

Curriculum Vitae

Dr. Udit Narayan Pal

Scientist-G, and Group Head, Societal Electronics Group
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Google Scholar Link:

https://scholar.google.co.in/citations?hl=en&user=xyOsLCwAAAAJ&view_op=list_works&sortby=pubdate (Citations:1400, h-index:22, i10-index: 41)

ResearchGate Link: <https://www.researchgate.net/profile/Udit-Pal>

ResearchGate Link: <https://www.researchgate.net/profile/Udit-Pal>

Linkedin Link: <https://www.linkedin.com/in/dr-udit-narayan-pal-94a1b516/>

CSIR-CEERI: <https://www.ceeri.res.in/profiles/udit-narayan-pal/>



• **Educational Qualifications:**

Degree	Subjects	Name of the College/Institute	Year
Ph. D.	Plasma Physics	Birla Institute of Technology (BIT), Mesra, Ranchi.	2014
M. Tech.	Electronics Engineering (Microwave)	Institute of Technology, Banaras Hindu University, Varanasi (U.P.). Presently, Indian Institute of Technology (IIT), BHU, Varanasi (U.P.)	2005
B. E.	Electronics & Comm.	M. M. M. Engineering College, Gorakhpur, U.P. Presently, Madan Mohan Malaviya University of Technology, Gorakhpur (U.P.)	2003

• **Professional Experience in Research and Development:**

S.No.	Period	Place of Employment	Designation
1.	19 January 2005 to 18 January 2008	CSIR-Central Electronics Engineering Research Institute (CEERI), Pilani, Rajasthan-333031	Junior/Trainee Scientist
2.	19 January 2008 to 18 January 2012	CSIR-CEERI, Pilani, Rajasthan-333031	Scientist
3.	19 January 2012 to 18 January 2015	CSIR-CEERI, Pilani, Rajasthan-333031	Senior Scientist
4.	19 Jan. 2015 to 18 Jan. 2020	CSIR-CEERI, Pilani, Rajasthan-333031	Principal Scientist
5.	19 January 2020 to 18 January 2026	CSIR-CEERI, Pilani, Rajasthan-333031	Senior Principal Scientist
6	19 January 2026 to till date	CSIR-CEERI, Pilani, Rajasthan-333031	Chief Scientist/Scientist-G

- **R&D Experience: 21 Years**

Working as scientist in various capacities at CSIR-CEERI, Pilani since January, 2005.

- **Areas of Specialization:**

Advanced Research and Development of Vacuum and Plasma Electronic Devices, Systems, and Enabling Technologies for Societal, Industrial, and Strategic Applications:

- **Non-thermal/Cold Plasma Technologies for Societal and Industrial Impact**

Indigenous design, development, and translation of Dielectric Barrier Discharge (DBD) and cold atmospheric pressure plasma (CAP) devices and systems for sustainable agriculture, biomedical, sterilization, food safety, and environmental remediation.

- **Advanced VUV/UV Radiation Sources and Technology**

Indigenous development of mercury-free excimer radiation VUV/UV sources and optimization of conventional mercury-based Medium Pressure UV sources for water purification, curing, semiconductor, food processing, surface engineering, and advanced oxidation technologies.

- **High-Power Pulsed Plasma Switching Technologies**

Development of high-reliability cold cathode Pseudospark Switch (PSS) and hot cathode Thyratrons for fast and high-energy switching applications in microwave, pulsed power and strategic systems.

- **High-Density Short Pulsed Electron Beam Technology**

Generation and application of energetic short-pulsed electron beams for microwave generation, advanced materials processing, and surface modification applications.

- **Compact and Tunable EUV / Soft X-ray Plasma Sources**

Design and development of portable and tunable extreme ultraviolet (EUV) and soft X-ray sources suitable for biomaterial surface engineering, radiographic imaging, and advanced research instrumentation.

- **Honors/Awards/Recognitions Received:**

Sl. No.	Name of the Body	Name of Award / Honour	Year
1.	Institute of Electrical and Electronics Engineers (IEEE), USA	Editor, IEEE Transactions on Plasma Science	2026
2.	Springer Nature, Journal, U. K.	Editor, Scientific Reports, Springer Nature	2026
3.	The Institution of Electronics and Telecommunication Engineers (IETE), New Delhi	IETE-Bapuseetharam Award (Biennial)-2023: in recognition of my exceptional contributions to the research and development of electronic components, which have greatly contributed to the country's self-reliance.	2023

4. **Vacuum Electronic Devices & Applications Society (VEDAS), Bangalore** **VEDAS Mid-Career Award-2022:** in recognition of my pioneering contributions to research in the area of plasma assisted vacuum electronics based systems. 2022
5. **CSIR, Govt. of India, New Delhi** **CSIR Raman Research Fellowship (RRF)-2018-19:** to work at University of Strathclyde, Glasgow, UK for a duration of four months for the work entitled “Pseudospark discharge based high energetic and stable electron beam generation for the development of portable and tunable EUV/Soft X-ray sources, and the generation of high density pulsed ion beams” 2019
6. **CSIR-CEERI, Pilani** **Foundation Day Award for the Recognition of Excellence in Research at CSIR-CEERI for the Year 2018:** (project team under leadership of Dr. Pal) for the project entitled “Pseudospark Discharged Electron Beam Driven Compact Plasma Assisted Slow-Wave Oscillator” 2018
7. **Indian National Science Academy (INSA), India – Royal Society of Edinburgh (RSE), Scotland** **INSA, India – RSE, Scotland, Exchange of Scientists Programme Fellowship:** to visit University of Strathclyde, Glasgow, Scotland for the work: “Understanding of Electrical and Spectroscopic Diagnostics for the Design and Development of a Tunable Pseudospark Discharge Based Portable Extreme Ultraviolet (EUV)/X-Ray Radiation Source” during 7-22, July 2018. 2018
8. **CSIR, Govt. of India, New Delhi.** **CSIR Young Scientist Award-2015:** (Physical Sciences category) for outstanding contributions to conceptualize, build VUV/UV light source, an economical mercury free green technology for water purification need of the country, and also for developing state-of-the art plasma devices for strategic and industrial applications. 2015
9. **Buti Foundation, New Delhi.** **Buti Young Scientist Award:** for the paper related to Ph.D. work titled “Development and characterization studies of DBD based ultraviolet light sources” had been adjudged as the best presentation in the 27th National Symposium on Plasma Science and Technology (Plasma-2012) organized at Pondicherry University, Puducherry during 10-13 December, 2012. 2012
10. **German Physical Society Symposium on “Applications and New Trends of Plasma Technology” Erlangen, Germany.** **Invited Keynote Speaker** on the topic: “Research on Pseudospark Discharge and Related Technologies in India” 2018

11. **India International Science Festival (IISF-2016), CSIR-NPL, New Delhi.** **Best Paper Award (2nd Prize)** in the theme: ‘**Strategic Applications of Young Scientist Conclave**’, **India International Science Festival (IISF-2016)** 2016
12. **Science and Engineering Research Board (SERB), GOI, New Delhi** **International Travel Support (ITS)** to participate in the 2023 IEEE Pulsed Power Conference (PPC-2023) to be held at San Antonio, Texas, USA. 2023
13. **Science and Engineering Research Board (SERB), GOI, New Delhi** **International Travel Support (ITS)** to participate in the 2019 IEEE Pulsed Power and Plasma Science Conference (PPPS-2019) held at Orlando, Florida, USA during 22-28 June, 2019. 2019
14. **Science and Engineering Research Board (SERB), GOI, New Delhi** **International Travel Support (ITS)** by Science and Engineering Research Board (SERB), GOI, to participate in the 39th IEEE International Conference on Plasma Science (ICOPS-2012), held at Edinburg, Scotland, UK during 8-13 July 2012. 2012
15. **First International Conference on Plasma Processing of Organic Materials and Polymers”, Kottayam, Kerala.** **Best Paper Award (3rd Prize)** in the “First International Conference on Plasma Processing of Organic Materials and Polymers” November 25-27, 2011, Kottayam, Kerala. 2011
16. **India International Friendship Society, New Delhi.** **Bharat Jyoti Award:** for meritorious services, outstanding performance and remarkable role in Science and Technology. 2011

In addition to above awards, Dr. Pal has also significantly contributed in the **9 research papers and awards** of the team members which have been **Awarded Best Contributions** in National and International conferences.

- **Membership of Professional Academies/Societies:**

SN	Name of the Academies/Societies	Membership Type	Details
1.	The National Academy of Sciences, India (NASI)	Life Member	Since 2020
2.	The Indian National Academy of Engineering (INAE)	Senior Member	Since 2026
3.	Vijnana Bharati (Vibha)	Life Member	Since 2017 and LM-N/2017/7004
4.	Institute of Electrical and Electronics Engineers (IEEE)	Senior Member	90457213
5.	The institution of Electronics and Telecommunication Engineering , (IETE)	Fellow	F-181454
6.	Vacuum Electron Devices and Applications	Life Fellow	M029L

	(VEDA)		
7.	Plasma Science Society of India (PSSI)	Life Member	LM 903
8.	Indian Vacuum Society (IVS)	Life Member	LM 791
9.	The Indian Physical Society (IPS)	Life Member	LM-1015

- **Association for development of Technologies:**

Number of innovative technologies (products or processes) developed and implemented:

Sl. No	Name of the Technology	Period during which developed	Date of transfer	Organization/Industry	Total fees realized (₹)	Your Role*
1.	35kV/3kA Thyratrons for pulse modulator applications	2018	31 March 2018 (Project Closing)	EBC, BARC, Mumbai, GoI. <i>(The Thyratrons delivered are regularly being used in the pulse modulator system of BARC.)</i>	67.65 Lakh (Project)	PI
2.	large volume penning plasma discharge (PPD) source for large data point calibration of a VUV-spectrometer-detector-system	2014	20 July 2014	IPR, Gandhinagar	~50 Lakh (Project)	Co-PI

Number of technology transfer agreements concluded:

Sl. No	Name of the Technology	Period during which developed	Date of transfer	Organization/Industry	Total fees realized (₹)	Your Role*
1.	DBD based MFP-UV Lamps for water purification applications	2015	29 March 2016 and February 2016	M/s The YOUWE (UV) Purifiers, Jaipur and M/s ARKIN Technologies Pvt. Ltd. Pune	30 Lakh	Co-PI
2.	Mercury-Free Plasma UV-Lamps compatible to Advanced Photocatalytic Oxidation System	2017	23 April 2018	M/s. Vital Hospitality (P) LTD, Trivandrum	10.00 Lakh	Team Member

- **Project Grants:** ICMR, CSIR X/XI/XII FYP; CSIR-FBR, CSIR-ILP; BRNS-DAE; DST, SERB-DST, DRDO, BRFSST-DAE; CSIR-DLR collaboration (*PI: 11 Projects, Co-PI:05, Member:05, Total Funding: ~4180 Lakhs (INR)*)

Project Details:

SN	Title of Project	Project type/Funding Agency	Total Cost (Lakhs)	Project status	Role PI/Co-PI
1.	A portable image-guided robotic cold plasma system for localized and targeted therapy of oral cancers	ICMR, GoI, New Delhi	314.00	Ongoing March 2024 to March 2028	PI
2.	Development of cold cathode pseudospark switch for import substitution of hot cathode thyatron	BRNS, GoI, Mumbai	63.246	Ongoing April 2025 to April 2028	Co-PI
3.	Centre of Advanced Research and Innovations in Assistive and Rehabilitative Technologies for the Elderly and Disabled Individuals	ICMR, GoI, New Delhi	1486.00	Ongoing 2025 to 2029	Team Member
4.	Multilevel Capacity Building and Skilling in Industry-Aligned Emerging Technologies	MeitY, New Delhi	700.03	Ongoing 2025 to 2028	Team Member
5.	Development of Medium Pressure Mercury UV Lamps (ILP-0026)	CSIR-CEERI, In-house Project	53.00	Completed June 2022- June 2024	PI
6.	Development of Cold Plasma Technologies (MLP-0119)	FBR Project, CSIR, New Delhi	158.00	Completed Sept. 2020-March 2023	PI
7.	Mercury free Far UV-C (222nm) Excimer Radiation Source for Inactivation of Pathogens (GAP-3332)	DST, GoI, New Delhi	69.05	Completed Feb. 2021-Feb. 2025	PI
8.	Development of High Power Thyratrons for Fast Switching Applications (MLP-0118)	FTT Project, CSIR, New Delhi	104.84	Completed August. 2020-Dec. 2022	PI
9.	Design Technologies for Pseudospark Discharge based High Power Plasma Switch and EUV/soft X-ray Source (GDA-0018)	CSIR YSA Project	25.00	Completed April2018-March2024	PI
10.	Development of Eco-friendly Plasma based 172 nm 20W VUV Excimer Source for Surface	CSIR Mission Project (IDEAL)	80.68	Completed Feb. 2021-March 2023	Co-PI

	Activation and Modification (HCP-0034, WP:1.6)				
11.	Design and Development of Dielectric Barrier Discharge based Micro-hollow Cathode Plasma Device Arrays & Other Characterization (GAP-3325)	SERB-DST, New Delhi	30.50	Completed Aug. 2018-Feb. 2022	Team Member
12.	Fabrication and Delivery of 35kV/3kA Thyatron for Line-type pulse modulator for Linear Accelerator (GAP-3320)	Grant-in-Aid BRNS, DAE, GOI	67.65	Completed April 2015-July 2017	PI
13.	Design and Development of Pseudospark Plasma Switch (PSS) and Plasma-Assisted Microwave Source "PASOTRON" (PSC0101(WP-06))	12th Five Year NW Project, CSIR	245.00	Completed Apr 2013-March 2017	PI
14.	Development of dielectric barrier discharge based plasma portable water purification	Grant-In-Aid DST, GOI	46.47	Completed Oct 2013-Sept. 2016	Co-PI
15.	Development of Plasma Based Efficient VUV/UV Excimer Sources for Societal & Industrial Applications (PSC0101(WP-12))	12th Five Year NW Project, CSIR	253.00	Completed Apr 2013-March 2017	Co-PI
16.	Study of bacteriological disinfection by VUV/UV excimer source (ILP-0011)	CSIR-CEERI & CSIR-NEERI Inter Lab Project, CSIR	35.00	Completed Dec 2011-Mach 2014	PI
17.	Design and Development of Penning Discharge Source for VUV spectrometer-detector system Calibration	Grant-In-Aid BRNST, DAE, GOI	102.32	Completed Jan 2012-Mach 2014	Co-PI
18.	Development of Efficient VUV/UV Excimer Sources & High Power Plasma Switch (NWP-24)	11th Five Year NW Project, CSIR	152.00	Completed Nov 2010- Sept 2012.	PI
19.	Design and technology development for plasma cathode electron gun (NWP-24)	11th Five Year NW Project, CSIR	34.50	Completed April 2007- Sept 2012.	PI
20.	Atmospheric Discharges as pulsed VUV-radiation sources for water purification	CSIR, India-DLR, Germany Coll.	~10.00	Completed Programme, 2006-09	Team Member
21.	Development of plasma devices technology for cold cathode plasma switches and dielectric barrier discharge based UV-VU sources	10th Five Year NW Project, CSIR,	159.00	Completed 2005-07	Team member

• **Deputation Abroad:**

S. N	From	To	Institute and country of visit	Purpose of visit
1.	15.06. 2025	24.06. 2025	IEEE Int. Conf. on Pulsed Power and Plasma Science (PPPS-2025), Berlin, Germany, and Institute of Plasma Physics (IPP), Prague, Czech Republic	To visit Institute of Plasma Physics (IPP), Prague, Czech Republic for scientific discussion and exploration of possible international research collaboration, and to attend and present papers in IEEE Int. Conf. PPPS-2025), Berlin, Germany.
2.	20.03. 2024	20.07. 2024	University of Strathclyde, Glasgow, UK	To visit University of Strathclyde, Glasgow under CSIR Raman Research Fellowship Program.
3.	19.06 2023	29.06. 2023	Plasma for Life Sciences Group and Food, Bioprocessing and Nutrition Sciences Group, NC State University (NCSU), Raleigh, USA, and IEEE Pulse Power Conference (PPC-2023), Texas US	To visit NCSU, Raleigh, USA for Scientific discussion and exploration of Scientific Collaboration, and to attend and present papers in IEEE Int. Conf. PPC-2023), Texas USA.
4.	20.06. 2019	2.07.2 019	IEEE Int. Conf. on Pulsed Power and Plasma Science (PPPS-2019), 23-28, June, 2019, Orlando, FL, USA.	To attend and present papers in IEEE Int. Conf. on Pulsed Power and Plasma Science (PPPS-2019), Orlando, FL, USA.
5.	06.07. 2018	22.07. 2018	University of Strathclyde, Glasgow, Scotland, U.K.	To visit University of Strathclyde, Glasgow, Scotland (U.K.) under Indian National Science Academy (INSA)-The Royal Society of Edinburgh (RSE) Exchange of Scientists Programme, and also to attend and present two papers in the 24 th Europhysics Conference on Atomic and Molecular Physics of Ionised Gases (ESCAMPIG-2018), University of Glasgow, Glasgow, Scotland
6.	03.03. 2018	11.03. 2018	Friedrich Alexander University, Erlangen Germany.	To attend and deliver an invited talk in the German Physical Society symposium on "Applications and New Trends of Plasmatechnology -An Overview", organized in association with German Physical Society Spring Meeting of the Atomic, Molecular, Plasma Physics Societies, Mass Spectrometry, and Quantum Physics and Optics at the University of Erlangen-Nuremberg.
7.	30.06.	12,0.2	University of	Exploring the scientific collaboration

	2012	012	Strathclyde, Glasgow, UK; and EICC, Edinburgh, U.K.	between CSIR-CEERI and University of Strathclyde, Glasgow, UK on high power plasma filled microwave sources; and to present three papers in 39 th IEEE International Conference on Plasma Science (ICOPS 2012)
8.	01.06.2008	30.0.2008	University of Frankfurt, Germany	Visited to participate in the experimental programme on DBD based VUV/UV sources under CSIR-DLR Collaborative Program
9.	15.06.2008	19.06.2008	University of Karlsruhe, Germany	To present a paper in the 35 th IEEE International Conference on Plasma Sciences (ICOPS-2008)
10.	01.07.2007	31.08.2007	University of Erlangen and University of Frankfurt, Germany	Visited to participate in the experimental programme on DBD at University of Erlangen under CSIR-DLR Collaborative Program.

- **Patents/Copyrights:**

1. B. L. Meena, **U. N. Pal**, R. P. Lamba, A. Mishra, M. Singh, A. Mishra, “A Process for Maintaining Optimum Gas Pressure for Improved Performance of Sealed-off High Power Plasma Switches”, **Indian Patent, Application No.: 202411043451, dated 04/06/2024.**
2. **U. N. Pal**, Mahendra Singh, R. P. Lamba, Alok Mishra, “A Portable and Multipurpose Apparatus for Cold Plasma Jet”, **Indian Patent, Application No.: 202311007988, dated 07/02/2023 (Ref. No.:0019NF2023).**
3. S. K. Ram, A. Ranjan, R. P. Lamba, and **U. N. Pal**, “Embedded software of PWM generation for highvoltage Bipolar pulsed power modulator” **Registered Indian Copyright; No.: 3 SW-18496/2024, dated 22 March, 2024.**
4. N. Kumar, **U. N. Pal**, D. K. Pal, H. Rahaman, R. Prakash, "A Novel Sheet-beam Plasma Cathode Electron (SPCE) Gun and its Beam Diagnostic using Innovative Dielectric Charging Technique" **Granted Indian Patent; Patent No.: 359771, dated 28 Feb., 2021.**
(Application No.: 2017/DEL/2014A; dated 17th July, 2014)
5. Ram Prakash, Pooja Gulati, **U. N. Pal**, et. al, “A novel dielectric barrier discharge (DBD) based portable UV/VUV source for water disinfection” **Granted Indian Patent; Patent No.: 475241, dated 30 Nov., 2023.**
(Application No., 797/DEL/2015 dated 23/3/2015)
6. R. P. Lamba, B. L. Meena, H. Rahaman, Niraj Kumar, **U. N. Pal** and Ram Prakash, “A 20 kV/20 kA Linear Aperture Radial Multichannel Pseudospark Switch (LARM-PSS) for High Current Applications” **Granted Indian Patent; Patent No.: 428490, dated 6 April 2023.**
(Application No.: 1220/DEL/2015 dated 1st May, 2015)

• **Journal Paper Publications:**

1. A. Mishra, S. Mishra, B. L. Meena, R. P. Lamba, and **U. N. Pal**, "Investigation of Switching Characteristics in Multigap Multiaperture Pseudospark Discharge Configuration", *IETE Journal of Research*, pp.1-10, 2025 (DOI: 10.1080/03772063.2025.2600565).
2. B. K. Verma, S. K. Ram, D. Singh, and **U. N. Pal**, "Comparative Analysis of HV Bipolar and Unipolar Drives for DBD-based 222 nm Excilamp," *IEEE Trans. Plasma Sci.*, vol. 54, no. 1, pp. 177-183, Dec. 2025 (DOI: 10.1109/TPS.2025.3641583).
3. P. Pal, **U. N. Pal**, S. Chakraborty, A. Mishra, B. N. Basu, S. Dutta, R. P. Lamba, and S. Maurya, "Microwave-induced cold plasma generation for societal applications" *Journal of Electromagnetic Waves and Applications*, pp. 1-26, 2025 (DOI:10.1080/09205071.2025.2593510).
4. S. K. Ram, B. Verma, P. Pal, A. Mishra, **U. N. Pal**, S. Mishra, and S. Devassy, "Experimental Analysis of HV-Bipolar Impulse Modulator with Variable Parameters of DBD-based Kr/Cl₂ Excilamps", *IEEE Trans. Plasma Sci.*, vol. 53, no. 12, pp. 3865-3873, Oct. 2025 (DOI: 10.1109/TPS.2025.3620012).
5. V. M. Desai, S. Dutta, K. Saoji, P. Pal, R. P. Lamba, **U. N. Pal**, A. Roy, and G. Singhvi, "Harnessing cold atmospheric plasma for skin cancer: a non-invasive breakthrough in plasma medicine", *Drug Discovery Today*, vol., 30 no.,11 pp., 104491-18, 2025 (DOI:10.1016/j.drudis.2025.104491).
6. S. Kaushik, D. Singh, S. Sharma, P. Pal, R. P. Lamba, **U. N. Pal**, S. K. Mourya, "Unveiling the Potential of Cold Plasma Treatment on Coconut Shell-Derived Electric Double Layer High-Performance Supercapacitors", *Surfaces and Interfaces*, 2025, 107705, (<https://doi.org/10.1016/j.surfin.2025.107705>).
7. N. K. Sharma, P. Pal, A. Mishra, M. Singh, R. P. Lamba, S. K. Ram, and **U. N. Pal**, "Investigation of Emission Characteristics of Dielectric Barrier Discharge-Based Kr/Cl₂ Excilamp at Different Operating Conditions," *Plasma Chem Plasma Process*, vol. 45, pp. 1465-1480, 2025. DOI: <https://doi.org/10.1007/s11090-025-10579-8>.
8. A. Mishra, B. L. Meena, R. P. Lamba, and U. N. Pal, "Process Investigation for Gas Pressure Maintenance in Sealed-off High Power Plasma Switches" *IETE Journal of Research*, pp. 1-9, 2025 (DOI: <https://doi.org/10.1080/03772063.2025.2506013>)
9. Priti Pal, H. Sehgal, M. Joshi, G. Arora, M. Simek, R. P. Lamba, S. Maurya, and **U. N. Pal**, "Advances in using non-thermal plasmas for healthier crop production: toward pesticide and chemical fertilizer-free agriculture," *Planta*, vol. 261, no. 109, 2025. DOI: 10.1007/s00425-025-04682-5.
10. A. Mishra, R. P. Lamba, B. L. Meena, A. R. Tillu, and U. N. Pal, "Analysis and implementation of the equivalent load circuit for switching performance of hot cathode plasma switch developed" *Indian Journal of Physics*, vol. 99, no. 6, pp. 2307-2315, 2024 (DOI: 10.1007/s12648-024-03448-1).
11. A. Mishra, B. L. Meena, R. P. Lamba, and **U. N. Pal**, "Performance Evaluation of Ferroelectric Trigger Unit for Multi-gap Multi-aperture Pseudospark Switch," *IEEE Trans. Plasma Sci.*, vol. 52, no. 9, pp. 4606-4612, Sept 2024 (DOI: 10.1109/TPS.2024.3458997).
12. S. K. Ram, B. K. Verma, V. K. Saini, R. P. Lamba, P. K. Das, S. K. Mishra, S. Devassy, and **U. N. Pal**, "Short-pulse Width High-Voltage Bipolar Impulse Generator for DBD-based 222 nm Excimer Source," *IEEE Trans. Plasma Sci.*, vol. 52, no. 6, pp. 2296-2303, June 2024 (DOI: 10.1109/TPS.2024.3432192).
13. B. K. Verma, S. K. Ram, V. K. Saini, **U. N. Pal**, and R. P. Lamba, "Implementation and Analysis of Unipolar High-voltage Pulse Modulator for 172 nm VUV Excilamp," *IEEE Trans. Plasma Sci.*, vol. 52, no. 7, pp. 2877-2884, July 2024 (DOI: 10.1109/TPS.2024.3433015).

14. P. Pal, **U. N. Pal**, V. Singh, N. K. Sharma, M. Singh, A. Mishra, S. Maurya, and R. P. Lamba, "Experimental Investigation for the Generation and Characterization of Plasma-Activated Water," *IEEE Trans. Plasma Sci.*, vol. 52, no. 6, pp. 2137-2143, Oct. 2024, DOI: 10.1109/TPS.2024.3434412.
15. S. Puri, S. K. Mandal, N. K. Sharma, P. Pal, R. P. Lamba, V. Miller, **U. N. Pal**, P.R. Deepa, "Biochemical evaluation of wound healing efficacy of cold plasma-conditioned media under different operational conditions" *J. Phys. D: Appl. Phys.*, vol. 57, no. 40, pp. 405201, 2024 (DOI: 10.1088/1361-6463/ad5c71).
16. Shikha Misra, Akhilesh Mishra, Alok Mishra, R. P. Lamba, and **U. N. Pal**, "Effect of Electrode Spacing in a Single-gap Multi-aperture Pseudospark Switch," *IEEE Trans. Electron Devices*, vol. 71, no. 4, pp. 2651-2655, 2024 (DOI: 10.1109/TED.2024.3364582).
17. Varun, A. Mishra, N. K. Sharma, R. P. Lamba, and **U. N. Pal**, "Development and characterization of pseudospark discharge based plasma cathode electron (PD-PCE) source for high density and energetic e-beam generation for pulsed power applications," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 479-485, 2023 (DOI: 10.54955/AJP.32.9-12.2023.479-485).
18. S. Bidawat, N. K. Sharma, R. P. Lamba, M. Singh, A. Mishra, Y. Choyal, and **U. N. Pal**, "Analysis and Characterization of Kr/Cl₂ based 222 nm Far UV-C Excimer Source," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 487-493, 2023, (DOI: 10.54955/AJP.32.9-12.2023.487-493).
19. P. Pal, V. Singh, N. K. Sharma, M. Singh, A. Mishra, S. Maurya, R. P. Lamba, and **U. N. Pal**, "Analysis of non-thermal atmospheric pressure plasma-source based plasma-activated water for agricultural application," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 495-502, 2023, (DOI: 10.54955/AJP.32.9-12.2023.495-502).
20. A. Mishra, S. Misra, Varun, B. L. Meena, A. Mishra, A. R. Tillu, R. P. Lamba, and **U. N. Pal**, "Development and switching characterization of high power pseudospark switch for fast pulsed power applications," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 503-508, 2023 (DOI: 10.54955/AJP.32.9-12.2023.503-508).
21. N. K. Sharma, P. Pal, M. Singh, V. Singh, R. Kumar, A. Mishra, R. P. Lamba, Y. Choyal, and **U. N. Pal**, "Development of cold atmospheric pressure plasma jet sources for biomedical application," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 511-517, 2023 (DOI: 10.54955/AJP.32.9-12.2023.511-517).
22. N. K. Sharma, Y. Choyal, **U. N. Pal**, and R. P. Lamba, "Simulation of high frequency short pulse excitation of co-axial xenon excimer source for generation of 172 nm radiation," *Asian Journal of Physics*, vol. 32, no. 6-12, pp. 519-523, 2023 (DOI: 10.54955/AJP.32.9-12.2023.519-523).
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• **Papers presented in International and National Conferences** : 175

(International Conferences: 60; National Conferences: > 115)

- **Books Chapters:** Two book chapters have been published in New India Publishing Agency, New Delhi (ISBN: 978-93-83305-33-9) and Applied Academic Press, USA (ISBN: 9781771881272), respectively.
- **Invited Talks and Session Chairs:** Delivered 23 invited talks/colloquium talks (in India:18 and Abroad:5). Chaired Sessions in Flagship Conferences (National:10 and International:05).

- **Member in organizational /national / international committees:**

Significantly contributed at different roles in different committees of the institute, societies, organizations, etc. Some of them are;

 - Member for Board of Studies (BoS) to review the Research Methodology and Research Ethics (RMRE), Academic year 2024-25, MNNIT, Prayagraj.
 - Ph.D.Thesis examiner DAVV Indore, Delhi University, Rajasthan Central University, etc.
 - Vice President, CSIR-CEERI Staff Club.
 - Chairman: Publication committee, Institute Manpower committee, Colony Welfare Committee, Dispensary committee, Animal Welfare Committee, Knowledge Resource Centre Advisory committee, Dispensary committee, Animal Welfare Committee, Knowledge Resource Centre Advisory committee, OB clearance, etc.
 - Member: Internal complaints committee for Sexual Harassment of women at workplace, Knowledge Resource Centre Advisory committee, राजभाषा कार्यान्वयन समिति
 - Actively executed the miscellaneous tasks assigned related to the projects and also assigned by the authority in the institute.

- **Contribution in Event Organization, Coordination and Responsibilities:**
 - Co-ordinator of Symposium on Microwave, mm-wave & beyond Technologies for Connected Future (μ mTCF-2025), October 13-15, 2025.
 - Chairman in one of the committee, and supported for the execution of National Conference on Emerging Trends in Vacuum Electronic Devices & Applications (VEDA-2024), 18-20, Nov. 2024.
 - Golden Reviewer of IEEE Trans. Electron Devices for the years 2022, 2023, 2024.
 - Involved as Lead Role for the preparation of Institute Road Map for the year 2017-2022.
 - Convener of One-day Scientific Meet on Plasma Assisted Devices (SMPAD-2010) on October 22, 2010.
 - Co-Convener of 2nd PSSI-Plasma Scholars' Colloquium (PSC-2013) & National Workshop on Plasma Devices Technology, July 22-24, 2013.
 - Manager of CEERI Vidya Mandir (CVM) Pilani, one of the best co- educational Sr. Sec. School affiliated to CBSE in Pilani.
 - Playing different roles in National professional societies, chapters and institutional societies.
 - Member Executive Committee of IEEE Rajasthan Sub-Section 2017-18.
 - Member of Executive committee of IETE, Pilani chapter.
 - Contributed for the organization of Technology awareness workshop on "Mercury-free plasma UV-lamp for efficient water disinfection" at CSIR-CEERI on 26th June 2015.Rajasthan Sub-Section 2017-18.

- **As Ph.D. Guide:** Currently supervising two PhD researchers and supervised five Ph.D. scholars.
- **As a Dissertation Guide:** Guided 26 M. Tech./MS students and 25 B. Tech. students for their project works.
- **GATE Exam:** Qualified with 98.62 percentile (AIR: 432) in 2003 and completed M. Tech. through GATE scholarship from IIT, BHU, Varanasi.

- **International Collaborations:**

1. Two Visits to University of Frankfurt/Erlangen, Germany to participate in the experimental programme on DBD based VUV/UV sources under CSIR-DLR Collaborative Program. Plays significant role in exploring the scientific collaboration between CSIR-CEERI and University of Strathclyde, Glasgow, UK on high power plasma filled microwave sources.
2. Visited to Plasma for Life Sciences Group and Food, Bioprocessing and Nutrition Sciences Group, NC State University (NCSU), Raleigh, USA, 19-23 June 2023 for scientific discussion and exploration of possible international research collaboration.
3. Visited University of Strathclyde, Glasgow under INSA, India – RSE, Scotland, Exchange of Scientists Programme, fellowship during 7-22, July 2018 and during 20 March- 20 July 2024 under CSIR Raman Research Fellowship.
4. Visited to Institute of Plasma Physics (IPP), Prague, Czech Republic, during 20-24 June 2025 for scientific discussion and exploration of possible international research collaboration.

(Udit Narayan Pal)