# Profile

**DR. ARVIND SHARMA, ASSOCIATE PROFESSOR**

**P. G. DEPARTMENT OF PHYSCIS**

**GOVERENMENT LOHIA COLLEGE, CHURU**

**RAJASTHAN (INDIA)**

## Personal Information

First Name- Arvind

Last Name- Sharma

Fathers Name- Sh. Madan Lal Sharma

Designation- Associate Professor in Physics

Working Place - Govt. Lohia College, Churu, Rajasthan, India.

Qualification – M.Sc., M.Phil., Ph.D. in Physics

Area of Specialization – High Energy Physics, Nonlinear Optics,

Photonic Crystal, PEM Fuel Cell.

Department Services Date- 01/11/1995

College joining Date- 02/01/2023

Teaching Experience- UG – 27 Years, PG – 14 Years

Date of Birth- 23/07/1971

Nationality- Indian

Gender- Male

Contact-

Address- H.O.D., Department of Physics, Govt. Lohia College,

Churu, Rajasthan, India. Pin Code – 331001.

Cell no.- 91-9351018397

E-Mail- arvindsharma230771@gmail.com

## Homepages

**ORCID: https://orcid.org/0000-0001-5526-858X**

**Google Scholar:https://scholar.google.co.in/citations?user=rpiPdVQAAAAJ&hl=en**

**Research Gate: https://www.researchgate.net/profile/Arvind-Sharma-25**

**Scopus: https://www.scopus.com/home.uri#**

## Work Experiences-

1 November 1995 to 31 October 2011- Assistant Professor in Physics, Department of College Education, Rajasthan, Jaipur, India.

1 November 2011 to Present- Associate Professor in Physics, Department of College Education, Rajasthan, Jaipur, India.
Presently H.O.D., Physics, Associate Professor, Govt. Lohia College, Churu, Rajasthan, India-331001.

Education-

Ph.D.- Ph.D. in Physics, M.G.S. University, Bikaner ( From 23/07/2012 to 19/07/2018), Rajasthan, India.

M.Sc. – M.Sc. in Physics, Govt. Dungar College, Bikaner, Affliatted to M.D.S. University, Ajmer (1990-1992), Rajasthan, India.

B.Sc.- B.Sc. in Science Maths from University of Rajasthan, Jaipur, India.

The Awards/Hounors are as follows-

1. Best paper poster presentation award for paper Structural Transition Expansion of Photonic band gap for a Nonlinear one dimensional Photonic crystal in 3rd International Conference on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019.

2. Best paper presentation award for paper Temperature Tunable Silica Liquid Gallium Nonlinear Omnidirectional One Dimensional Photonic crystal" in National Conference on Science, Technology and Engineering (NCFDSTE-2019)' organized by Government Polytechnic College,Bikaner & Auricle Global Society of Education and Research, India on7,Dec., 2019.

3. Best paper presentation award for paper "Liquid Gallium and Tin Binary Defective One Dimensional photonic crystal as a Gas Sensor" in International Conference on "Recent Developments in Science and Impacts on Managements, Art and Culture, Social Sciences and Education ( CRISE 2023)", organized by Government College , Jaipur, Rajasthan, India ,23-24, January, 2023.

# LIST OF FULL PAPER PUBLICATIONS

1. Arvind Sharma, Vijendra Kumar, and A. K. Nagar, "Stability of discrete solitons in a hexagonal lattice" AIP Conf. Proc. 1536, 761 (2013); doi: 10.1063/1.4810450.
2. O. P. Swami, A. Sharma, and A. K. Nagar, "Discrete modulational instability in parametrically driven optical lattices"AIP Conf. Proc. 1536, 757 (2013); doi: 10.1063/1.4810448.
3. Arvind Sharma and A.K. Nagar, "On the Existence of Discrete Solitons in a Hexagonal Lattice" International Journal on Recent and Innovation Trends in Computing and Communication, **1(12)**, 913-914, (2013).
4. Arvind Sharma, P. K. Upadhyay and A.K. Nagar, "Soliton Pulse analysis in Ag-$As_2Se_3$ Photonic Crystal Waveguide" International Journal of Advanced Research in Computer Science, **4**(11), 218, (2013).
5. Arvind Sharma and A. K. Nagar, "Propagation of discrete solitons in Graphene" Proceedings of National Conference on "Recent Advances in Materials Science and Technology", Bhilwara, Rajasthan , India, ISBN: 978-81-930586-02(88-92), (2015).
6. Arvind Sharma and A. K. Nagar, " Due to Nonlinear Processes Optical Bistability and Hysterectic Reflectivity at Optically Induced Gallium-Zinc Selenide Interface" Proceedings of National Conference on "Advanced Functional Materials and Their Applications"(AFMA-2015),Ajmer, India. ISBN: 978-81-7233-976-0,(32-35), (2015).
7. Arvind Sharma and A. K. Nagar, **"**Origin of optical bistability and hysteretic reflectivity on account of nonlinearity at optically induced gallium silica interface" AIP Conference Proceedings **1728**, 020183 (2016); doi: 10.1063/1.4946234.
8. Arvind Sharma and A. K. Nagar, **"**Interaction of vector solitons and beam break up at thin film gallium-silica waveguide structure" AIP Conference Proceedings,**1728**, 020450 (2016); doi: 10.1063/1.4946501.
9. Arvind Sharma and A.K. Nagar, "Multi Photonic Band Gap Silica Gallium Nonlinear Omnideirectional 1-D Photonic Crystal", International Research Journal of Engineering and Technology, Vol. **04**, Issue 01, 976-984, (Jan. 2017).
10. Arvind Sharma and A.K. Nagar, "A phase plane analysis of discrete breathers in carbon nanotube" International Research Journal of Engineering and Technology, Vol. **04**, Issue 01,1333-1336, (Jan. 2017).
11. Arvind Sharma and A.K. Nagar, "A mathematical model for performance of Proton exchange membrane fuel cell as a nonlinear voltage processes " International Journal of Advanced Research in Computer Science, Vol. **8**, Issue 1, 27-33 , (Jan.- Feb.2017).
12. Dr. Arvind Sharma "Temperature Tunable Silica Liquid Gallium Nonlinear Omnidirectional One Dimensional Photonic crystal" Journal of the Gujrat Research Society, ISSN: 0374-8588 Volume 21 Issue 15, December 2019.
13. Dr. Arvind Sharma "Structural Transition Expansion of Photonic band gap for a Nonlinear one dimensional Photonic crystal " AIP Conference Proceedings **2220**, 050005 (2020); https://doi.org/10.1063/5.0001558 .
14. Dr. Arvind Sharma "A New Mathematical Model to Enhance the Performance of Proton Exchange Membrane Fuel Cell" AIP Conference Proceedings **2220**, 130041 (2020); https://doi.org/10.1063/5.0001559.

15. Arvind Sharma "Investigation of Defect Mode Properties for Defective Gallium Arsenide Based One Dimensional Photonic Crystal", International Research Journal of Engineering and Technology, Vol. **08**, Issue 03, 2158-2162, (March 2021).
16. Arvind Sharma "Improvement in the Performance of Proton exchange membrane fuel cell with effects of the thickness and conductivity of the membrane", International Research Journal of Engineering and Technology, Vol. **08**, Issue 03, 1104-1107, (March 2021).
17. MT Tammam, Zaky A Zaky, Arvind Sharma, ZS Matar, Arafa H Aly, MA Mohaseb, Defected Photonic Crystal Array Using Porous GaN as Malaria Sensor, IOP Conf. Series Materials Science and Engineering 1171 (2021) 012005 doi:10.1088/1757-899X/1171/1/012005
18. Zaky, Z.A., Sharma, A., Alamri, S., Aly, A.H.: Theoretical evaluation of the refractive index sensing capability using the coupling of Tamm-Fano resonance in one-dimensional photonic crystals. Appl. Nanosci. **11**, 2261–2270 (2021f).
19. Hussein A Elsayed, Arvind Sharma, ZA Alrowaili, TA Taha, Theoretical investigation of pressure sensing using a defect of polystyrene inside photonic crystals, Materials chemistry and Physics, Vol.270, 124853, (2021).
20. Zaky, Z.A., Sharma, A., Alamri, S. et al. Detection of Fat Concentration in Milk Using Ternary Photonic Crystal. Silicon (2021). https://doi.org/10.1007/s12633-021-01379-8
21. Zaky, Z.A., Sharma, A., Aly, A.H.: Tamm plasmon polariton as refractive index sensor excited by gyroid metals/porous Ta2O5 photonic crystal. Plasmonics (2021).
22. HA Elsayed, A Sharma, F Segovia-Chaves, W Sabra,Multi passbands filter for THz applications based on the one-dimensional photonic crystals heterostructure, Optik 248, 168056 (2021).
23. Zaky, Z.A., Sharma, A., Aly, A.H., Gyroidal graphene for exciting Tamm plasmon polariton as refractive index sensor: theoretical study. Opt. Mater. **122**, 111684 (2021c).
24. Sofyan A Taya, Arvind Sharma, Nael Doghmosh, Ilhami Colak, Detection of water concentration in ethanol solution using a ternary photonic crystal-based sensor, Materials Chemistry and Physics, Vol. 279,125772, (2022).
25. Abdulkarem H. M. Almawgani, Dana N. Alhamss, Sofyan A. Taya, Ilhami Colak, Arvind Sharma, Adam R. H. Alhawari, *and* Shobhit K. Patel, The properties of a tunable terahertz filter based on a photonic crystal with a magnetized plasma defect layer, Physics of Fluids . Volume 34, Issue 8 , 10.1063/5.0106995
26. Almawgani, A.H.M., Sharma, A., Daher, M.G. *et al.* Tunable properties of the absorption in a binary photonic crystal having a metamaterial as a defect layer and two graphene sheets in the range of GHz. *Opt Quant Electron* 54, 670 (2022). https://doi.org/10.1007/s11082-022-04084-x
27. Zaky A. Zaky, M. Al-Dossari, Arvind Sharma and Arafa H. Aly,Effective pressure sensor using the parity-time symmetric photonic crystal, 2023 *Phys. Scr.* in press https://doi.org/10.1088/1402-4896/acbcae

# LIST OF ABSTRACT PUBLICATIONS

1. Arvind Sharma and A. K. Nagar, "Optical pulse propagation at discrete thin film waveguide structure" Book of Abstract of **International seminar** on "Current trends in quantum gases, BEC and solitons"(QGBECS2014) held at the Department of Physics, Panjab University, Chandigarh, 3–6 March (2014).
2. Arvind Sharma and A. K. Nagar, "Vector Soliton scattering from a Gallium- Silica interface" Proceedings of **National Conference** on "Recent Advances in Mateials Science and Technology", (Dec. 22-23, 2014),Bhilwara, Rajasthan, India, ISBN: 978-81-930586-02(93), (2015).
3. Arvind Sharma and A. K. Nagar, " On the existence and stability of spatially localized nonlinear modes in Carbon Nanotubes" Proceedings of **National Conference** on "Recent Advances in Mateials Science and Technology", (Dec. 22-23, 2014), Bhilwara, Rajasthan, India, ISBN: 978-81-930586-02(94), (2015).
4. Arvind Sharma and A. K. Nagar, "Transmission of Vector soliton through Gallium-Silica discrete thin film wave guide structure", Proceedings of Conference on nonlinear systems and dynamics (Page No. 41, CNSD 2015) held at IISER Mohalli, 13-15 March (2015).
5. Arvind Sharma and A. K. Nagar, "Effect of perturbation potential on the existence and stability of discrete solitons in carbon nanotubes" Book of Abstract **National Workshop** on "Reccent advances in Photonics and optics"(Page No. 30,RAPO-2015) organized by Govt. Women Engineering college ,Ajmer 24-25 Nov. (2015).
6. Arvind Sharma and A. K. Nagar, "Narrow Photonic Band Gap Omnideirectioal Nonlinear 1 D Silica Zinc Telluride Photonic Crystal" Abstract book ISBN No.978-93-85777-38-7,20,(2016 ),Workshop on Fiber optics and optical communications organized by Govt. Women Engineering college, Ajmer , 02-06 March 2016.
7. Arvind Sharma and A. K. Nagar, "Theoretical Prediction of the performance of Proton exchange membrane fuel cell with effects of the thickness and conductivity of the membrane " Proceedings of "**International Conference** on Recent trends in chemical Sciences ", ICRCS-2017, Bikaner, Rajasthan, India, Publisher-International E-Publication, ISBN: 978-93-84659-86-8,12-13, Jan. 2017.
8. Arvind Sharma and A. K. Nagar, " Modeling and Analysis of Performance of PEM Fuel Cell as an Alternative Renewable Clean Energy Source for the Future" Abstract Book (Souvenir) of **National conference** in Innovative trends in Physics and futuristic engineering-Vision2030, ITPFE 2017, held at the Department of Physics, MIT, Bikaner, 20-21 Jan (2017).
9. A. K. Nagar and Arvind Sharma , " Nonlinear Optical Effects in Optical Fibers and their use in Advancement of Optical Communication Technology" Abstract Book (Souvenir) of **National conference** in Innovative trends in Physics and futuristic engineering-Vision2030, ITPFE 2017, held at the Department of Physics, MIT, Bikaner, 20-21 Jan (2017).
10. Dr. Arvind Sharma "Improvement possibilities in performance of Polymer Electrolyte Membrane Fuel Cell : Green , Clean and Renewable energy source" E-Book of Abstract of **International Workshop and Symposium** on Green Chemistry and Technology (IWSGCT-18) , organized by Department of Chemistry, Government Dungar College,

Bikaner in association with Green Chemistry Network center , University of Delhi , Royal Society of Chemistry , London on 15-17 Oct, 2018.

11. Dr. Arvind Sharma "Membrane Material based Enhancement of Proton Exchange Membrane Fuel Cell: A Review " E-Book of Abstract of **International Workshop and Symposium** on Green Chemistry and Technology (IWSGCT-18) , organized by Department of Chemistry, Government Dungar College, Bikaner in association with Green Chemistry Network center , University of Delhi , Royal Society of Chemistry , London on 15-17 Oct, 2018.
12. Dr. Arvind Sharma "Linear and Nonlinear Dispersions in an Optical Fiber and their limit and Compensation" Abstract of **National Conference** on 'Science and Engineering Education ( SEE-2019 under TEQIP-3)' organized by Government Engineering College ,Bikaner ,Rajasthan, India on 27-28 Feb, 2019. ISBN: 978-81-88117-90-1.
13. Dr. Arvind Sharma "Structural Transition Expansion of Photonic band gap for a Nonlinear one dimensional Photonic crystal " Abstract Book of **International Conference** on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019.ISBN:97893-89008-10-4.
14. Dr. Arvind Sharma "A New Mathematical Model to Enhance the Performance of Proton Exchange Membrane Fuel Cell" Abstract Book of **International Conference** on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019. ISBN: 97893-89008-10-4.
15. Dr. Arvind Sharma "Temperature Tunable Silica Liquid Gallium Nonlinear Omnidirectional One Dimensional Photonic crystal" Abstract Book of **National Conference** on Science, Technology and Engineering (NCFDSTE-2019)' organized by Government Polytechnic College, Bikaner & Auricle Global Society of Education and Research, India on7,Dec., 2019. ISBN: 978-81-940959-6-5.
16. Dr. Arvind Sharma "Specific Absorption rate of mobile radiation and its reduction methods to protect human body" Abstract Book of **International Conference** on "Radiation biology (ICRB 2022)", organized by Department of Zoology, Government Dungar College, Bikaner, Rajasthan, India on 19-20 Jan., 2022.
17. Dr. Arvind Sharma "One Dimensional photonic crystal as a Radiation protector: A Review" Abstract Book (Souvenir) of **National Symposium** on "Health Hazards of Radiation", organized by Department of Zoology, Government Dungar College, Bikaner, Rajasthan, India under the auspices of Indian Society for Radiation Biology, on 06, August, 2022.
18. Dr. Arvind Sharma "One Dimensional photonic crystal as an Environmental Monitoring: A Review" Abstract Book (Souvenir) of **International Conference** on "Multidisciplinary Aspects of Human Rights and the Environment( ICMAHRE 2023)", organized by Government Maharani Sudharshan for Women College , Bikaner, and Rajrishi Govt. Autonomous College ,Alwar, Rajasthan, India ,18-20, January, 2023.
19. Dr. Arvind Sharma "Liquid Gallium and Tin Binary Defective One Dimensional photonic crystal as a Gas Sensor" Abstract Book (Souvenir) of **International Conference** on "Recent Developments in Science and Impacts on Managements, Art and Culture, Social Sciences and Education ( CRISE 2023)", organized by Government College , Jaipur, Rajasthan, India ,23-24, January, 2023.

## List of International/National Conferences/Workshops/Seminars/Symposia Research Papers Presented/Participation

1. **Participated and presented a research paper** "Relativistic Law of Addition of Velocities and Principle of Superposition" in the **International conference** on Physics for world and society celebration of world year of Physcis-2005(PWS & WYP-2005), organized by joint auspicious of University of Rajasthan, Jaipur and Government Engineering College, Bikaner, Rajasthan, India on Dec. 2-4, 2005.

2. **Participated** in the **International workshop** on Laboratory innovations in Physics organized by Government College, Ajmer Rajasthan, India on August 11-12, 2006.

3. **Participated and presented a research paper** "Stability of discrete solitons in a hexagonal lattice" in the **International Conference** on "Recent Trends in Applied Physics & Materials Science (RAM-2013)" organized by Goverenment College of Engineering & Technology, Bikaner ,Rajasthan, India on 1-2 Feb, 2013.
4. **Participated and presented a research paper** " Soliton Pulse Analysis in $AgAs_2Se_3$ Photonic crystal waveguide" in the **International Conference** on Advance Innovation in Management, Science and Technology ( AIMS Tech – 2013 ) organized by Jenith infotech at Bikaner on Nov. 16, 2013.
5. **Participated and presented a research paper** "Optical pulse propagation at discrete thin film waveguide structure" in the **International seminar** on "Current trends in quantum gases, BEC and Solitons (QGBECS2014)" held at the Department of Physics, Punjab University, Chandigarh, Rajasthan, India 3–6 March (2014).
6. **Participated and presented a research paper** "Propagation of discrete Solitons in Graphene" in the **National Conference** on "Recent Advances in Materials Science and Technology", organized by Deptt. of Physics Sh. M. L. V. Govt. College, Bhilwara, Rajasthan , India (Dec. 22-23, 2014).
7. **Participated and presented a research paper** "Vector Soliton scattering from a Gallium- Silica interface" in **National Conference** on "Recent Advances in Materials Science and Technology" organized by Deptt. of Physics Sh. M. L. V. Govt. College, Bhilwara, Rajasthan , India (Dec. 22-23, 2014).
8. **Participated and presented a research paper** "On the existence and stability of spatially localized nonlinear modes in Carbon Nanotubes" in **National Conference** on "Recent Advances in Materials Science and Technology", organized by Deptt. of Physics Sh. M. L. V. Govt. College, Bhilwara, Rajasthan , India (Dec. 22-23, 2014).
9. **Participated and presented a research paper** "Transmission of Vector soliton through Gallium-Silica discrete thin film wave guide structure", in the **Conference** on nonlinear systems and dynamics (CNSD 2015) held at IISER Mohalli, Rajasthan, India 13-15 March (2015).
10. **Participated** in **National Workshop** on "Microwave engineering and Antenna Design" held at the Department of Physics, Goverenment Engineering College , Bikaner, Rajasthan, India on March 28-29, 2015.

11. **Participated** in two days Workshop on "Control Systems and Automation using MATLAB" held in the LNM Institute of Information Technology, Jaipur, Rajasthan, India on August 21-22, 2015 .
12. **Participated** in Workshop on "Nanoscience and Nanomaterials" held at the Department of Physics, Goverenment Engineering College , Bikaner, Rajasthan, India on Oct. 19-20, 2015.
13. **Participated and presented a research paper** "Origin of Optical Bistability and Hysteretic Reflectivity on Account of Nonlinearity at Optically Induced Gallium Silica Interface" in the **International Conference** on "Condensed matter & Applied Physics (ICC 2015)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 30-31 Oct, 2015.
14. **Participated and presented a research paper** "Interaction of vector solitons and beam break up at thin film gallium-silica waveguide structure" in the **International Conference** on "Condensed matter & Applied Physics (ICC 2015)", organized by Department of Physics, Goverenment Engineering College, Bikaner, Rajasthan, India on 30-31 Oct, 2015.
15. **Participated and presented a research paper** "Effect of perturbation potential on the existence and stability of discrete solitons in carbon nanotubes" in the **National Workshop** on "Recent advances in Photonics and optics( RAPO-2015)" organized by Govt. Women Engineering college ,Ajmer, Rajasthan, India 24-25 Nov. (2015).
16. **Participated and presented a research paper** " Due to Nonlinear Processes Optical Bistability and Hysterectic Reflectivity at Optically Induced Gallium-Zinc Selenide Interface" in the **National Conference** on "Advanced Functional Materials and Their Applications(AFMA-2015)",Ajmer, Rajasthan ,India on Dec. 11-12, 2015.
17. **Participated and presented a research paper** "Narrow Photonic Band Gap Omnideirectioal Nonlinear 1 D Silica Zinc Telluride Photonic Crystal" in the **Workshop** on Fiber optics and optical communications (FOCO-2016) organized by Govt. Women Engineering college, Ajmer , Rajasthan, India 02-06 March 2016.
18. **Participated and presented a research paper** "Theoretical Prediction of the Performance of Proton Exchange Membrane Fuel Cell with effect of the thickness and conductivity of the membrane" in the **International Conference** on "Recent Trends in Chemical Sciences (ICRCS 2017)", organized by Department of Chemistry, Goverenment Engineering College, Bikaner in association with Indian Chemical Society, Kolkata, Rajasthan, India on 12-13, Jan. 2017.
19. **Participated and presented a research paper** " Modeling and Analysis of Performance of PEM Fuel Cell as an Alternative Renewable Clean Energy Source for the Future" in **National conference** on Innovative trends in Physics and futuristic engineering-Vision 2030, ITPFE 2017, held at the Department of Physics, MIT, Bikaner, Rajasthan, India ( 20-21 Jan 2017).
20. **Participated** in **International Workshop** on "Modeling and Simulation of Next Generation Optical Networks ( NGON- 2017)" organized by Department of Electronics and Communication Engineering, Govt. Women Engineering college ,Ajmer, Rajasthan, India March 20-22 ,2017.
21. **Participated** in **One Week Workshop** on "Advance Antenna , Frequency Selective Surface and Metamaterials ( AAFM- 2017)" organized by Department of Electronics and

Communication Engineering, Govt. Women Engineering college ,Ajmer, Rajasthan, India March 22-26,2017.

22. **Participated** in INUP Familiarization **Workshop** on "Nanofabrication Technologies" held at MNIT, Jaipur, Rajasthan, India, August, 26-27, 2017.
23. **Participated and presented a research paper** "Improvement possibilities in performance of Polymer Electrolyte Membrane Fuel Cell: Green, Clean and Renewable energy source" in the **International Workshop and Symposium** on Green Chemistry and Technology (IWSGCT-18) , organized by Department of Chemistry, Government Dungar College, Bikaner in association with Green Chemistry Network center , University of Delhi , Royal Society of Chemistry , London on 15-17 Oct, 2018.
24. **Participated and presented a research paper** "Membrane Material based Enhancement of Proton Exchange Membrane Fuel Cell: A Review " in the **International Workshop and Symposium** on Green Chemistry and Technology (IWSGCT-18) , organized by Department of Chemistry, Government Dungar College, Bikaner in association with Green Chemistry Network center , University of Delhi , Royal Society of Chemistry , London on 15-17 Oct, 2018.
25. **Presented a research paper** "Linear and Nonlinear Dispersions in an Optical Fiber and their limit and Compensation" in the **National Conference** on 'Science and Engineering Education ( SEE-2019 under TEQIP-3)' organized by Government Engineering College ,Bikaner ,Rajasthan, India on 27-28 Feb, 2019. ISBN: 978-81-88117-90-1.
26. **Participated and presented a research paper** "Structural Transition Expansion of Photonic band gap for a Nonlinear one dimensional Photonic crystal " in the **International Conference** on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019.
27. **Participated and presented a research paper** "A New Mathematical Model to Enhance the Performance of Proton Exchange Membrane Fuel Cell" in the **International Conference** on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019.
28. **Participated and presented a research paper** "Temperature Tunable Silica Liquid Gallium Nonlinear Omnidirectional One Dimensional Photonic crystal" **National Conference** on Science, Technology and Engineering (NCFDSTE-2019)' organized by Government Polytechnic College, Bikaner & Auricle Global Society of Education and Research, India on7,Dec., 2019.
29. **Participated and presented a research paper** "Specific Absorption rate of mobile radiation and its reduction methods to protect human body" **International Conference** on "Radiation biology (ICRB 2022)", organized by Department of Zoology, Government Dungar College, Bikaner, Rajasthan, India on 19-20 Jan., 2022.
30. **Participated and presented a research paper** "Wavelength, Angular and Polarization Tunable Liquid Gallium Based One Dimensional Photonic Crystal" **International Conference** on "Advancement in core and frontier of Physics (ACFP 2022)", organized by Department of Physics, GLA University, Mathura, India on 5-7 Feb., 2022.
31. **Participated and presented a research paper** "One Dimensional photonic crystal as a Radiation protector: A Review" **National Symposium** on "Health Hazards of Radiation",

organized by Department of Zoology, Government Dungar College, Bikaner, Rajasthan, India under the auspices of Indian Society for Radiation Biology, on 06, August, 2022.

32. **Participated and presented a research paper** "One Dimensional photonic crystal as an Environmental Monitoring: A Review" Abstract Book (Souvenir) of **International Conference** on "Multidisciplinary Aspects of Human Rights and the Environment( ICMAHRE 2023)", organized by Government Maharani Sudharshan for Women College , Bikaner, and Rajrishi Govt. Autonomous College ,Alwar, Rajasthan, India ,18-20, January, 2023.
33. **Participated and presented a research paper** "Liquid Gallium and Tin Binary Defective One Dimensional photonic crystal as a Gas Sensor" Abstract Book (Souvenir) of **International Conference** on "Recent Developments in Science and Impacts on Managements, Art and Culture, Social Sciences and Education ( CRISE 2023)", organized by Government College , Jaipur, Rajasthan, India ,23-24, January, 2023.

## The Awards/Honors are as follows-

**1. Best paper poster presentation award for paper Structural Transition Expansion of Photonic band gap for a Nonlinear one dimensional Photonic crystal in 3rd International Conference on "Condensed matter & Applied Physics (ICC 2019)", organized by Department of Physics Government Engineering College, Bikaner, Rajasthan, India on 14-15 Oct, 2019.**

**2. Best paper presentation award for paper Temperature Tunable Silica Liquid Gallium Nonlinear Omnidirectional One Dimensional Photonic crystal" in National Conference on Science, Technology and Engineering (NCFDSTE-2019)' organized by Government Polytechnic College,Bikaner & Auricle Global Society of Education and Research, India on7,Dec., 2019.**

**3. Best paper presentation award for paper "Liquid Gallium and Tin Binary Defective One Dimensional photonic crystal as a Gas Sensor" in International Conference on "Recent Developments in Science and Impacts on Managements, Art and Culture, Social Sciences and Education ( CRISE 2023)", organized by Government College , Jaipur, Rajasthan, India ,23-24, January, 2023.**