

A. Detail of Patents

Indian Patent (Granted)

- i. Jitendra Bahadur Maurya, Y. K. Prajapati*, "Method to determine beam width of a dip in surface plasmon resonance sensor and its application," (Patent No.: 407708, Application No.: 201611005417, Date of Grant: 29.09.2022)
- ii. Subha Sarkar, Yogendra Kumar Prajapati* and Rajeev Tripathi, "Low Power, Uniform Frequency Resolution and High Sampling Speed Arbitrary Waveform Generator," (Patent No.: 461154, Application No.: 201811032831, Date of Grant: 20.10.2023)
- iii. Yogendra Kumar Prajapati; Piyus Sil; Piyus, "Integrated health-monitoring device and a method of real time transfer of health condition data collected," (Patent No.: 469442, Application No: 201611025089, Date of Grant: 16.11.2023)

Indian Patent (Published)

- i. Rajeev Kumar, Sarika Pal, Yogendra Kumar Prajapati, "A device for detection of an analyte," Dec.2025

International Patent (Published)

- i. Sarika Pal, Yogendra Kumar Prajapati, Maneesh Kumar Singh, Vipin Kumar Verma, "A system for an improved long-range surface plasmon resonance (LR-SPR) sensor with extremely high imaging sensitivity," (App. No.: DE 202022100430U12022.03.17) Published on March, 2022.

B. Book as an Editor

- i. R.K. Nagaria, V.S.Tripathi, C.R. Zamarreno, and Yogendra Kumar Prajapati, eds., "VLSI, Communication and Signal Processing: Select Proceedings of the 5th International Conference," VCAS 2022 (Vol. 1024), 2023. Springer Nature.
- ii. Yogendra Kumar Prajapati, Santosh Kumar, "Materials and Devices with Magneto-Optical Properties for Communication and Sensing," Magnetochemistry 2023, MDPI Publication, As a Guest Editor, (Impact Factor: 2.5)

C. Detail of Funded Research Projects

- i. "A Simulation and Experimental Study on Screening the Best Materials Combination for Specific Target Detection in Plasmonic Sensors Using Machine Learning Techniques," Funding Agency: Council of Science & Technology U.P., Rs. 15 Lakhs, Duration: 3 Years (2024-27) (Status: Ongoing) (PI),
- ii. "Design and development of a non-invasive, smart, and portable device for real-time assessment of bone fracture healing progression," Funding Agency: Core Research Grant, SERB, Rs. 49 Lakhs, Duration: 3 Years (2023-26) (Status: Ongoing) (Co-PI),
- iii. "Prototype development of a photovoltaic solar cell with a high conversion efficiency: An application of two-dimensional materials," Funding Agency: Council of Scientific & Industrial Research (CSIR), India, Rs. 25 Lakhs, Duration: 2 Years (2023-25) (Status: Completed) (PI),
- iv. To strengthen the post-graduate Teaching and Research in the Department," Funding Agency: DST-FIST, Rs. 1.06 Crores, (Status: Completed), (Convener & PI)
- v. "Investigations on surface plasmon resonance (SPR) based optical sensing with an emphasis on the role of spin waves and magnonics in related materials," Funding Agency: Core Research Grant, SERB, Rs. 20.44 Lakhs, Duration: 3 Years (2019-22) (Status: Completed) (Co-PI),
- vi. "Role of graphene and MoS2 on performance of surface plasmon resonance-based sensors: An application to biosensing," Funding Agency: Research Grant, DAE-BRNS, Rs. 24.00 Lakhs,

Duration: 3 Years (2017-21) (Status: Completed) (PI)

vii. "Phosphorene based fiber optic plasmonic sensor for biomedical application," Funding Agency: Collaborative Research Scheme Under NPIU Rs. 15.00 Lakhs, Duration: 3 Years (2019-22) (Status: Completed) (Co-PI)

viii. "Design and Analysis of Optical Waveguide for Biosensing Application," Funding Agency: Collaborative Research Scheme Under NPIU, Rs. 13.00 Lakhs, Duration: 3 Years (2019-22) (Status: Completed) (Co-PI)

ix. "Design and Study of Sensitivity of optical biosensors having Metamaterials", Funding Agency: ECR, SERB, Rs. 23.39 Lakhs, Duration: 3 Year (2014-17), (Status: Completed) (PI)

x. "Design of biosensors using metal clad for sensing application," Ref.No.146/R&C/13-14 dated on 02/09/2013, Funding Agency: Motilal Nehru National Institute of Technology (MNNIT), Allahabad, India under TEQIP-II, Duration (2013-14) (Status: Completed) (PI)

xi. "Simulation and numerical analysis of optical microstructure fibers: Dispersion characteristic," Ref.No.134/R&C/13-14 dated on 23/08/2013&Ref. No. 360/R & C/13-14, dated 07/03/2014, Funding Agency: Motilal Nehru National Institute of Technology (MNNIT), Allahabad, India under seed grant, Duration (2013- 14) (Status: Completed) (PI)

D. Publications (List of papers published in IEEE Journals, in year wise descending order)

1. Saumya Pandey, Harshit Shukla, Vimal Mishra, Sarika Pal, Alka Verma, Yogendra Kumar Parajapati, Alka Verma, "Highly Sensitive Magneto-Optical SPR Sensor Based on the Photonic Spin Hall Effect with CeYIG and Graphene," *IEEE Transactions on Magnetics*, DOI: 10.1109/TMAG.2025.3650609 (Accepted Dec. 2025) (Impact factor 2.1, Quartile Score:Q1)
2. Nitesh Kumar, Rakesh Kumar, Narendra Pal, Sarika Pal, Alka Verma, Yogendra Kumar Parajapati, "Advances and Strategies in the Development of High-Performance Cortisol Sensors: A Comprehensive Review," *IEEE Sensors Reviews*, DOI: 10.1109/SR.2025.3638316, 2025
3. Kumar, Rakesh, Sarika Pal, Narendra Pal, Alka Verma, Anuj K. Sharma, and Yogendra Kumar Prajapati*, "High-Performance SPR-PCF Sensor Using GZO/TiO₂ for Broad-Range Detection." *IEEE Sensors Journal*, vol. 25, no. 22, pp. 41494-41501, 15 November 2025, DOI: [10.1109/JSEN.2025.3618924](https://doi.org/10.1109/JSEN.2025.3618924), (Impact factor 4.5, Quartile Score:Q1)
4. Kumar, Vinit, Ajit Kumar, Rupam Srivastava, Anuj K. Sharma, and Yogendra Kumar Prajapati*, "High Magnitude Spin-Dependent Shift and Field Enhancement in BaTiO₃-based Plasmonics for Quantum Photonic Applications." *IEEE Journal of Quantum Electronics*, vol no. 61, no. 5, 24 July 2025, (Impact factor 2.1, Quartile Score:Q1)
5. Kumar, Virendra, Nitesh Kumar, Sarika Pal, Bela Goyal, Anuj K. Sharma, and Yogendra Kumar Prajapati*, "Highly sensitive and accurate cortisol sensor based on long-range surface plasmon resonance." *IEEE Sensors Journal*, vol no. 25, no. 10, pp. 17324-17331, 03 April 2025, DOI: <https://doi.org/10.1109/JSEN.2025.3555704>, (Impact factor 4.5, Quartile Score:Q1)
6. Kumar, Vinit, Jitendra Bahadur Maurya, and Yogendra Kumar Prajapati*, "Piezoplasmonic System for Enhanced Photonic Spin Hall Effect for Applications in Optical Refractive Index Sensing." *IEEE Journal of Selected Topics in Quantum Electronics*, vol no. 31, no. 5, 1 April 2025, DOI: <https://doi.org/10.1109/JSTQE.2025.3556890>, (Impact factor 5.1, Quartile Score:Q1)
7. Shukla, Harshit, Alka Verma, Anuj K. Sharma, and Yogendra Kumar Prajapati*, "Thin Film Magneto-Optic Plasmonic Sensor with the Photonic Spin Hall Effect." *IEEE Sensors Letters*, vol no. 9, no. 4, 4 April 2025, DOI: <https://doi.org/10.1109/LSENS.2025.3547745>, (Impact factor 2.2, Quartile Score:Q1)
8. Kumar, Rajeev, Sarika Pal, Narendra Pal, Alka Verma, J. P. Saini, and Yogendra Kumar Prajapati*, "MXene-Enhanced Plasmonic Sensor Utilizing Planar Waveguide Modes and Long-Range Surface Plasmon Polaritons for Ultra-Sensitive Detection." *IEEE Sensors Journal*, 3

January 2025, DOI: [10.1109/JSEN.2024.3523178](https://doi.org/10.1109/JSEN2024.3523178) (Impact factor:4.3 ,Quartile Score:Q1)

- 9. Kumar, Virendra, Sarika Pal, Vivek Singh, Bela Goyal, Lalit Kumar Awasthi, and **Yogendra Kumar Prajapati*** "On the Feasibility of Thallium Bromide in Long-Range Plasmonic Sensing for Enhancement of Performance." *IEEE Transactions on Plasma Science*, 8 October 2024 , DOI: [10.1109/TPS.2024.3468954](https://doi.org/10.1109/TPS.2024.3468954), (Impact Factor : 1.3 ,Quartile Score:Q2)
- 10. Rana, Jatin, Anuj K. Sharma, and **Yogendra Kumar Prajapati***. "Intervention of machine learning and explainable artificial intelligence in fiber optic sensor device data for systematic and comprehensive performance-optimization." *IEEE Sensors Letters*, vol. 8, no. 10, 21 August 2024, DOI: [10.1109/LSENS.2024.3445324](https://doi.org/10.1109/LSENS.2024.3445324), (Impact factor 2.2 ,Quartile Score:Q2)
- 11. Yesudasu, Vasimalla, Rupam Srivastava, Sarika Pal, MS Mani Rajan, and **Yogendra Kumar Prajapati***. "Surface-Plasmon and Titanate Material-Assisted Sensor Structure for Pseudomonas Bacteria Detection With Increased Sensitivity." *IEEE Transactions on AgriFood Electronics*, 8 April 2024, DOI: [10.1109/TAFE.2024.3379378](https://doi.org/10.1109/TAFE.2024.3379378).
- 12. S. Agarwal, R. Srivastava, S. Kumar and **Yogendra Kumar Prajapati***, "COVID-19 Detection Using Contemporary Biosensors and Machine Learning Approach: A Review," *IEEE Transactions on NanoBioscience*, vol. 23, no. 2, pp. 291-299, April 2024, doi: [10.1109/TNB.2023.3342126](https://doi.org/10.1109/TNB.2023.3342126) (Impact factor: 3.9, Quartile Score: Q1)
- 13. Srivastava, Rupam, Vinit Kumar, Shreyansh Tyagi, Sarika Pal, Anuj K. Sharma, and **Yogendra Kumar Prajapati***. "On the Feasibility of Particle Swarm Optimization Method for Inverse Design of High-Performance SPR Biosensor." *IEEE Sensors Journal*, 2 April 2024, DOI:[10.1109/JSEN.2024.3381250](https://doi.org/10.1109/JSEN.2024.3381250), (Impact factor:4.3 ,Quartile Score:Q1)
- 14. Harshit Tiwari; Yogendra S. Dwivedi; Rishav Singh; **Yogendra Kumar Prajapati**; Richa Krishna; Nitin Singh Singha, Anuj K Sharma, "Exploring deep learning models aimed at favorable optimization and enhancement of fiber optic sensor's performance," *IEEE Sensors Journal*, August 2023, DOI [10.1109/JSEN.2023.3296199](https://doi.org/10.1109/JSEN.2023.3296199), (Impact factor: 4.3, Quartile Score: Q1)
- 15. Vinit Kumar, Rupam Srivastava, **Yogendra Kumar Prajapati***, "Improved photonic spin Hall effect by an induced polarization gradient in anisotropy- black phosphorous and its application to NO₂ gas detection," *IEEE Sensors Journal*, August 2023, DOI :[10.1109/JSEN.2023.3301965](https://doi.org/10.1109/JSEN.2023.3301965) (Impact factor: 4.3, Quartile Score: Q1)
- 16. Rajeev Kumar, Alka Verma, Sarika Pal, **Yogendra Kumar Prajapati***, "Enhancing the Gas detection sensitivity of Surface Plasmon Resonance Sensor based on MXene and Black phosphorus," *IEEE Transaction on Plasma Science*, Vol. 51 (6), pp. 1427-1433, June 2023,[10.1109/TPS.2023.3276371](https://doi.org/10.1109/TPS.2023.3276371). (Impact factor: 1.368, Quartile Score: Q3)
- 17. Shivam Singh, **Yogendra Kumar Prajapati***, "Novel Bottom-Side Polished PCF-Based Plasmonic Biosensor for Early Detection of Hazardous Cancerous Cells," *IEEE Transactions on Nanoscience*, vol. 22 (1), pp. 647- 654, July 2023, [https://doi:10.1109/TNB.2023.3233990](https://doi.org/10.1109/TNB.2023.3233990) (Impact factor: 2.967, Quartile Score: Q1)
- 18. Maneesh Kumar Singh, Sarika Pal, and **Yogendra Kumar Prajapati***, "Design and Analysis of an SPR Sensor based on Antimonene and Platinum for the Detection of Formalin," *IEEE Transactions on NanoBioscience*, vol. 22, no. 1, pp. 106-112, Jan. 2023, [https://doi:10.1109/TNB.2022.3159532](https://doi.org/10.1109/TNB.2022.3159532) (Impact factor: 3.9, Quartile Score: Q1)
- 19. Rupam Srivastava, **Yogendra Kumar Prajapati***, Sarika Pal, Santosh Kumar, "Micro-channel Plasmon Sensor Based on a D-Shaped Photonic Crystal Fiber for Malaria Diagnosis with Improved Performance," *IEEE Sensors Journal*, [https://DOI:10.1109/JSEN.2022.3181198](https://doi.org/10.1109/JSEN.2022.3181198) June 2022, (Impact factor: 4.3, Quartile Score: Q1)
- 20. Rajeev Kumar, Sarika Pal, **Yogendra Kumar Prajapati***, Santosh Kumar, "Sensitivity Improvement of a MXene-immobilized SPR Sensor with Ga-doped-ZnO for Biomolecules Detection," *IEEE Sensors Journal*, vol. 22, no. 7, pp. 6536-6543, April 2022. (Impact factor: 4.3, Quartile Score: Q1)
- 21. V.A. Popescu, **Yogendra Kumar Prajapati**, Anuj K. Sharma, "Highly Sensitive Magnetic Field Detection in Infrared Region with Photonic Spin Hall Effect in Silicon Waveguide Plasmonic

Sensor," *IEEE Transactions on Magnetics*, Vol. 57, no. 10, pp. 4002210, August 2021. <https://doi:10.1109/TMAG.2021.3103651> (Impact factor: 2.1, Quartile Score: Q2)

22. [14].Maneesh Kumar Singh, Sarika Pal, **Yogendra Kumar Prajapati**, J.P. Saini, "Sensitivity Improvement of Surface Plasmon Resonance Sensor on using BlueP/MoS2 Heterostructure and Antimonene," *IEEE Sensors Letters*, vol.4, no. 7, pp. 1-4, July 2020, <https://DOI:10.1109/LSENS.2020.3005942> (Impact factor: 2.8, Quartile Score: Q2)

23. J. B. Maurya, **Yogendra Kumar Prajapati***, "Experimental Demonstration of DNA Hybridization Using Graphene-Based Plasmonic Sensor Chip," *IEEE Journal of Lightwave Technology*, Vol. 38, issue 18, pp. 5191-5198, DOI: 10.1109/JLT.2020.2998138, September 15, 2020. (Impact factor: 4.439, Quartile Score: Q1)

24. J.B.Maurya, **Yogendra Kumar Prajapati***, "A Novel Method to Calculate Beam Width of SPR Reflectance Curve: A Comparative Analysis," *IEEE Sensor Letters*, Vol. 1, issue 4, pp. 1-4, <https://doi.org/10.1109/LSENS.2017.2709549>, August 2017. (Impact factor: 2.8, Quartile Score: Q1)

25. Sajal Agarwal, Pushpa Giri, **Yogendra Kumar Prajapati***, P. Chakrabarti, "Effect of Surface Roughness on the Performance of Optical SPR Sensor for Sucrose detection: Fabrication, Characterization and Simulation Study," *IEEE Sensors Journals*, Vol. 16, No. 24, pp. 8865 – 8873, December 2016, (Impact factor: 4.3, Quartile Score:Q1).

26. Sajal Agarwal, **Yogendra Kumar Prajapati***, J.B.Maurya, "Effect of Metallic Adhesion Layer Thickness on the Sensor Performance," *IEEE Photonics Technology Letters*, 28(21), pp. 2415-2418, Nov. 2016. <https://doi.org/10.1109/LPT.2016.2597856> (Impact factor: 2.414, Quartile Score: Q2)

E. Publications (List of papers published in Other SCI/ESCI Journals, in year wise descending order)

27. Varunika Dixit, Kamal Agarwal, **Yogendra Kumar Prajapati***, "On the modeling and performance enhancement of underwater wireless optical communication: impairments, throughput, and ergodic capacity," *Optical and Quantum Electronics*, DOI: 10.1007/s11082-025-08643-w, 2026 (Impact factor 4.0, Quartile Score: Q2)

28. Kumar, Rakesh, Sarika Pal, **Yogendra Kumar Prajapati**, and J. P. Saini. "Rhenium disulfide (ReS₂) and halide perovskite mediated plasmonic sensor for biosensing." *Physica Scripta*, vol. 100, no. 11, pp.115608, 13 November 2025, DOI: 10.1088/1402-4896/ae1b46, (Impact factor 2.6, Quartile Score:Q2)

29. Chauhan, Sweety, Anuj K. Sharma, Nitin Singh Singha, and **Yogendra Kumar Prajapati**, "Sb₂S₃ as Hole Transport Layer Material Massively Enhances the Performance and Stability of Tin-Based Perovskite Solar Cell." *Journal of Electronic Materials* (2025): pp.1-14, 4 November 2025, (Impact factor 2.5, Quartile Score: Q2)

30. Kumar, Vikas, Rupam Srivastava, Anuj K. Sharma, and **Yogendra Kumar Prajapati***. "Enhanced photovoltaic performance of lead-free Cs₂SnI₆ double perovskite solar cells: SCAPS-1D simulation and optimization." *Physica Scripta*, vol. 100, no. 10, pp. 105017, 16 October 2025, DOI 10.1088/1402-4896/ae0fc8 (Impact factor 2.6, Quartile Score: Q2)

31. Veluchamy, Devika, Murugan Senthil Mani Rajan, and **Yogendra Kumar Prajapati**. "Sensitive Detection of Formalin Adulteration in Fish Using a Square-Core Photonic Crystal Fiber Sensor." *Sensing and Imaging*, vol. 26, no. 1, pp. 128, 08 October 2025, (Impact factor 2, Quartile Score:Q3)

32. Popescu, Vasile A., Priyanshu Singh, **Yogendra Kumar Prajapati**, and Anuj K. Sharma. "High-Performance Plasmonic Sensor with Photonic Spin Hall Effect for NaCl Detection: Role of an Active Voltage Biasing of Graphene Monolayer in Near Infrared." *Sensing and Imaging*, vol no. 26, no. 1, pp. 67, 20 May 2025, (Impact factor 2, Quartile Score:Q3)

33. Kumar, Nitesh, Sarika Pal, and **Yogendra Kumar Prajapati**. "Dual Polished-Based Dual Core

LRSPR Sensor for Stress Monitoring Using Cortisol Biomarker in Human Saliva." *Sensing and Imaging*, vol no. 26, no. 1, pp. 57, 14 May 2025, (**Impact factor 2, Quartile Score:Q3**)

34. Daher, Malek G., Sofyan A. Taya, Osama S. Faragallah, Shobhit K. Patel, **Yogendra Kumar Prajapati**, and Ammar Armghan. "Detection of protozoa in drinking water using SPR biosensor employing titanium dioxide and MXene nanomaterial." *Journal of Computational Electronics*, vol no. 24, no. 2, pp. 45, 24 April 2025, (**Impact factor 2.5, Quartile Score:Q3**)

35. Alhawari, Adam RH, Abdulkarem HM Almawgani, Malek G. Daher, Sofyan A. Taya, **Yogendra Kumar Prajapati**, and Samer H. Zyoud. "Design of a novel plasmonic sensor for the determination of uric acid concentration with ultra-high figure of merit." *Plasmonics*, pp. 1-10, 17 February 2025, (**Impact Factor 4.3 ,Quartile Score:Q3**)

36. Gumaih, Hussein S., Abdulkarem HM Almawgani, Malek G. Daher, Yousif S. Adam, Sofyan A. Taya, and **Yogendra Kumar Prajapati**. "Theoretical Optimization of Silver-Based Surface Plasmon Resonance Sensor with Perovskite and Graphene Composite Structure for the Rapid Detection of Breast Cancer Cells." *Plasmonics*, vol no. 20, pp. 1-9, 06 February 2025, DOI: <https://doi.org/10.1007/s11468-024-02753-z> , (**Impact Factor 4.3 ,Quartile Score:Q3**)

37. Chauhan, Sweety, Anuj K. Sharma, Nitin Singh Singha, Alok Kumar Patel, and **Yogendra Kumar Prajapati** "Simulation of ZnO (window layer)-ZnS (buffer)-SDL-CIGS (absorber)-Sb2S3 (back surface field layer) solar cell design achieving 35.82% power conversion efficiency with low thermal effect." *Journal of Optics*, pp. 1-9, 03 February 2025, DOI: <https://doi.org/10.1007/s12596-025-02514-z> , (**Impact Factor 2.5 ,Quartile Score:Q3**)

38. Abohassan, Khedr M., Malek G. Daher, Sofyan A. Taya, Abinash Panda, and **Yogendra Kumar Prajapati** "Narrow bandpass filter using octonacci photonic quasicrystal." *Journal of Optical Communications*, vol no.; 45, no. s1, pp. s1683-s1691, 27 January 2025, (**Quartile Score:Q3**)

39. Alhawari, Adam RH, Abdulkarem HM Almawgani, Malek G. Daher, Sofyan A. Taya, **and Yogendra Kumar Prajapati**. "A Novel Surface Plasmon Resonance (SPR) Sensor Based on Beryllium Oxide and Graphene Layers for Fuel Adulteration Discovery." *Plasmonics*, pp. 1-10, 6 January 2025 , DOI: <https://doi.org/10.1007/s11468-024-02657-y> (**Impact Factor 3.3 ,Quartile Score:Q3**)

40. Alhawari, Adam RH, Abdulkarem HM Almawgani, Sofyan A. Taya, Malek G. Daher, **Yogendra Kumar Prajapati**, and Hussein S. Gumaih. "Highly sensitive protein sensor based on surface plasmon resonance nanostructure employing titanium dioxide and graphene layers." *Diamond and Related Materials* Vol 151, pp. 111867, 1 January 2025, DOI: <https://doi.org/10.1016/j.diamond.2024.111867> (**Impact Factor 4.3 ,Quartile Score:Q2**)

41. Kumar, Rajeev, Sajal Agarwal, Narendra Pal, Sarika Pal, and **Yogendra Kumar Prajapati**. "Platinum diselenide (PtSe2) mediated heterostructure based SPR sensor for the detection of formalin: a theoretical analysis." *Physica Scripta*, Vol 100, no. 1, pp. 015546, 30 December 2024, DOI: [10.1088/1402-4896/ad9e46](https://doi.org/10.1088/1402-4896/ad9e46) (**Impact Factor 2.6 ,Quartile Score: Q2**)

42. Daher, Malek G., Sofyan A. Taya, Osama S. Faragallah, Mohammed A. AlZain, Abdulkarem HM Almawgani, Ahmad Alzahrani, **Yogendra Kumar Prajapati**, Ammar Armghan, and Samer H. Zyoud. "Supersensitive Novel Detector using Surface Plasmon Resonance Nanostructure Based on Black Phosphorus/Graphene for the Discovery of Various Pathogens in Drinking Water." *Plasmonics* , pp:1-9, 27 December 2024, DOI: <https://doi.org/10.1007/s11468-024-02678-7> (**Impact Factor 3.3 ,Quartile Score:Q3**)

43. Gumaih, Hussein S., Abdulkarem HM Almawgani, Malek G. Daher, Yousif S. Adam, Sofyan A. Taya, and **Yogendra Kumar Prajapati**, "Novel detection of progesterone and estradiol levels in blood using sensitive SPR biosensor employing cerium oxide and MXene nanomaterial." *Journal of Optics* pp: 1-11, 14 December 2024, DOI: <https://doi.org/10.1007/s12596-024-02352-5> (**Impact Factor 1.6 ,Quartile Score:Q3**)

44. Tiwari, Harshit, Yogendra S. Dwivedi, Rishav Singh, Anuj K. Sharma, Ajay Kumar Sharma, Richa Krishna, Nitin Singh Singha, **Yogendra Kumar Prajapati**, and Carlos Marques. "Deep Learning-Enabled De-Noising of Fiber Bragg Grating-Based Glucose Sensor: Improving Sensing Accuracy of Experimental Data." *Photonics*, vol. 11, no. 11, pp. 1058. MDPI,

November 2024, DOI: <https://doi.org/10.3390/photonics11111058> (Impact Factor: 2.1, Quartile Score:Q2)

- 45. Srivastava, Saarthak, Rupam Srivastava, Deepak Punetha, Anuj K. Sharma, and Yogendra Kumar Prajapati*. "Enhancing the efficiency of lead-free Cs₂AgBiBr₆ based double perovskite solar cells with optimizing ETLs and HTLs using SCAPS-1D." *Chemical Physics Letters*, vol. 854, pp. 141557, November 2024. DOI: <https://doi.org/10.1016/j.cplett.2024.141557>, (Impact Factor: 2.8, Quartile Score: Q2)
- 46. Yesudasu, Vasimalla, Rupam Srivastava, Sarika Pal, Alka Verma, and Yogendra Kumar Prajapati* "Performance Enhancement of SPR Sensor for Dengue Virus Detection: Influence of Aluminum Nitride and 2D Materials." *Plasmonics*, pp. 1-14, 23 October 2024, DOI: <https://doi.org/10.1007/s11468-024-02574-0>, (Impact Factor 3.3 ,Quartile Score:Q3)
- 47. Daher, Malek G., Sofyan A. Taya, Osama S. Faragallah, Shobhit K. Patel, Yogendra Kumar Prajapati, and Ammar Armghan. "Optical Detection of Urea Level in Blood Using Novel SPR Sensor Employing Silicon and Tungsten Diselenide Nanomaterial for the Early Diagnosis of Heart and Kidney Diseases." *Plasmonics*, pp. 1-10, 21 October 2024, DOI: <https://doi.org/10.1007/s11468-024-02588-8>, (Impact Factor 3.3 ,Quartile Score:Q3)
- 48. Agarwal, Sajal, Rahul Raparia, Vinit Kumar, Rupam Srivastava, and Yogendra Kumar Prajapati. "Analytical Study of SPR Sensor with Black Phosphorus and Tungsten Diselenide Heterostructure for Milk Adulteration Detection." *Plasmonics*, pp. 1-10, 02 October 2024, DOI: <https://doi.org/10.1007/s11468-024-02496-x> (Impact factor 3.3 ,Quartile Score:Q3)
- 49. Srivastava, Rupam, Vinit Kumar, and Yogendra Kumar Prajapati*. "Highly sensitive SPR based PCF sensor for broader analyte detection range including blood compositions detection." *Optik*, vol 314, pp. 172010, 1 October 2024, DOI: <https://doi.org/10.1016/j.jleo.2024.172010>, (Impact factor: 3.1, Quartile Score: Q2)
- 50. Kumar, Virendra, Rajeev Kumar, Sarika Pal, and Yogendra Kumar Prajapati. "Development of surface plasmon resonance sensor utilizing GaSe and WS₂ for ultra-sensitive early detection of dengue virus." *Optik*, vol. 313 pp. 171975 , October 2024, DOI: <https://doi.org/10.1016/j.jleo.2024.171975>, 1 (Impact factor: 3.1, Quartile Score: Q2)
- 51. Veluchamy, Devika, Murugan Senthil Mani Rajan, and Yogendra Kumar Prajapati*. "Enhancing Breast Cancer Biomarker Detection with a Portable Biosensor Utilizing Flower Core Photonic Crystal Fiber Architecture." *Plasmonics* ,pp. 1-13, 07 August 24, DOI: <https://doi.org/10.1007/s11468-024-02470-7>, (Impact Factor 3.3 ,Quartile Score:Q3)
- 52. Daher, Malek G., Youssef Trabelsi, Ahmed Nabih Zaki Rashed, Ibrahim S. Yahia, Yogendra Kumar Prajapati, Abdulkarem HM Almawgani, and Ahmad Alzahrani. "Optical Sensitive Detection of Cervical Cancer Based on Surface Plasmon Resonance Nanostructure." *physica status solidi (a)* vol. 221, no. 16, pp. 2300567, July 2024, DOI: <https://doi.org/10.1002/pssa.202300567>(Quartile Score: Q3)
- 53. Dubey, Dheeraj, Yogendra Kumar Prajapati*, and Rajeev Tripathi. "Optimization of LDPC-coded power series MIMO/FSO link with hybrid-SIM based on machine learning in satellite downlink for 5G and beyond applications." *Telecommunication Systems*, pp. 1-17, 1 July 24, DOI: <https://doi.org/10.1007/s11235-024-01178-7>, (Impact Factor : 1.7 ,Quartile Score:Q2)
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G. Books/Reports/Chapters

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H. Publications (List of papers published in Conferences)

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- 4. Gaur, Samta, Rupam Srivastava, Vinit Kumar, Sarika Pal, and Yogendra Kumar Prajapati. "Magnetite-Based Surface Plasmon Resonance Sensor for Pseudomonas Bacteria Detection." *2025 Third International Conference on Microwave, Antenna and Communication (MAC)*, pp. 1-5. IEEE, 27 June 2025, DOI: [10.1109/MAC64480.2025.11140387](https://doi.org/10.1109/MAC64480.2025.11140387)
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23. Maurya, J. B., Y. K. Prajapati, Vivek Singh, and J. P. Saini. "Field Confinement of Stacked Multilayer Slab Waveguide Using Graphene", In International Conference on Fibre Optics and Photonics, pp. M4A-25. Optica Publishing Group, 2014. DOI: <https://doi.org/10.1364/PHOTONICS.2014.M4A.25>

I. Conferences & Workshop Organized

- i. As a Coordinator organized "Workshop on High-End Optoelectronics Devices: Fabrication, Characterization, and Functionalization" January 1-8, 2024, under Karyashala, Science and Engineering Research Board (SERB), New Delhi
- ii. As a Coordinator organized Two-days' Workshop (Online)On Advances in Photonic Devices, Sensors, and Systems (APDSS), June 2-3, 2022, Under Scientific Social Responsibility (SSR) Scheme – SERB (India)
- iii. As a Coordinator DST Sponsored National Level Training Programe on Hands on Training on Microwave & Photonics Related Sophisticated Equipment and Components (HTMPRSEC22), under DST STUTI Programme-2022, June 06 -12, 2022, at Motilal Nehru National Institute of Technology (MNNIT) Allahabad, Uttar Pradesh, India
- iv. As an Organizing Secretary organized "Fourth International Conference on VLSI, Communication and Signal Processing (VCAS 2021)," during 24-26 September 2021, at Motilal

Nehru National Institute of Technology (MNNIT) Allahabad, Uttar Pradesh, India

- v. As a Coordinator organized “2nd National workshop on Advances in Wireless and Optical Networks (AWON 2019)” during May 27, 2019 to June 01, 2019 at Motilal Nehru National Institute of Technology (MNNIT), Allahabad, Uttar Pradesh, India.
- vi. As a Co-coordinator organized “National workshop on Advances in Wireless and Optical Networks (AWON 2014)” during 2nd to 7th June-2014 at Motilal Nehru National Institute of Technology (MNNIT), Allahabad, Uttar Pradesh, India.
- vii. As an organizing secretary organized Students Conference on Engineering and Systems (SCES2014)”, from May, 28- 30, 2014, at Motilal Nehru National Institute of Technology (MNNIT), Allahabad, Uttar Pradesh, India.
- viii. As a Co-coordinator organized “Mobile, Ad hoc and Vehicular Communication MAVECOM-2013” at MNNIT, Allahabad, during July 22-27, 2013.
- ix. As a Coordinator organized “3G Wireless Networks, MIMO Systems and Antenna Design” at MNNIT, Allahabad, during July 08-13, 2013.
- x. As a convener organized “Techzion-12” at B.I.E.T., Jhansi, during 6-7, April 2012.

J. Outreach Activities

- 1. Delivered an expert talk on “Introduction to Bragg waveguide” in the Faculty Development Program on Advanced in Microwave communication at B.I.E.T., Jhansi, during Dec.07-08, 2007.
- 2. Delivered an expert talk on “Metamaterials and its application in Optical Networks & Sensors” in the National workshop on “Advances in Wireless and Optical Networks (AWON-2014)” during 2nd to 7th June-2014 at M.N.N.I.T Allahabad.
- 3. Delivered an expert talk on “Metamaterials and its application in Optical devices” in the National workshop on “recent trends in Optical and Wireless Networks” during 3rdto 7th November 2014 at Sam Higginbottom Institute of Agriculture, Technology & Sciences, Naini, Allahabad.
- 4. Delivered an expert talk on “Innovative photonic for communication and sensing application” in the 6th International Conference on “Technology Innovation & Management for Sustainable Development (TiMS-16) during 11-13 February 2016 at ITM University, Gwalior, M.P.
- 5. Delivered an expert talk on “Role of Materials in SPR Sensing” in STC on “Emerging Trends in Materials Science (STCETMS-2017 during March 23-29, 2017 at Madan Mohan Malaviya University of Technology, Gorakhpur, UP.
- 6. Delivered an expert talk on “Laser for Optical Communication and Sensors” in STC on “Laser and its Applications-LAP 2017 during March 27-31, 2017 at M.N.N.I.T Allahabad.
- 7. Delivered an expert talk on “Advances in Surface Plasmon Resonance Sensing” in workshop on “Recent Trends in Photonics Technology (RTPT 2017) during October 07-11, 2017 at IIT (ISM) Dhanbad. viii. Delivered an expert talk on “Advances on Optical Communication and Devices” in STC on “Advances modelling of microwave and photonics devices (AMMPD-2018) during March 06, 2018 at Madan Mohan Malaviya University of Technology, Gorakhpur, UP.
- 8. Delivered an expert talk on “Advances in Free Space Optical Communication” in STC on “Recent Advances in Communication Engineering” during December 26-30, 2018 at Bundelkhand Institute of Engineering and Technology, Jhansi, UP.
- 9. Delivered an expert talk on “Advances in Optical Wireless Communication” in 2nd National Workshop on Advances in Wireless and Optical Networks (AWON-2019) during May 28, 2019 at M.N.N.I.T Allahabad, Prayagraj, UP.
- 10. Delivered an expert talk on “Materials and Structures for Sensing Applications” in STC on Smart Materials, Devices and Sustainable Technologies” (SMDST-19) Department of Applied Science (Physics), during March 15–16, 2019 at Madan Mohan Malaviya University of Technology Gorakhpur (UP)-273010, UP.

11. Delivered an expert talk on “Advanced Modulation Techniques for Lower and Higher Optical Transmission Rates” in Workshop on Optical Fiber Communication and its Applications during September 7, 2019 at Department of Electronics, MITS Gwalior (M.P.) India
12. Delivered an expert talk on “Role of Photonic spin Hall effect in the Photonic devices: An sensing application” in Recent trends in Optical Engineering (RTOE 2020)“September 23, 2020, S. V. National Institute of Technology, Surat.
13. Delivered an expert talk on “Free space optical communication” in Online Short-Term Course on Recent Trends in Wireless Communication on July 21, 2020, Department of Electronics Engineering, National Institute of Technology, Uttarakhand
14. Delivered an expert talk on “Wireless Optical Communication and its applications” May 21, 2021, Department of Electronics Engineering, MITS, Gwalior, MP.
15. Delivered an expert talk on “Nanotechnology and Nanomaterials for Circuits and Devices” GIAN course on Advances in Nanotechnology & its Application in Future Electronics March 9, 2022, Department of Electronics and Communication Engineering Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.
16. Delivered an expert talk on “Free Space Optics: Emerging beyond Conventional RF Communication” Atal Workshop on Photonics and its application, February 17, 2022, Department of Electronics Engineering Sardar Vallabhbhai National Institute of Technology, Surat-India
17. Delivered an expert talk on “Spin–Orbit Interactions (SOI) Light and its Applications” 6th IEEE International Workshop on Recent Advances in Photonics, 7-9th Dec. 2023, IIIT-Allahabad, Prayagraj, India
18. Delivered an expert talk on “Photonic Spin Hall Effect and its Applications on Sensing” October 23, 2023, 4th International Electronic Conference on Applied Sciences, Italy
19. Delivered an expert talk on “Photonic Spin Hall Effect and its Potential Applications in Field of Communication and Sensing” February 08, 2023, ECED, NIT Uttarakhand
20. Delivered an expert talk on “Piezoelectric Assisted High Photonic Spin Hall Effect” January 04, 2024, Workshop on High-End Optoelectronics Devices: Fabrication, Characterization, and Functionalization, ECED, MNNIT Allahabad, Prayagraj.
21. Delivered an expert talk on “Strong Spin-Orbit Interaction of Light in Plasmonic Nanostructures” February 09, 2024, Kalinga Institute of Industrial Technology, (KIIT) is Deemed to be University, Bhubaneswar, Odisha.
22. Delivered an expert talk on “Let's Commence the Research with Mindfulness” March 09, 2024, Shri Rama Krishna Group of Institution Satna, M.P. 485001.
23. Delivered an expert talk on “Photonic Spin Hall effect and its applications in Piezoelectric & Plexcitonic System” March 2, 2024, at Powering Progress: The International Conference on Energy, Functional Materials and Photonics (PPICEFP-2024), MMMUT Gorakhpur, UP.
24. Delivered an expert talk on “Role of the Engineers for Digital Innovation in Advancing Sustainable Development for Society” The Institution of Engineers (India) local chapter Prayagraj, May 17, 2024,
25. Delivered an expert talk on “Prospects for Forthcoming Technologies in Optical Communication,” International Conference on VLSI and Microwave and Wireless Technologies (ICVMWT 2024), Madan Mohan Malaviya University of Technology, Gorakhpur (U.P.) India. May 18, 2024.
26. Delivered an expert talk on “Strong Spin-Orbit Interaction of Light in Plasmonic Nanostructures for Advanced Optical Sensing,” One-week Online STTP on Recent Trends in Sensors and Internet of Things, NIT Surat, May 28, 2025
27. Delivered an expert talk on “Spin-Driven Light: Advancing Sensing Technologies through the Photonic Spin Hall Effect,” FDP on VLSI Devices, Circuit Design & Semiconductor Materials MNNIT Allahabad, Prayagraj, 20 July 2025.
28. Delivered an expert talk on “Manipulating Light with Spin-Orbit Interaction for Sensing Applications,” ECED, NIT Patna, October 08, 2025.

29. Delivered an invited expert talk on "Photonic Spin Hall Effect for Advancing Sensing Applications," Symposium on Advanced Photonics (SAP 2025), IIT Indore, November 17, 2025.

K. Details of Ph.D. Thesis Supervised

1. Ms. Rupam Srivastava (Reg. No.2020REL11): Simulation and Experimental Investigation of Optical Sensors for Different Applications, Awarded Year: 2024.
2. Mr. Surjeet Raikwar (Reg. No. PhD/17/ECE/2215): Nanomaterials based design of SPR sensor: an application toward biosensing, Awarded Year: 2023.
3. Mr. Shivam (Reg. No.:2018REL13): Investigations Towards the Development of Plasmonic Sensors based on Photonic Crystal Fiber for Refractometric Sensing, Awarded Year: 2022.
4. Mr. Akash Srivastava (2018REL08): Sensing Performance Enhancement in SPR Based Sensor Using Two Dimensional and Related Nanomaterials, Awarded Year: 2022.
5. Mr. Dheeraj Dubey (2018REL04): Performance Analysis of Hybrid FSO/RF for Satellite and Terrestrial Communication, Awarded Year: 2021.
6. Mr. Vivek Kumar Srivastava (Enrolment No.:Ph.D/11/ECE/1078): Propagation of Electromagnetic waves in a Bragg wave guide having unconventional materials, Awarded Year: 2020.
7. Mr. Ajay Kumar Yadav (Reg. No.: 2016REL10): A Study on Some Hybrid Techniques for PAPR Reduction in OFDM System, Awarded Year: 2020.
8. Mr. Pritam Keshari Sahoo (2016REL16): Hybrid Modulation Techniques under Diverse Turbulence Conditions of Outdoor and Indoor FSO Channel, Awarded Year: 2020.
9. Ms. Sajal Agarwal (2014REL52): Design, Fabrication, and Characterization of Optical Devices: Absorber and Sensor, Awarded Year: 2019
10. Ms. Divya Sharma (2018REL53): Performance Evaluation of Advanced Modulation Techniques for Lower and Higher Optical Transmission Rates, Awarded Year: 2018.
11. Mr. Jitenddra Bahadur Maurya (2018REL05): Design and Fabrication of Plasmonic Sensor Based on Graphene and MoS₂ for Biosensing, Awarded Year: 2017.
12. Ms. Sarika Pal (Enrolment No.: Ph.D/11/ECE/1075): To Study the Sensitivity of Optical Sensor in Layered Media Using Unconventional Materia, Awarded Year: 2017.
13. Ms. Pooja Lohia (Enrolment No.: Ph.D/13/ECE/1136): Single Mode Optical Fiber Design for High-Speed Optical Communication Using Transfer Matrix Technique, Awarded Year: 2016.
14. Mr. Anurag Upadhyay (2013REL01): Analysis of Optical Waveguide Sensors having Metamaterial for Refractometry and Immunosensing Application, Awarded Year: 2016.

L. Details of Consultancy Work

- i. A third-party audit of Electrical work related to electrification at Devipattan, Project Manager, Office of Project Manager Unit-34, Uttar Pradesh Jal Nigam (Urban) Basti-272002, Rs. 1.50 Lakh, February 2025-March 2025 **(As a PI)**
- ii. A third-party audit of Electrical work related to electrification at Balrampur, Uttar Pradesh under Uttar Pradesh Rukiya Nirman Nigam, Rs. 1.35 Lakh, December 2022-January 2023 **(As a PI)**
- iii. Third party audit of Electrical work related to the quality at Siddharthnagar, Uttar Pradesh under Uttar Pradesh Rajkiya Nirman Nigam, Rs. 2.89 Lakh, December 2022-January 2023 **(As a PI)**
- iv. Third party evaluation of CCTV, Wi-Fi, and Solar Light work in District- Kushinagar, Uttar Pradesh, under Uttar Pradesh Rajkiya Nirman Nigam, Rs. 1.50 Lakh, October 2021-November 2021 **(As a PI)**
- v. Veeckay Connectors(P) Ltd., Naini, Allahabad for Confirmatory tests of fiber optical splitter with microlens chip, Rs. 50,000/- (As a member)

M. Listed among the world's top 2% scientists every year since 2021, as published by Stanford University.