dec 2011 to 20th Jan 2012.
2. Participated in the Refresher Course in Physics, Electronics, Renewable Energy, and Information Technology (MD) organized by UGC-HRDC, University of Lucknow, Lucknow from 2nd Feb to 23rd Feb, 2015.
3. Participated in the Refresher Course in Physics organized by UGC-HRDC, at University of Allahabad, Allahabad from 12th Nov 2018 to 2nd Dec 2018.
4. Participated in one week Faculty Development Program on “Open Source Tools for Research” organized by Teaching Learning Centre, Ramanujan College, University of Delhi, from 8th June to 14th June, 2020.
5. Participated in two weeks Refresher Course in Physics organized by Teaching Learning Centre, Ramanujan College, University of Delhi, from 10th April to 24th April, 2022.
6. Participated in the Refresher Course in Physical Sciences, Chemical Sciences and Engineering organized by UGC-MMTTC, Punjabi University, Patiala from 3rd June to 16th June, 2025.
7. Participated in the Faculty Development Program (FDP) on Rietveld Refinement of X-Ray Diffraction (RRD) organized by the Centre for Advanced Computational Research, New Delhi from 7th April to 13th April, 2026.

H. Other contributions

1. Member, PGBOS in Department of Physics, M. D. University, Rohtak.
2. Member, UGBOS in Department of Physics, M. D. University, Rohtak.
3. Member, Faculty of Physical Sciences, M. D. University, Rohtak.
4. Departmental Co-ordinator, Career Counseling and Placement Cell, M. D. University, Rohtak.
5. Departmental Deputy Co-ordinator, IQAC, M. D. University, Rohtak.
6. Member, Departmental Research Committee (Physics), M. D. University, Rohtak.
7. Member of Research Advisory Committee in the Department of Physics.
8. Member of NEP Committee of the Department of Physics, M. D. University, Rohtak.
9. Member of Anti-Ragging Committee of the Department of Physics, M. D. University, Rohtak

10. Member of Anti-Sexual Harassment Committee of the Department of Physics, M. D. University, Rohtak.
11. Member of Library Committee of the Department of Physics, M. D. University, Rohtak
12. Course Coordinator of M.Sc. (Previous) in Department of Physics, M. D. University, Rohtak
13. Co-ordinator of weekly departmental activities such as celebration of birth anniversaries of Scientists and Extension lectures etc.
14. Member of Departmental NAAC Committee of the Department of Physics, M. D. University, Rohtak
15. Member of Departmental NIRF Committee of the Department of Physics, M. D. University, Rohtak
16. Departmental Co-ordinator, Youth Red Cross (Physics), M. D. University, Rohtak

I. Details of Seminars, Conferences and Symposia organized

1. Member of Organizing Committee of “7 days workshop on Materials Characterization Techniques” organized by Department of Physics, M, D. University, Rohtak held on September 22-28, 2022.
2. Organization of Science Quiz at Department of Physics, M.D. University, Rohtak on 27.02.2023.
3. Member of the Organizing Committee of “National Science Day” held on 28.02.2023.
4. Organized one-week workshop on ‘Employability Enhancement Skills Program’ for M.Sc. (Physics) students in September 2023.
5. Organized a Poster Making Competition on the occasion of Birth anniversary of Ernest Rutherford for M.Sc. (Physics) students on 25.08.2023.
6. Member of Organizing Committee of Two days “National Conference on Functional Materials and Sensors” organized by Department of Physics, M, D. University, Rohtak held on 16th-17th February, 2024.
7. Organization of Science Quiz at Department of Physics, M.D. University, Rohtak on 27.02.2024.
8. Member of the Organizing Committee of “National Science Day” held on 28.02.2024.
9. Organized one week workshop on ‘Employability Enhancement Skills Program’ for M.Sc. (Physics) students in October 2024.
10. Teacher in charge of Educational Trip of M.Sc. students to CEERI, Pilani (28.04.2023).

K. Membership of Professional/Academic bodies, editor-ship of journals etc.

Lifetime member of Materials Research Society of India