CV of Suchandan Pal

Suchandan Pal, Chief Scientist & Head, Semiconductor Sensors and Microsystems Group
Former Head, Opto-electronics & MOEMS Group & Project Monitoring and Evaluation Unit
CSIR-Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani – 333 031 (Rajasthan), India.
https://scholar.google.co.in/citations?user=5ysCGjMAAAAJ&hl=en

Contact Information
Residence address: Qr. No. C-05, CEERI Colony, Pilani – 333 031 (Rajasthan) India.
Ph: +91-1596 252272 (Office), 094131 50112 (m).
Fax: +91-1596 242294 (Office)
Email: spal@ceeri.res.in; suchandan2004@rediffmail.com ; suchandan.pal@gmail.com

Educational Background

2004 **Ph.D.**, (Commonwealth Scholarship and Fellowship Plan 2001), City University, London, UK.
Title of the thesis: "Characterisation and high-temperature sensing potential of fibre Bragg gratings in specialised optical fibre."

1994 **M.Tech.** (Radio Physics and Electronics), First class (1st position).
Institute of Radio Physics and Electronics, University of Calcutta, Calcutta, India.

1992 **B.Tech.** (Radio Physics and Electronics), First class.
Institute of Radio Physics and Electronics, University of Calcutta, Calcutta, India.

Work Experiences

Dec. 2018 – Till date	**Chief Scientist**, CSIR-CEERI, Pilani, India
Dec. 2013 – Dec. 2018	**Senior Principal Scientist**, CSIR-CEERI, Pilani, India
Dec. 2008 – Dec. 2013	**Principal Scientist**, CSIR-CEERI, Pilani, India.
Dec. 2004 – Dec. 2008	**Scientist – 'E-1'**, CEERI, Pilani – 333 031, India.
Dec, 2000 – Dec. 2004	**Scientist – 'C'**, CEERI, Pilani – 333 031, India.
Dec, 1995 – Dec, 2000	**Scientist – 'B'**, CEERI, Pilani – 333 031, India.
Oct, 1995 – Dec, 1995	**Research Associate**, Deptt. of Electronics, Govt. of India, New Delhi, India.
Aug, 1995 – Oct, 1995	**Senior Research Fellow,** IRPE, University of Calcutta, Calcutta, India.

Subject of special interest

- Design, fabrication and characterization of AlGaN based UV-LEDs
- Design, fabrication and characterization of GaN-InGaN based blue & white LEDs and solar cells
- Photonic crystal based structures and devices on Silicon-on-Insulator material
- Design, fabrication and characterization of various integrated-optic passive photonics devices and components like optical power splitter, AWG-based MUX/DEMUX
- Waveguides and long-period waveguide gratings on Silica-on-silicon and polymer based materials and their applications
- Fibre Bragg Gratings (FBGs) and FBG-based system for sensing and communications

Research Grants: Project-leader / Project-Investigator (PI)/Co-PI of Projects

1. "Indigenous Development of Technologies for Advanced Devices and Laboratory Instruments (IDEAL)" Mission-mode *Project* (Feb. 2021 – Mar. 2024), CSIR, New Delhi: Coordinator (since Aug. 2022)

2. "*Development of UV LEDs on to sapphire substrates*" activity under "Development of III-nitride white and UV LED technology for green energy and societal impact" (September 2017 – October 2020), Office of the Principal Scientific Advisor to the Government of India, New Delhi: PI
3. "*Development of GaN based high brightness LEDs for solid state lighting applications*" *a TAP-SUN Project* (October 2011 – March 2017), CSIR, New Delhi: PI
4. "*Nano-structured integrated-optic platform for bio-chemical sensing" an activity under R-Nano Project* (April 2012 – March 2017), CSIR, New Delhi: PI
5. "*Novel GaN/InGaN solar cells grown by MOCVD*" activity under D-NEED Project (April 2012 – March 2017), CSIR, New Delhi: Co-PI
6. "*Fabrication of LED devices and systems for solid state lighting applications"* (April 2007 – March 2012), CSIR, New Delhi: Co-PI
7. "*Long-period waveguide grating (LPWG)-based integrated-optic wide-band tunable notch filter using silica-on-silicon*" (April 2006 – March 2009), Photonics Development Division, DIT, MCIT, New Delhi: PI
8. "*Prototype development of polymer waveguide based optical power splitter*" (October 2006 – December 2008), PDD, DIT, MCIT, New Delhi through BITS, Pilani: PI

Technology Developed

- Techniques of writing Dual-wavelength FBGs using excimer laser
- Technique for simultaneous measurement of strain and wide range of temperature
- Design and fabrication of silica-on-silicon based optical splitter, AWG-based MUX/DEMUX and SU-8 polymer based optical splitter, long-period waveguide gratings
- Design and fabrication of GaN/InGaN-based Blue LEDs and phosphor-coated white LEDs
- Design and fabrication of AlGaN-based flip-chip UV LEDs

Students Supervised: 34
[PhD (Completed): 6, PhD (On-going): 1, MTech: 18, BTech: 3, MSc: 8, MCA: 1]

Research Publication: 152
(International Journal: 68, National Journal: 2, International Conference: 67, National Conference: 15)

Professional Society Membership

2020, 2021	Member, **Senior Member**, Institute of Electrical and Electronics Engineers (IEEE).
2014	**Fellow**, Institute of Engineers (IE-India)
2014	Member (Life), Semiconductor Society of India (SSI).
2005	**Fellow** (Life), Optical Society of India (OSI).
2003 – 2013	Member, Institute of Physics (IoP), UK.
1997	Member (Life), Indian Physics Association (IPA), India.
1996, 2009	Associate Member, **Fellow** (Life), Inst. Electronics & Telecom. Engineers (IETE), India.

Awards and achievements

- **IETE-CEOT (94) Award Biennial** (2022), 25th Sept. 2022.
- **Marquis Who's Who *in the World*** (USA), 26th Edition (Nov. 2008).
- **Marquis Who's Who *in Science and Engineering*** (USA), 10th Edition (2008 – 2009) 2007, 11th Edition (2011-12), 2010, 12th Edition (2016-17).
- **Best paper** (poster) award in **IWPSD-2017** Conference, IIT-Delhi, India, 2017.
- **SPIE Best paper** (Poster) award in **Photonics-2014** Conference, IIT-Kharagpur, India, 2014.
- **Best paper** (Poster) award in Photon04 Conference, Glasgow, UK, 2004.
- **Scientific Instrument Makers Postgraduate Bursary Prize** (WCSIM, UK, 2002).
- **Commonwealth Scholarship** for doing PhD in the UK (Oct. 2001 – Sept. 2004).
- **Paresh Lal Dhar Bhowmick Award** (1995) for achieving 1st position in M.Tech.

- **National Scholarship** by University Grant Commission (UGC) (Dec. 1989 – Nov. 1992).

Reviewer of

IEEE Photonics Technology Letters, *Optical Engineering, Review of Scientific Instruments, IEEE Sensors*, *Optics Express, Journal of Modern Optics, Advances in Opto-Electronics, Journal of Optics, Journal of Optics and Laser Technology, Sensors and Actuators A: Physical, Journal of Applied Physics, RSC Advances.*

Administrative & Scientific Community Activity

- **Head, Semiconductor Sensors and Microsystems Group**, July, 2022 - .
- **Head, Optoelectronics & MOEMS Group**, Dec. 2015 – Aug. 2020.
- **Head, Project Monitoring and Evaluation Unit,** CSIR-CEERI, Sept. 2020 – July 2022.
- **Coordinator,** Academy of Scientific and Innovative Research (**AcSIR**) at CSIR-CEERI, April, 2017 – April 2020.
- **Coordinator, JIGYASA** programme at CSIR-CEERI, July, 2017 – Oct. 2018.
- **Head, Facility Management Group,** CSIR-CEERI, Dec. 2018 – Aug. 2020.
- **Chairman, Safety Cte.,** CSIR-CEERI, Jan. 2019 -
- **Member**, Management Council of CEERI, Pilani, India, 2007 – 2009.
- **Purchase Committee**, CEERI, Pilani, Alternate Member (2009 – 2011), **Alternate Chairman** (2019 -).
- **Member**, Knowledge Resource Centre (Library & Publication Cte), CEERI, Pilani, 2008 – 2011, 2016 – 2019.
- **Member,** KRC Advisory Cte, CEERI, Pilani, 2010 – 2013, 2016 – 2019.
- **Secretary** (Honorary), CEERI Educational Society (**CES**), Sept. 2013 – Sept. 2017.
- **Vice President**, CEERI Educational Society (**CES**), Oct. 2017 - .
- **Vice President**, Semiconductor Society of India (**SSI**), Pilani Chapter, 2017 - .

Other Information

- Member, Technical Advisory Committee, *Indo-UK Workshop on Recent advances in fiber optics and photonics* (RAFOP 06), Aug. 25 – 27, 2006, IIT Roorkee, India.
- Session Chair, Technical session, XXXIII Optical Society of India Symposium on Optics and Optoelectronics, December 18 – 20, 2007, Tezpur University, Napaam, India.
- Member, Technical Committee (Fibre Optics, Fibres, Cables and Devices), *Bureau of Indian Standard*. 2007 – .
- Member, Local Advisory Committee, *National Seminar on Photonic Polymers: Materials, Devices and Applications* (PPMDA), April 3 – 4, 2008, BITS, Pilani, India.
- Session Chair, Technical session of Photonics & Reviewer, *IEEE Conference* (Microwave-08), 21 – 24 November, 2008, Jaipur, India.
- Member, National Organizing Committee, *International Conference on Optics and Photonics* (ICOP – 2009), Oct. 30 – Nov. 1, 2009, CSIO, Chandigarh, India.
- Member, Executive Council, IETE Pilani Center, 2009 - 2012.
- Member, Technical Programme Committee, National Conference on Communications (NCC 2010, NCC 2011).
- Member, National Advisory Committee, National Conference & Workshop on Recent Advances in Modern Communication systems and Nano-technology (NCMCN-2011), Jan. 6 – 8, 2011, University of Rajasthan, Jaipur, India.
- Member, Advisory Committee, International Conference on Communication and Electronics System Design (ICCESD-2013), Jan 28 – 30, 2013, Malaviya National Institute of Technology, Jaipur, India.
- Member, International Advisory Committee, International conference on optical and wireless technologies (OWT-2017), March 18-19, 2017.
- Member, National Advisory Committee, 3rd International Conference on Microwave and Photonics (ICMAP-2018), 9 – 11 Feb., 2018, IIT-ISM, Dhanbad, India.
- Member, National Steering Committee, International Conference of Fiber Optics and Photonics (Photonics-2018) at IIT-Delhi, 12 -15 Dec., 2018.

- Session Chair, Technical session, International Conference of Fiber Optics and Photonics (Photonics-2018) at IIT-Delhi, 12 -15 Dec., 2018.
- Co-Chair, Technical Sub-committee, 1st Indian Materials Conclave and 30th AGM of MRSI at IISc-Bangalore, 12 – 15 Feb., 2019.
- Member, National Advisory Cte., International Conference on Optomechatronic Technologies (ISOT-2019) at Goa, India,11 – 13 Nov., 2019.
- Member, Program Cte., International Conference on Computers and Devices for Communication (CODEC-2019) at IRPE, Kolkata, 19 – 20 Dec., 2019.
- Session Chair, Technical session, 5th IEEE International Conference on Emerging Electronics (IEEE-ICEE-2020) hosted by IIT-Delhi (through Virtual mode), 26 -28 Nov., 2020.

Selected Publications (Journal)

1. **Suchandan Pal,** Jharna Mandal, Tong Sun and Kenneth T. V. Grattan, "*Analysis of thermal decay and prediction of operational lifetime for a type I boron-germanium codoped fiber Bragg grating*," Journal of **Applied Optics**, (Optical Society of America), Vol. 42, No. 12, pp. 2188 – 2197, April, 2003.
2. **S. Pal**, J. Mandal, T. Sun, K. T. V. Grattan, M. A. Fokine, F. Carlsson, P. Y. Fonjollaz, S. A. Wade and S. F. Collins, "*Characteristics of potential fibre Bragg grating sensor-based devices at elevated temperatures*," Journal of **Measurement Science and Technology,** (Institute of Physics, UK), Vol.-14, No.- 7, pp. 1131-1136, July, 2003.
3. **Suchandan Pal**, Tong Sun, Kenneth T.V. Grattan, Scott A. Wade, Stephen F. Collins, Gregory W. Baxter, Bernard Dussardier and Gerard Monnom*, "Bragg grating performance in Er-Sn-doped germanosilicate fiber for simultaneous measurement of wide range temperature (to 500 ℃) and strain,*" **Review of Scientific Instruments** Journal, (American Institute of Physics), Vol. 74, No. 11, pp. 4858-4862, November, 2003.
4. Jharna Mandal, **Suchandan Pal**, T Sun, Kenneth T V Grattan, Andreas T Augousti and Scott A Wade, "*Bragg grating-based fibre optic laser probe for temperature sensor,"* **IEEE Photonics Technology Letters** Journal, Vol. 16, No. 1, pp. 218-220, January, 2004.
5. **Suchandan Pal**, Tong Sun, Kenneth T.V. Grattan, Scott A. Wade, Stephen F. Collins, Gregory W. Baxter, Bernard Dussardier and Gerard Monnom*, "Non-linear temperature dependence of Bragg gratings written in different fibres, optimised for sensor applications over a wide range of temperatures,"* **Sensors and Actuators A: Physical** Journal (Elsevier), Vol. 112, Issue 2-3, pp. 211-219, May, 2004.
6. **Suchandan Pal**, Tong Sun, Kenneth T.V. Grattan, Scott A. Wade, Stephen F. Collins, Gregory W. Baxter, Bernard Dussardier and Gerard Monnom*, "Strain-independent temperature measurement using a type-I and type-IIA optical fiber Bragg grating combination,"* **Review of Scientific Instruments** Journal, (American Institute of Physics), Vol. 75, No. 5, pp. 1327-1331, May, 2004.
7. Y. H. Shen, **S. Pal**, J. Mandal, T. Sun, K. T. V. Grattan, S. A. Wade, S. F. Collins, G. W. Baxter, B. Dussardier and G. Monnom, "*Investigation of the photosensitivity, temperature sustainability and fluorescence characteristics of several Er-doped photosensitive fibers*," **Optics Communications** Journal (Elsevier), Vol. 237, Issue 4-6, pp. 301-308, July, 2004.
8. **Suchandan Pal**, Tong Sun, Kenneth T.V. Grattan, Scott A. Wade, Stephen F. Collins, Gregory W. Baxter, Bernard Dussardier and Gerard Monnom*, "Bragg gratings written in Sn-Er-Ge codoped fiber: investigation of photosensitivity, thermal sensitivity and sensing potential,"* **Journal of Optical Society of America A,** Vol. 21, Issue 8, pp. 1503-1511, August, 2004.
9. Jharna Mandal, Yonghang Shen, **Suchandan Pal**, Tong Sun, Kenneth T.V. Grattan and Andreas T. Augousti, "*Bragg grating tuned fiber laser system for measurement of wider range temperature and strain*," **Optics Communications** Journal (Elsevier), Vol. 244, Issue 1-6, pp. 111-121, January, 2005.
10. **Suchandan Pal**, Yonghang Shen, Jharna Mandal, Tong Sun and Kenneth T. V. Grattan, "*Simultaneous measurement of strain (to 2000$\mu\varepsilon$) and temperature (to 600℃) using a combined Sb-Er-Ge codoped fiber-fluorescence and grating-based technique*," **IEEE Sensors** Journal, Vol. 5, No. 6, pp. 1462-1468, December, 2005.
11. **Suchandan Pal**, "*Characterization of thermal (in)stability and temperature-dependence of type-I and type-IIA Bragg gratings written in B-Ge co-doped fiber*," **Optics Communications** Journal (Elsevier), Vol. 262, Issue 1, pp. 68-76, June, 2006.
12. **Suchandan Pal** and Babu Ram Singh, "*Analysis and design of corrugated long-period gratings in silica-on-silicon planar waveguides,*" **IEEE Journal of Lightwave Technology** (IEEE/ OSA), Vol. 25, No. 8, pp. 2260-2267, August, 2007.
13. Bikash Dev Choudhury, **Suchandan Pal** and Babu Ram Singh, "*Optimal design of silica-based temperature-insensitive long-period waveguide gratings for realization of athermal refractive-index sensor*," **Sensors and Actuators A: Physical** Journal (Elsevier), Vol. 141, Issue 2, pp. 328 – 333, February, 2008.

14. **Suchandan Pal**, Ashok Chauhan, Mahendra Singh, Pawan Kumar, Mukesh Sharma, Nirmal Pradhan, Kuldip Singh, and C Dhanavantri, "*Realization of long-period corrugated grating in silica-on-silicon based channel waveguide*," **IEEE Photonics Technology Letters** Journal (IEEE), Vol. 21, No. 20, pp. 1490 – 1492, October, 2009.
15. **Suchandan Pal**, Ashok Chauhan, Mahendra Singh, Pawan Kumar, Mukesh Sharma, Nirmal Pradhan, Kuldip Singh, and C Dhanavantri, "*Comments and Corrections:* Corrections to *Realization of long-period corrugated grating in silica-on-silicon based channel waveguide*," **IEEE Photonics Technology Letters** Journal (IEEE), Vol. 21, No. 21, pp. 1648, November, 2009.
16. **Suchandan Pal**, Ashok Chauhan, Pawan Kumar, Mahendra Singh, Sona Das, Mukesh Sharma, Nirmal Pradhan, Kuldip Singh, Subodh Johri, C Dhanavantri, Anuj Bhatnagar and Babu Ram Singh, "*Fabrication and performance-analysis of planar silica-based cascaded symmetric Y-branch 1x8 optical power splitter*," **Journal of Optics** (Springer-India), Vol. 38, No. 3, pp. 149 – 159, 2009.
17. Sona Das and **Suchandan Pal**, "*A simple silica-on-silicon technology-compatible design of 1×8 optical splitter based on field matching Y-branch with S-bend sine taper and arc waveguide,*" **Journal of Optics** (Springer-India), Vol. 38, No. 3, pp. 177 – 190, 2009.
18. NK Rohila, S Singh, **S Pal** and C Dhanavantri, "*Effect of two n-blocking layers on internal quantum efficiency droop of InGaN/GaN multi-quantum well blue light-emitting diode*," **Journal of Optoelectronics and Advanced Materials**, Vol. 12, Issue 6, pp. 1286 – 1288, June 2010.
19. S Singh, D Robidas, NK Rohila, **S Pal** and C Dhanavantri, "*Effect of electron blocking layer on efficiency droop in blue InGaN/GaN based light emitting diodes*," **Optoelectronics and Advanced Materials- Rapid Communications**, Vol. 4, Issue 8, pp. 1106 – 1110, August 2010.
20. D Robidas, S Singh, **S Pal** and C Dhanavantri, "*Study of current crowding effect in different LED die structures*," **Optoelectronics and Advanced Materials- Rapid Communications**, Vol. 4, Issue 10, pp. 1461 – 1464, October 2010.
21. Rahul Singhal, M N Satyanarayan and **Suchandan Pal**, "*Effect of residual resist on performance of single mode 1×4 optical splitter in photosensitive polymer*," **Journal of Fiber and Integrated Optics** (Taylor & Francis, UK), Vol.29, Issue 6, pp. 480 – 490, November 2010.
22. D Robidas, S Singh, N Rohila, **S Pal** and C Dhanavantri, "*Improved light extraction efficiency of InGaN/GaN blue LED by patterning free surfaces,*" **Proc. SPIE**, Vol. 8173, pp. 81731B-1 – 81731B-7, August 2011.
23. Rahul Singhal, M N Satyanarayan and **Suchandan Pal**, "*Fabrication of monomode channel waveguides in photosensitive polymer on optical adhesive,*" **Journal of Optical Engineering** (SPIE), Vol. 50, Issue 9, pp. 094601-1 – 094601-3, September 2011.
24. S Singh, N Rohila, **S Pal** and C Dhanavantri, "*Optimization towards reduction of efficiency droop in blue GaN/InGaN based light emitting diodes,*" **Optik** (Elsevier), Vol. 123, Issue 14, pp. 1287 – 1292, July 2012.
25. Rahul Singhal, M N Satyanarayan and **Suchandan Pal**, "*Fabrication of single-mode Y-branch waveguides in photosensitive polymer with reduced Y-junction residue,*" **Optik** (Elsevier), Vol. 123, Issue 21, pp. 1911 – 1914, Nov. 2012.
26. Saroj Kanta Patra, Sonachand Adhikari and **Suchandan Pal**, "*Design and analysis of "Chess board" like Photonic Crystal Structure for Improved Light Extraction in GaN/InGaN LEDs*," **IEEE/ OSA Journal of Display Technology**, Vol. 9, No. 5, pp. 339 – 345, May 2013.
27. Mukesh Sharma and **Suchandan Pal**, "*Design and Analysis of Nano-deep Corrugated Waveguide Grating-based Dual-resonant Filters in Visible and Infra-red Regions*," **Optik -** International Journal for Light and Electron Optics (Elsevier), Vol. 124, Issue 18, pp. 3562 – 3566, Sept. 2013.
28. Hemant sankar Dutta and **Suchandan Pal**, "*Design of highly sensitive photonic crystal waveguide platform for refractive index based biosensing*," Journal of **Optical and Quantum Electronics (Springer),** Vol. 45, No. 9, pp. 907 – 917, Sept. 2013.
29. Ashok Kumar Lunia, Saroj Kanta Patra, Sandeep Kumar, Sumitra Singh, **Suchandan Pal** and C Dhanavantri, "*Theoretical analysis of blue to white down conversion for light emitting diode light with yttrium aluminum garnet phosphor,"* **Journal of Photonics for Energy (SPIE),** Vol. 4 (1), pp. 043596-1 – 043596-11, May 2014.
30. Saroj Kanta Patra, Sonachand Adhikari and **Suchandan Pal**, "*Investigation on bandgap, diffraction, interference, and refraction effects of photonic crystal structure in GaN/InGaN LEDs for light extraction*," Journal of **Applied Optics (Optical Society of America)**, Vol. 53, No. 18, pp. 3890 – 3896, 20 June 2014.
31. Hemant sankar Dutta, Amit Kumar Goyal and **Suchandan Pal**, "*Sensitivity enhancement in photonic crystal waveguide platform for refractive index sensing applications*," Journal of Nanophoto**nics (SPIE),** Vol. 8 (1), pp. 083088-1 – 083088-6, June 2014.
32. Sandeep Kumar, Sumitra Singh, Ashok Kumar Lunia, **Suchandan Pal** and C Dhanavantri, "*Optimization of n-electrode pattern for p-side down vertical InGaN/GaN blue light emitting diodes,"* **Physica Status Solidi A** (WILEY VCH), Vol. 211, No. 9, pp. 2134 – 2141, Sept. 2014.

33. Sonachand Adhikari, Saroj Kanta Patra, Ashok Lunia, Sandeep Kumar, Priyavart Parjapat, Bhoopendra Kushwaha, Pawan Kumar, Sumitra Singh, Ashok Chauhan, Kuldip Singh, **Suchandan Pal**, C. Dhanavantri, "*Growth and Fabrication of GaN/InGaN Violet Light Emitting Diode on Patterned Sapphire Substrate*", Journal of Applied Mathematics and Physics (JAMP: Scientific Research), Vol. 2, pp. 1113 – 1117, Nov. 2014.
34. Amit Kumar Goyal and **Suchandan Pal**, "*Design and simulation of high sensitive photonic crystal waveguide sensor*," **Optik -** International Journal for Light and Electron Optics (Elsevier), Vol. 126, Issue 2, pp. 240 – 243, Jan. 2015.
35. Amit Kumar Goyal and **Suchandan Pal**, "*Design and simulation of high-sensitive gas sensor using ring-shaped photonic crystal waveguide*," **Physica Scripta** (IOP Publishing: Royal Swedish Academy of Science), Vol. 90, No. 2, pp. 025503-1 – 025503-5, Feb. 2015.
36. Shivani Palakurthy, Sumitra Singh, **Suchandan Pal** and C Dhanavantri, "*Design and comparative study of lateral and vertical LEDs with graphene as current spreading layer, "* **J. Superlattices and Microstructures (Elsevier)**, Vol. 86, pp. 86 – 94, October 2015.
37. Kuldip Singh, Ashok Chauhan, Manish Mathew, Amit Ranghera, Sonachand Adhikari, **Suchandan Pal** and C. Dhanavantri, "*Removal of Sapphire Substrate for Fabrication of InGaN/GaN MQWs Vertical Blue Light-Emitting Diodes Using Laser Lift-Off Technique*," **International Journal of Innovative Science Engineering and Technology (IJISET),** Vol.2, Issue 10, pp. 173-176, October 2015.
38. Rubina Get, Sumitra Singh, Amit Goyal, Sandeep Kumar, Ashok Lunia, **Suchandan Pal** and C Dhanavantri, "*Enhancement of light extraction efficiency in InGaN/GaN vertical blue light emitting diodes by surface patterning: Design and simulation*," **Optik -** International Journal for Light and Electron Optics (Elsevier), Vol. 126, Issue 21, pp. 3004 – 3006, Nov. 2015.
39. Vikas Pendem, Sonachand Adhikari, Manish Mathew, Sumitra Singh, and **Suchandan Pal**, "*Droop-multimode trade-off in GaN-InGaN LEDs: Effect of polarization-matched AlInGaN blocking layers,*" **J. Superlattices and Microstructures (Elsevier)**, Vol. 88, pp. 344 – 353, December 2015.
40. Sumitra Singh, A Deepthi Sai Nandini, **Suchandan Pal** and C Dhanavantri, "*Enhancement of light extraction efficiency of vertical LED with patterned graphene as current spreading layer, "* **J. Superlattices and Microstructures (Elsevier)**, Vol. 89, pp. 89 – 96, January 2016. DOI: 10.1016/j.spmi.2015.11.007 [IF: 2.097].
41. Hemant Sankar Dutta, Amit Kumar Goyal Varun Srivastava, and **Suchandan Pal**, "*Coupling light in photonic crystal waveguides: A review*" **Photonics and Nanostructures – Fundamentals and Applications** (**Elsevier**), Vol. 20, pp. 41 – 58, July 2016.
42. Sumitra Singh, Pranav Utpalla, **Suchandan Pal** and C Dhanavantri, "*Comparative performance analysis of InGaN/GaN multi-quantum-well light-emitting diodes with p- and n-type step doped barriers*" **J Computational Electronics** (**Springer**), Vol. 15, Issue 3, pp. 1040 – 1045, Sept. 2016.
43. Pramila Mahala, Sumitra Singh, **Suchandan Pal**, Kuldip Singh, Ashok Chauhan, Pawan Kumar, Priyavart Parjapat, Bhoopendra Kushwaha, Abhijit Ray, Omkar Jani and C Dhanavantri, "*Fabrication and characterization of GaN/InGaN MQW solar cells*", **J Applied Physics A** (**springer**), Vol. 122, Issue 7, pp. 639-1 – 639-6, July 2016.
44. Amit Kumar Goyal, Hemant Sankar Dutta and **Suchandan Pal**, "*Performance optimization of photonic crystal resonator based sensor*" Journal of **Optical and Quantum Electronics (Springer),** Vol. 48, Issue 9, Article 431, pp. 431-1 – 431-11, Sept. 2016.
45. Amit Kumar Goyal, Hemant Sankar Dutta, Sumitra Singh, Mandeep Kaur, Sudhir Husale and **Suchandan Pal**, "Realization of large-scale photonic crystal cavity-based devices" Journal of **Micro/Nanolithography, MEMS, and MOEMS (SPIE),** Vol. 15, Issue 3, pp. 031608-1 – 031608-5, July – Sept. 2016.
46. Hemant Sankar Dutta, Amit Kumar Goyal and **Suchandan Pal**, "Analysis of dispersion diagram for high performance refractive index sensor based on photonic crystal waveguides", **Photonics and Nanostructures – Fundamentals and Applications** (**Elsevier**), Vol. 23, pp. 21 – 27, July 2016.
47. Amit Kumar Goyal, Hemant Sankar Dutta and **Suchandan Pal**, "*Recent advances and progress in photonic crystal based gas sensor*" **Journal of Physics D: Applied Physics (IoP Science)**, V. 50, 203001 (16 pp), May 2017. [IF: 2.588].
48. Basant Saini, Sonachand Adhikari, **Suchandan Pal** and Avinashi Kapoor, "*Polarization compensation at low p-GaN doping density in InGaN/GaN p-i-n solar cells: effect of InGaN interlayers*" **J. Superlattices and Microstructures (Elsevier)**, Vol. 107, pp. 127 – 135, July 2017. [IF: 2.123].
49. Sumitra Singh, Sandeep Kumar, **Suchandan Pal** and C Dhanavantri, "*Performances of p-side down vertical InGaN/GaN blue light-emitting diodes with chip size*" **J. Optics and Laser Technology** (**Elsevier**), Vol. 95, pp. 165 – 171, Oct. 2017. [IF: 1.879]
50. Ramit Kumar Mondal, Vijay Chatterjee, Sumitra Singh, Sk Masiul Islam and **Suchandan Pal**, "*Optimization of structure parameters for highly efficient AlGaN based deep ultraviolet light emitting diodes*", **J. Superlattices and Microstructures** (**Elsevier**), Vol. 112, pp. 339 – 352, Dec. 2017. [IF: 2.123].

51. Sumitra Singh, Pramila Mahala and **Suchandan Pa**l, "*Design and comparative study of vertical with graphene, ITO and Ni/Au as contact/ current spreading layer*" **J. Materials Research Express** (**IoP Science**), Vol. 5, No. 1, pp. 016303 (1 – 10), Jan. 2018. [IF: 1.068]
52. Amit Kumar Goyal, Hemant Sankar Dutta and **Suchandan Pal**, "*Porous photonic crystal structures for sensing applications*" **Journal of Nanophotonics (SPIE),** Vol. 12 (4), pp. 040501-1 – 040501-7, Dec. 2018. DOI: 10.1117/1.JNP.12.040501. [IF: 1.302]
53. Shivesh Anand, Pramila Mahala, Sumitra Singh, and **Suchandan Pal**, "*Reduction of efficiency droop in GaN/InGaN based multiple quantum well light emitting diode by varying Si-doping and thickness in barrier layers*" **J. Optik** (**Elsevier**), Vol. 178, 645 – 649, Feb. 2019. DOI: 10.1016/j.ijleo.2018.09.151. [IF: 1.191]
54. Ramit Kumar Mondal, Vijay Chatterjee and **Suchandan Pal**, "*Effect of step-graded superlattice electron blocking layer on performance of AlGaN based deep-UV light emitting diodes*", **J. Physica E: Low Dimension Systems and Nanostructures (Elsevier),** Vol. 108, pp. 233 – 237, Apr. 2019. DOI:10.1016/j.physe.2018.11.022 [IF: 3.176]
55. Basant Saini, Sugandha Sharma, Ravinder Kaur, Suchandan Pal and Avinashi Kapoor, "Theoretical study of the effect of polarization matching layers on the Shockley-Read-Hall recombination-induced dark current density in InGaN/GaN heterostructure solar cells", **J. Computational Electronics (Springer)**, Vol. 18, pp. 569 – 575, Apr. 2019. DOI 10.1007/s10825-019-01333-3 [IF: 1.637]
56. Vipul Pandey and **Suchandan Pal**, "*Investigating the performance of metal-assisted guided mode resonance based structures for biosensing applications*", **J. IEEE Sensors**, Vol. 19, Issue 12, pp. 4412 – 4418, June 2019. DOI: 10.1109/JSEN.2019.2901217 [IF: 2.617]
57. Suraj Prasad, Ramit Kumar Mondal, Vijay Chatterjee and **Suchandan Pal**, "*Double-side step-graded AlGaN electron blocking layer for nearly droop-free GaN-based blue LEDs",* **J. Superlattices and Microstructures** (**Elsevier**), Vol. 132, pp. 106167-1 – 106167-6, August. 2019. [IF: 2.385].
58. D Banerjee, O Vizuete, H Ranjan, **S Pal** and Z B Zhang, "*The control of thermal conductivity through coherent and incoherent phonon scattering in 2-dimensional phononic crystals by incorporating elements of self-similarity*", **Applied Physics Letters (American Institute of Physics)**, Vol. 115, Issue 21, pp. 213903-1 – 231903-5, Nov. 2019. DOI: doi.org/10.1063/1.5123311 [IF: 3.521]
59. Ramit Kumar Mondal, Vijay Chatterjee and **Suchandan Pal**, "*Efficient carrier transport for AlGaN-based deep-UV LEDs with graded superlattice p-AlGaN*", **J. IEEE Transactions on Electron Devices,** Vol. 67, No. 4, pp. 1674 – 1679, Apr. 2020. DOI:10.1109/TED.2020.2974408 [IF: 2.704]
60. Ramit Kumar Mondal, Vijay Chatterjee, Suraj Prasad and **Suchandan Pal**, "*Suppression of efficiency droop in AlGaN based deep UV LEDs using double side graded electron blocking layer*", **J. Semiconductor Science and Technology (IOP Publishing),** Vol. 35, pp. 055031-1 – 055031-8, Apr. 2020. DOI:10.1088/1361-6641/ab7ce6 [IF: 2.605]
61. Ramit Kumar Mondal, Vijay Chatterjee and **Suchandan Pal**, "*AlInGaN-based superlattice p-region for improvement of performance of deep UV LEDs*", **J. Optical Materials (Elsevier),** Vol. 104, pp. 109846-1 – 109846-6, June 2020. doi.org/10.1016/j.optmat.2020.109846 [IF: 2.687]
62. Ramit Kumar Mondal, Vijay Chatterjee and **Suchandan Pal**, "*Correlation between performance and compositional grading in quantum well of deep UV-LED*", **Optik - International Journal for Light and Electron Optics (Elsevier)**, Vol. 210, Article 164510, pp. 164510-1 – 164510-8, May 2020. DOI: 10.1016/ j.ijleo.2020.164510. [IF: 2.187]
63. Amit Kumar Goyal and **Suchandan Pal**, "Design analysis of Bloch surface wave based sensor for haemoglobin concentration measurement", J. Applied Nanoscience (Springer), Vol. 10, Issue 9, pp. 3639 – 3647, September 2020. doi.org/10.1007/s13204-020-01437-4. [IF: 3.198]
64. Vipul Pandey and **Suchandan Pal**, "*Optimization of two-dimensional metal-assisted guided mode resonance based structures for sensing applications in the visible region*", **J. Photonic and Nanostructures – Fundamentals and Applications**, Vol. 43, pp. 100901-1 – 100901-7, February 2021. DOI: 10.1016/j.photonics.2021.100901 [IF: 2.453]
65. Ramit K Mondal, Vipul Pandey, Vijay Chatterjee and **Suchandan Pal**, "*Light Extraction Efficiency Improvement through Double Sided Periodic Photonic Structures for Deep UV Light Emitting Diodes*", Journal of **Optical and Quantum Electronics (Springer),** Vol. 53, Issue 4, Article No. 190, April 2021. DOI: doi.org/10.1007/s11082-021-02840-z [IF: 1.842]
66. Ramit K Mondal, Vijay Chatterjee and **Suchandan Pal**, "*Hole-Transport in Ultraviolet Light Emitting Diode via p-type Injection Channel*", **J. IEEE Transactions on Electron Devices,** Vol. 68, Issue 5, pp. 2320 – 2325, May 2021**.** DOI**:** 10.1109/TED.2021.3064784 [IF: 2.913]
67. Ramit K Mondal, Sonachand Adhikari, Vijay Chatterjee and **Suchandan Pal**, "*Recent Advances and Challenges in AlGaN-based Ultra-violet Light Emitting Diode Technologies*", **J. Material Research Bulletin** (**Elsevier**), Vol. 140, Article No. 111258, August 2021. doi.org/10.1016/j.materresbull.2021.111258 [IF: 4.019]
68. Vipul Pandey and **Suchandan Pal**, **"***Design of highly sensitive refractive index sensors in the visible region utilizing metal layer assisted guided modes***", J. Applied Optics (Optical Society of America),** Vol. 60, Issue 25, pp. 7589 – 7595, Sept. 2021. DOI: 10.1364/AO.433236 [IF: 1.980]