CURRICULUM VITAE

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EDUCATIONAL QUALIFICATION

Doctor of Philosophy *1998*

From Department of Physics & Astrophysics
University of Delhi, Delhi-110 007, INDIA

Dissertation *X-ray studies on Dense Plasma Focus and Plasma Processing*

RESEARCH EXPERIENCE

- Research Scholar in Department of Physics and Astrophysics, University of Delhi, Delhi, India ☞1990-1997
- Visiting Research Scholar in University of Malaya, Kuala Lumpur, Malaysia ☞ 1992
- Research Associate in Centre of Plasma Physics, Assam, India ☞1997-1998
- Visiting Scientist Tokyo Institute of Technology, Yokoham, Japan☞ 2000
- Post-Doctoral Research Fellow at G.R.E.M.I., University of Orleans, France ☞2000-2001
- Research Fellow at Plasma Radiation Source Laboratory, National Institute of Education (NIE), Nanyang Technological University, Singapore ☞ 2004
- Japan Society for Promotion of Science (JSPS) Post-Doctoral Fellow at Tokyo Institute of Technology, Yokoham, Japan ☞ 2004-2006
- Visiting Research Professor, University of Toyama, Japan ☞ May 2009

EMPLOYMENT

- Assistant Professor in Centre of Plasma Physics, Assam, India ☞ Oct.98- April 00
- Fellow in Centre of Plasma Physics, Assam, India ☞ April 00 – March 08
- Associate Professor in Centre of Plasma Physics, Assam, India ☞April 08- May 09
- Associate Professor-I in Centre of Plasma Physics-Institute for Plasma Research, Assam, India ☞ May 09- June2014

- Associate Professor-F in Centre of Plasma Physics-Institute for Plasma Research, Assam, India June 2014 ☞ June 2021
- Professor-G in Centre of Plasma Physics-Institute for Plasma Research, Assam, India July 2021 ☞ till date

RESEARCH

EUV Lithography Source:

- Involvement on development work of **EUV sources** for **Next Generation Lithography** based on discharge produced plasma system (fast capillary discharge, gas jet type Z-pinch and hybrid plasma focus) that radiates mainly around 11 to 17 nm.
- Experience on design and fabrication of blumlein generator, pulsed compression line, over voltage switches, capillary plasma system, mini-plasma focus, gas jet Z-pinch system etc.
- Experience on testing and optimization of electrical and spectroscopic performances of discharge produced plasma EUV sources.

Plasma Focus Device:

- Involvement on research activities on a Mather type **Plasma Focus** (PF) for last many years that is renowned for generating high temperature and high density plasma besides particle beams (electron and ion), EM radiation (X-ray, EUV, UV and visible) and neutrons.
- Extensive experience on fabrication of high voltage power supply, triggering electronics, spark gap switches, nitrogen laser and simple diagnostics such as voltage probe, current probe, magnetic sensor, Langmuir probe, Faraday cup, pinhole imaging and advanced diagnostics like laser shadowgraphy, diode X-ray spectrometer, crystal spectrometer etc.
- Studied the dynamics of current sheath of PF in presence of external magnetic field employing laser shadowgraphy technique.
- Investigated X-ray emission of PF using diode X-ray spectrometer and X-ray pinhole camera.
- Observed ion dynamics of PF using single and multiple Faraday cup arrangement and SSNTD.
- Studied **EUV emission** from a **miniature hybrid PF** driven by ten kA current pulse.
- Studied the electron beam current of PF using electron collector and Rogowski coil.
- Studying proton and ion emission from PF using nuclear track detectors.

Plasma Processing:

- Utilized energetic ions of PF for fabricating the **POLYMER DIODE** in polyaniline film.
- Portrayed PF device as a suitable alternate of nitriding reactor by using it for hardening of steel.
- Succeeded to prepare theoretically predicted material **CARBONITRIDE** (harder than diamond) on graphite substrate by using nitrogen ions of PF device.
- Used energetic ions of PF for creation of color centers in American diamond.
- Used electron beam of PF device to grow **NANOWIRE** of polyaniline at room temperature.
- Studying protons and noble gas ions irradiation on materials that are of interest in tokamak reactor.

Laser Produced Plasma:

- Studied optical emission spectroscopy of pulsed laser ablation plasma.
- Utilized pulsed laser deposition technique to fabricate **NANOMATERIAL** of magnetic materials.

Inertial Electrostatic Confinement Fusion Device:

- Designed and developed a portable **NEUTRON** source based on cylindrical inertial electrostatic confinement fusion device that operates in continuous mode.

- Used a setup neutron diagnostics such as proportional counter, track detector, bubble detector, area monitor etc.
- Neutron production rate up to 10^6 n/sec is obtained at low 80 kV applied voltage.

EXPERIMENTAL SKILLS

- Extensive experience on pulsed plasma technology, pulsed plasma sources and plasma diagnostics.
- Extensive exposure to visible (VIS), extreme ultraviolet (EUV), X-ray spectroscopy, charged particle diagnosis, laser shadowgraphy and neutron spectroscopy.
- Capability of projecting, realization, calibration of experimental set-up and diagnostics.
- Experience on handling CCD, ICCD (Princeton Instruments) and IMACON 468.
- Programming of laboratory instruments and experimental data processing.
- Experience on analysis and interpretation of results of structural, morphological, electrical, optical properties of materials.

VISITING FELLOWSHIPS/AWARDS

- Junior Merit Scholarship during Higher Secondary Education,1982-84
- CSIR, India Senior Research Fellowship, 1995-97
- Better Opportunities for Young Scientists in Chosen Areas of Science & Technology (BOYSCAST) programme of the Department of Science & Technology (DST) Post Doctoral Fellowship, 1999-00
- French Research Ministry Post Doctoral Fellowship, 2000-01
- Young Scientist Fellowship, DST, India, 2004-07
- Research Fellowship, National Institute of Education, Singapore, 2004
- JSPS (Japan Society for Promotion of Science) postdoctoral fellowship, 2004 -06
- Visiting Research Professor, University of Toyama, Japan, May 2009

PUBLICATIONS

The Papers Published in International Referred Journals:

1. Neutron and x-ray emission from a cylindrical inertial electrostatic confinement fusion device and their applications, D. Bhattacharjee, N. Buzarbaruah, **S.R. Mohanty**, Journal of Applied Physics, Vol 130, 053302 (2021).
2. Basics of inertial electrostatic confinement fusion and its applications, **S.R. Mohanty**, N. Buzarbaruah, D. Bhattacharjee, D. Jigdung, AIP Conference Proceedings **2319**, 030012 (2021).
3. Kinetic characteristics of ions in an inertial electrostatic confinement device, D. Bhattacharjee, N. Buzarbaruah, **S. R. Mohanty**, and S. Adhikari, Phys. Rev. E, Vol 102, 063205 (2020).
4. Surface and structural analyses of helium ion irradiated beryllium, N.J. Dutta, **S.R. Mohanty**, K.P. Sooraj, M. Ranjan, Vacuum, Vol. 170, 108962 (2019).
5. Studies on virtual electrode and ion sheath characteristics in a cylindrical inertial electrostatic confinement fusion device, D. Bhattacharjee, D. Jigdung, N. Buzarbaruah, **S.R. Mohanty** and H. Bailung, Physics of Plasma, Vol. 26 , 073514-7 (2019).
6. A Study on Neutron Emission from a Cylindrical Inertial Electrostatic Confinement Device, N. Buzarbaruah, **S.R. Mohanty**, E. Hotta, Nuclear Inst. and Methods in Physics Research A Vol. 911, 66-73 (2018).

7. Self-organized Nanostructure Formation on the Graphite Surface Induced by Helium Ion Irradiation, N.J. Dutta, **S.R. Mohanty**, N. Buzarbaruah, M. Ranjan, R.S. Rawat, Physics Letters A, Vol. 382, 1601-1608 (2018).
8. Study on discharge plasma in a cylindrical inertial electrostatic confinement fusion device, N. Buzarbaruah, N.J. Dutta, D. Borgahain, **S.R. Mohanty** and H. Bailung, Physics Letters A Vol. 381, 2391-2396 (2017).
9. Modification on graphite due to helium ion irradiation, N.J. Dutta, **S.R. Mohanty,** N. Buzarbaruah**,** Physics Letters A, Vol. 380, 2525-2530 (2016).
10. Design of a linear neutron source, N. Buzarbaruah, N.J. Dutta, J.K. Bhardwaz and **S.R. Mohanty**, Fusion Engineering and Design Vol. 90 97–104 (2015).
11. Damage studies on tungsten due to helium ion irradiation, N.J. Dutta, N. Buzarbaruah and **S.R. Mohanty**, Journal of Nuclear Materials 452, 51–56 (2014).
12. Plasma focus assisted damage studies on tungsten, M. Bhuyan, **S.R. Mohanty**, C.V.S. Rao, P. Rayjada, P.M. Raole, Applied Surface Science, vol.264, 674 (2013).
13. Neon assisted damage studies on tungsten for next generation fusion reactor, M. Bhuyan and **S.R. Mohanty,** Horizon-A Journal of Physics (ISSN 2250-0871) vol.3, 66-79 (2013).
14. Experimental evaluation of protons emission from a plasma focus device, M. Bhuyan and **S.R. Mohanty**, Journal of Plasma Physics, vol. 78, 507 (2012).
15. Temporal and spatial study of neon ion emission from a plasma focus device, M. Bhuyan, N.K. Neog, **S.R. Mohanty**, C.V.S. Rao, P.M. Raole, Physics of Plasma, vol.18, 033101 (2011).
16. Studies on ion emission from the plasma focus device by using ion collector and track detector, M. Bhuyan, N.K. Neog, **S.R. Mohanty**, C.V.S. Rao, P.M. Raole, Journal of Fusion Energy, vol. 29, 177 (2010).
17. EUV diagnostics of pulsed plasma systems, **S.R. Mohanty** and E. Hotta, J. Physics C.S, 208, 012138 (2010).
18. Characterization of neon ion beam emitted from plasma focus device, M. Bhuyan, N.K. Neog, **S.R. Mohanty**, C.V.S. Rao, P.M. Raole, J. Physics C.S 208, 012126 (2010).
19. Self-organized transformation to polyaniline nanowires by pulsed energetic electron irradiation in a plasma focus device, **S.R. Mohanty**, N.K. Neog, R.S. Rawat, P. Lee, B.B. Nayak and B.S. Acharay, Physics Letters A, vol. 373, 1962 (2009).
20. Time resolved studies on X-ray and charged particle emission from a plasma focus device, N.K. Neog, **S.R. Mohanty** and T.K. Borthakur, Physics Letters A, vol. 372, 2294 (2008).
21. Effect of anode design on ion emission characteristics of a plasma focus device, **S.R. Mohanty,** N.K. Neog, H. Bhuyan, R.K. Rout, R.S. Rawat and P. Lee, Japanese Journal of Applied Physics, vol. 46, 3039 (2007).
22. Study on electron beam emission from a low energy plasma focus device, N. K. Neog, **S.R. Mohanty**, Physics Letters A, vol. 361, 377 (2007).
23. Compression and neutron and ion beams emission mechanisms within a plasma focus, H.R. Yousefi, **S.R. Mohanty**, Y. Nakada, H. Ito and K. Masugata, Physics of Plasma, vol.13, 114506 (2006).
24. Influence of electrode separation and gas curtain on EUV emission of a gas jet z-pinch source, **S.R. Mohanty**, T. Sakamoto, Y. Kobayashi, N. Izuka, N. Kishi, I. Song, M. Watanabe, T. Kawamura, A. Okino, K. Hoioka and E. Hotta, Applied Physics Letters, vol. 89, 041502 (2006).
25. Pinching Evidences in a miniature plasma focus with fast pseudospark switch, S.M. Hassan, T. Zhang, A. Patran, R.S. Rawat, S.V. Springham, T.L. Tan, D. Wong, W. Wang, S. Lee, V.A. Gribkov, **S.R. Mohanty** and P. Lee, Plasma Sources Science & Technology, vol. 15, 614 (2006).

26. A miniature hybrid plasma focus extreme ultraviolet source driven by ten kilo-ampere fast current pulse, **S.R. Mohanty**, T. Sakamoto, Y. Kobayashi, I. Song, M. Watanabe, T. Kawamura, A. Okino, K. Hoioka and E. Hotta, Review of Scientific Instruments, vol.77, 043506 (2006).
27. Comparative study on performance of a xenon capillary Z-pinch EUV lithography light source using a pinhole camera, I. Song, K. Iwata, Y. Honma, **S.R. Mohanty,** M. Watanabe, T. Kawamura, A. Okino, K. Yasuoka, K. Hoioka and E. Hotta, Plasma Sources Science & Technology, vol. 15, 322 (2006).
28. Performance of gas jet type Z-pinch light source for EUV lithography, I. Song, Y. Kobayashi, T. Sakamoto, **S.R. Mohanty**, M. Watanabe, A. Okino, T. Kawamura, K. Yasuoka, K. Horioka and E. Hotta, Microelectronic Engineering, vol.83, 710 (2006).
29. Anode length optimization in a modified plasma focus for optimal x-ray yield, N.K. Neog and **S.R. Mohanty**, E. Hotta, Journal of Applied Physics, vol. 99. 013302 (2006).
30. Effect of deposition parameters on morphology and size of FeCo nanoparticles synthesized by pulsed laser ablation deposition, Happy, **S.R. Mohanty**, P. Lee, T.L. Tan, S.V. Springham, A. Patran, R.V. Ramanujan, and R.S. Rawat, Applied Surface Science, vol. 252, 2806 (2006).
31. Time resolved emission spectroscopy investigations of pulsed laser ablated plasmas of ZrO_2 and Al_2O_3, A.D. Handokoa, P. S. Lee, P. Lee, **S. R. Mohanty** and R.S. Rawat, Journal of Physics: Conference Series, vol. 28, pp100-4 (2006).
32. Energetic ion irradiation of American diamond in a plasma focus device and characterization of irradiated material, **S.R. Mohanty**, N.K. Neog, B.B. Nayak, B.S. Acharya, P. Lee, T.L. Tan and R.S. Rawat, Nuclear Instruments and Methods in Physics Research B, vol.113, 113 (2006).
33. Characteristics of xenon capillary Z-pinch extreme ultraviolet lithography source driven by different dI/dt discharge current pulses, I. Song, K. Iwata, Y. Honma, **S.R. Mohanty,** M. Watanabe, T. Kawamura, A. Okino, K. Yasuoka, K. Hoioka and E. Hotta, Japanese Journal of Applied Physics, vol. 44, no.12, 8640 (2005).
34. Development of a gas jet type Z-pinch EUV source for next generation lithography, I. Song, **S.R. Mohanty,** M. Watanabe, T. Kawamura, A. Okino, K. Yasuoka, K. Hoioka and E. Hotta, Journal of Plasma and Fusion Research, vol. 81, no. 9, 647 (2005).
35. Development of multi Faraday cup assembly for ion yield measurements from a low energy plasma focus device, **S.R. Mohanty**, H. Bhuyan, N.K. Neog, R.K. Rout and E. Hotta, Japanese Journal of Applied Physics, vol. 44, 5199 (2005).
36. Comparative study of soft x-ray emission characteristics in a low energy dense plasma focus device, H. Bhuyan, **S.R. Mohanty**, N.K. Neog, S. Bujarbarua and R. K. Rout, Journal of Applied Physics, vol. 95, 2975 (2004).
37. Discharge-based sources of XUV-X radiations: development and applications, J.M. Pouvesle, E. Robert, T. Gonthiez, R. Viladrosa, J. Pons, O. Sarroukh, M. Idrissi, B. Metay, **S.R. Mohanty**, C. Fleurier and C. Cachoncinlle, Plasma Sources Science & Technology, vol.12, S43 (2003).
38. Magnetic probe measurements of current sheet dynamics in a coaxial plasma accelerator, H. Bhuyan, **S.R. Mohanty**, N.K. Neog, S. Bujarbarua and R. K. Rout, Measurement Science and Technology, vol.14, 1769 (2003).
39. A novel fast capillary discharge system emitting intense EUV radiation- possible source for EUV lithography, **S.R. Mohanty**, E. Robert, R. Dussart, R. Viladrosa, J.M. Pouvesle, C. Fleurier and C. Cachoncinlle, Microelectronic Engineering, vol. 65, 47 (2003).
40. Capillary discharge sources of hard UV radiation, C. Cachoncinlle, R. Dussart, E.Robert, S. Gotez, J. Pons, **S.R. Mohanty**, R. Viladrosa, C. Fleurier and J.M. Pouvesle, Plasma Sources Science & Technology, vol.11, A64 (2002).

41. Recent progresses of EUV source development work at GREMI, **S.R. Mohanty,** C. Cachoncinlle, C. Fleurier, E. Robert, J.M.Pouvesle, R. Viladrosa and R. Dussart, Microelectronic Engineering, vol. 61-62C, 179 (2002).
42. Surface nitriding of graphite substrate by plasma focus device towards synthesis of carbon nitride coating, B.B. Nayak, B.S. Acharya, **S.R. Mohanty**, T.K. Borthakur and H. Bhuyan, Surface and Coating Technology, vol. 145, 8 (2001).
43. Analysis of nitrogen ion beams produced in a Dense Plasma Focus device using Faraday Cup, H. Bhuyan, **S.R. Mohanty**, T.K. Borthakur and R.S.Rawat, Indian Journal of Pure and Applied Physics, vol. 39, 698 (2001).
44. Analysis of soft X-ray emission from a low energy plasma focus device using vacuum photodiode, T.K. Borthakur, **S.R. Mohanty**, H. Bhuyan and V.N. Rai, Indian Journal of Physics, vol. 75B (5), 449 (2001).
45. Current sheath dynamics and x-ray emission studies from sequential dense plasma focus device, Ruby Gupta, **S.R. Mohanty**, R.S. Rawat, M.P. Srivastava, IEEE Trans. on Plasma Science, vol. 28, no. 4, 1263 (2000).
46. X-ray emissions from Dense Plasma Sequential Focus Device, **S.R. Mohanty**, R.S. Rawat, M.P. Srivastava, Journal of Plasma and Fusion Research, vol.2, 320 (1999).
47. Surface hardening of high carbon steel samples using ions of dense plasma focus, T.K. Borthakur, A. Sahu, **S.R. Mohanty**, B.B. Nayak and B.S. Acharya, Surface Engineering, vol.15, no. 1, 55 (1999).
48. Study of X-ray emission of dense plasma focus device in presence of external axial magnetic field, **S.R. Mohanty**, M.P. Srivastava and R.S. Rawat, Phys. Lett. A, vol. 234, 472 (1997).
49. Diode like behaviour of an ion irradiated polyaniline film, M.P. Srivastava, **S.R. Mohanty**, S.Annapoorni and R.S. Rawat, Phys. Lett. A, vol. 215, 63 (1996).
50. Study of current sheath dynamics in dense plasma focus in the presence of axial magnetic field using laser shadowgraphy technique, R.S. Rawat, M.P. Srivastava and **S.R. Mohanty**, IEEE Trans. on Plasma Science, vol. 22, no.5, 967 (1994).

The Papers Published/Presented in International Conferences:

1. Inertial electrostatic confinement fusion device and its applications, **S.R. Mohanty**, D. Bhattacharjee, and N. Buzarbaruah, 13th International Conference on Plasma Science and Applications (ICPSA 2020), Ravenshaw University, Odisha, 26th-28th Dec 2020. (**Invited talk**)
2. Basics of inertial electrostatic confinement fusion and its application, **S.R. Mohanty**, N. Buzarbaruah, D. Bhattacharjee, D. Jingdu, 14th Asia-Pacific Physics Conference 2019 (APPC-14) held in Kuching Malaysia during 17-22 Nov 2019. (**Invited talk**)
3. Interaction of charged particles in an inertial electrostatic confinement device, N. Buzarbaruah, D. Bhattacharjee, D. Jingdu, **S.R. Mohanty**, 3rd Asia-Pacific Conference on Plasma physics, 4-8, Novmeber, 2019 Hefei, China. (Oral by N. Buzarbaruah)
4. Parametric Study of a Cylindrical Inertial Electrostatic Confinement Fusion Device and its Application, **S. R. Mohanty**, N. Buzarbaruah, D. Bhattacharjee, D. Jigdung , E. Hotta, 46th International Conference on Plasma Science 2019, 23-28 June 2019, Orlando, USA.
5. Inertial electrostatic fusion: A source for societal applications, N. Buzarbaruah , D. Jigdung, D. Bhattacharjee, and **S.R. Mohanty**, International Conference on Renewable & Alternate Energy (ICRAE-2018) Assam Science and Technology University (ASTU), Guwahati, Assam, India, 4th -6th December, 2018. (**1st best poster award to Mr. Buzarbarua**).
6. Irradiation effects in graphite induced by helium ions: surface, structural, and chemical analyses, **S.R. Mohanty**, N.J. Dutta, N. Buzarbaruah, M. Ranjan, and R.S. Rawat, Oral talk,

The 45th IEEE International Conference on Plasma Sciences (ICOPS-2018), Denver, US, June 24-28, 2018.

7. Characterization of discharge plasma in cylindrical IECF device, N. Buzarbaruah, N.J. Dutta, D. Borgahain and **S.R. Mohanty**, 10th Asia Plasma and Fusion Association Conference, 14-18 Dec 2015, Gandhinagar, India.
8. Ion irradiation on graphite to study its structural and morphological changes: N.J. Dutta, N. Buzarbaruah, **S.R. Mohanty**, International Conference on Material Science (ICMS) Tripura University (14th-16th Feb. 2013), India.
9. Damage studies on tungsten due to helium ion irradiation: N. Buzarbaruah, N.J. Dutta, **S.R. Mohanty**, International Conference on Material Science (ICMS) Tripura University (14th-16th Feb. 2013), India.
10. EUV diagnostics, **S.R. Mohanty** and E. Hotta, Proceedings of International Work shop on Plasma Diagnostics and Applications, 2-3 July 2009, Singapore, page no. 192-196.
11. Features of X-ray emission from a plasma focus device, N.K. Neog, **S.R. Mohanty**, and T.K. Borthakur, 6th Conference of Asia Plasma & Fusion Association, 3-5, Dec.2007, Gandhinagar, India.
12. Development of a Gas Jet-Type Z pinch EUV Light Source for Lithography, N. Iizuka, N. Kishi, **S.R. Mohanty**, M. Watanabe, A. Okino, T. Kawamura, K. Horioka and E. Hotta, Presented in International Symposium on Extreme Ultraviolet Lithography, Oct. 2006, Barcelona.
13. Optimization of a gas jet-type Z-pinch discharge EUV light source, N. Iizuka, N. Kishi, I. Song, T. Sakamoto, Y. Kobayashi, **S. R. Mohanty**, M. Watanabe, A. Okino and E. Hotta, Proc. 22nd International Symposium on Discharges and Electrical Insulation in Vacuum, Matsue, Japan, September 25-29, 2006, Vol.2, pp.630-633 (2006).
14. Current Control for efficient Z-pinch EUV light source, K. Horioka, E. Hotta, A. Okino, T. Kawamura, M. Nakajima, M. Watanabe, M. Masnavi, **S.R. Mohanty**, S. Inho, A. Kikuchi, K. Takahashi, International Symposium on Extreme Ultraviolet Lithography, 7-9 Nov.2005, San Diego, USA.
15. Development of a gas jet type Z-pinch EUV light source, E. Hotta, K. Horioka, A. Okino, T. Kawamura, M. Watanabe, M. Masnavi, **S.R. Mohanty**, S. Inho, T. Sakamoto and Y. Kobayashi, International Symposium on Extreme Ultraviolet Lithography, 7-9 Nov.2005, San Diego, USA.
16. Performance of a gas jet type Z-pinch EUV light source, I. Song, Y. Kobayashi, T. Sakamoto, **S.R. Mohanty**, M. Watanabe, A. Okino, T. Kawamura, K. Yasuoka, K. Horioka and E. Hotta, 31st International Conference on Micro- and Nano- Engineering, 19-22 Sept.2005, Viena.
17. Development of gas jet type Z-pinch extreme ultraviolet light source for next generation lithography, Inho Song, Yusuke Honma, Kazuhiro Iwata, **S.R. Mohanty**, Masato Watanabe, Toru Kawamura, Akitoshi Okino, Koichi Yasuoka, Kazuhiko Horioka and Eiki Hotta, NIFS-PROC-61, p-23 (2005).
18. Emission spectroscopy investigation of time resolved ZrO_2 and Al2O3 plasma characteristics, A.D.Handoko, P.S. Lee, R.S. Rawat, C.K. P. Lee, **S.R.Mohanty,** Symposium Y, 3-8 July 2005, Singapore.
19. Comparative study on optical performance of xenon capillary Z-pinch EUV lithography light source, I. Song, T. Sakamoto, Y. Kobayashi, **S.R. Mohanty**, M. Watanabe, A. Okino, T. Kawamura, K. Horioka and E. Hotta, Spectra Asia 2005, Tokyo.
20. Optical Emission Spectroscopy to Study FeCo Thin Film Deposition Using Plasma Focus, T.Zhang, **S.R.Mohanty**, S.M.Hassan, A.Patran, T.L.Tan, S.V.Springham, P.Lee and S.R.Rawat, AIP Conference Proceedings, Vol.808, pp 231-4 (2006).

21. Extreme ultraviolet light emission from Z-pinch discharge plasma source, M. Watanabe, I. Song, T. Sakamoto, Y. Kobayashi, A. Okino, **S.R. Mohanty**, K. Horioka and E. Hotta, AIP Conference Proceedings, Vol.808, pp 267-70 (2006).
22. Characteristics of EUV radiation from Z-pinch plasma using coaxial double nozzle electrode, T. Sakamoto, I. Song, **S.R. Mohanty**, Y. Kobayashi, M. Watanabe, T. Kawamura, A. Okino, K. Horioka and E. Hotta, Papers of Technical Meeting on Electrical Discharges, IEE Japan, Issues143-150, pp 25-28 (2005).
23. High quality EUV production from discharge produced plasma, M. Watanabe, I. Song, T. Sakamoto, Y. Kobayashi, A. Okino, **S.R. Mohanty**, K. Horioka and E. Hotta, 32nd IEEE International Conference on Plasma Science, Monterey, CA, June 18-23, 2005.
24. Development of gas jet Z pinch EUV light source for lithography, Inho Song, Kazuhiro Iwata, Yusuke Honma, **S.R. Mohanty**, Masato Watanabe, Toru Kawamura, Akitoshi Okino, Koichi Yasuoka, Kazuhiko Horioka and Eiki Hotta, 15th IEEE International Pulsed Power Conference, Monterey, CA, June 13-17, 2005.
25. Study on optical characteristics of EUV source for semiconductor lithography, K. Iwata, Y. Honma, I.H. Song, M. Masnavi, **S.R. Mohanty**, M. Watanabe, A. Okino, K. Yasuoka, K. Horioka and Eiki Hotta, IEEJ Annual Conference,I-178, p-244 (2005).
26. A fast capillary discharge plasma dedicated to EUV radiation production-possible source for EUV lithography C. Fleurier, T. Gonthiez, E. Robert, **S.R. Mohanty**, O. Sarroukh, R. Viladrosa, J.M. Pouvesle, C. Cachoncinlle, Conference record of Twenty-Fifth International Power Modulator Symposium and 2002 High-Voltage Workshop (Cat. No.02CH37381), 2002, p 587-90.
27. Spectroscopic and energetic investigation of capillary discharges devoted to EUV production for new lithography generation, E. Robert, B. Blagojevic, R. Dussart, **S.R. Mohanty**, M.M. Idrissi, D.Hong, R. Viladrosa, J.M. Pouvesle, C. Fleurier and C. Cachoncinlle, in Proceeding of SPIE, vol. 4343, 566-575 (2001).
28. Potentiality of Z-discharge plasma as a source of coherent soft X-rays, Kazuhiko Horioka, Mitsuo Nakajima, Tomonao Hosokai, Gohta Niimi, **S.R. Mohanty** and Eiki Hotta, Source 2000, July 3-4, 2000, Tokyo Institute of Technology, O- okayam, Japan.
29. Dynamics and X-ray radiation process of capillary Z-pinch discharge plasma, Gohta Niimi, **S.R. Mohanty**, Mitsuo Nakajima, Akitoshi Okino, Masato Watanabe, Kazuhiko Horioka and Eiki Hotta, in IEEJ meeting on Plasma Sciences, 14-15 June, 2000, Akita, Japan.
30. Dense Plasma Sequential Focus Device, **S.R. Mohanty**, R.S. Rawat**,** and M.P. Srivastava, *Dense Plasma Sequential Focus Device*, International Meeting on Frontiers of Physics, Kuala Lumpur, Malaysia, Oct 25-29, 1998.
31. Laser shadowgraphic study of plasma sheath in dense plasma focus in the presence of external axial magnetic field, R.S. Rawat, M.P. Srivastava and **S.R. Mohanty**, Int. Conf. on Plasma Physics, Innsbruck, 29th June - 3rd July, 1992, pt.II, pp. 1195-1198.
32. Spectral analysis of focussed plasmas; C.S. Wong, S.P. Moo, M. Han, Z.M. Jiang, **S.R. Mohanty** and C. Silawatshananai, 5th Asia Pacific Physics Conf., 10-15 Aug., 1992, Kuala Lumpur, vol.1, pp. 626-629.

The Papers Published/Presented in National Conferences:

1. Particle-in-cell Simulation of Plasma Species in an Inertial Electrostatic Confinement Fusion Device at High Voltage Operation, D. Bhattacharjee, S. Adhikari, and **S. R. Mohanty**, National Conference on Emerging Trends in Physics (NCETP-2021), organized by Department of Physics, Tezpur University, Assam, India.

2. Experimental Studies on Discharge Plasma in Cylindrical IEC Fusion Device, N. Buzarbaruah, D. Bhattacharjee, **S. R. Mohanty**, 3rd National Conference on Recent Advances in Science and Technology (NCRAST - 2020), Aug 17-19, 2020 under Assam Science and Technological University, Assam, India.
3. Study on ion re-circulation and potential well structure in an inertial electrostatic confinement fusion device using PIC simulation, D. Bhattacharjee, S. Adhikari, and S. R. Mohanty, 8th. PSSI-PLASMA Scholars Colloquium (PSC-2020) October 8-9, 2020, KIIT University, Bhubaneswar-751024, Odisha, India.
4. PIC simulation of ion dynamics in an Inertial Electrostatic Confinement Fusion Device, D. Bhattacharjee, D. Jigdung, N. Buzarbaruah, S. Adhikari, **S. R. Mohanty**, 34th National Symposium on Plasma Science and Technology (Plasma-2019), VIT Chennai, 3rd -6th Dec 2019.
5. Plasma characterization in spherically convergent ion source, D. Jigdung, D. Bhattacharjee, N. Buzarbaruah, **S. R. Mohanty**, 34th National Symposium on Plasma Science and Technology (Plasma-2019), VIT Chennai, 3rd -6th Dec 2019.
6. Measurement of Ion Emission from a Helium Filled Plasma Focus Device Using Faraday Cup, N.J. Dutta, **S.R. Mohanty**, National Seminar on Advances in Electronics and Allied Science & Technology (NaEAST-2019) Gauhati University, Guwahati- 14, 25 and 26 October, 2019.
7. Study on Ion Dynamics in Inertial Electrostatic Confinement Fusion Device, D. Bhattacharjee, D. Jigdung, N. Buzarbaruah, **S. R. Mohanty**, National conference on Green, Sustainable and Evolving Sciences (GSES-2019), Cotton University, Guwahati on 28th and 29th of June, 2019. (**Best Poster Award to D. Bhattacharjee**).
8. Ion dynamics study in an inertial electrostatic confinement fusion device and its application in explosive detection, N. Buzarbaruah, D. Bhattacharjee, D. Jigdung, and **S.R. Mohanty**, 33rd National Symposium on Plasma Science and Technology, University of Delhi, Delhi, 4-7 Dec. 2018.
9. Evidence of virtual anode and cathode in an inertial electrostatic fusion device, D. Jigdung, D. Bhattacharjee, N. Buzarbaruah, S. Kalita and **S.R. Mohanty**, XIth Biennial National Conference of Physics Academy of North East (PANE -2018), Assam University Diphu Campus, 21-23 November 2018. (**Best Oral Presentation to Mr. Jigung**)
10. Helium ion characterization of plasma focus device, N. J. Dutta and **S.R. Mohanty**, National Seminar on Advances in Electronics and Allied Science & Technology (NaSAEAST- 2018), 5-6th October, 2018 held at Gauhati University, India.
11. Studies on ion dynamics of an inertial electrostatic confinement fusion device, D. Bhattacharjee, N. Buzarbaruah, S. Kalita and **S.R. Mohanty,** 6th PSSI Plasma Scholar Colloquium, 24th 26th August 2018, SMIT, Sikim.
12. Recent studies on Inertial Electrostatic Confinement Fusion Neutron source, D. Borgahain, N. Buzarbaruah and **S.R. Mohanty,** 32nd National Symposium on Plasma science & Technology (PLASMA2017), 7th -10th Nov. 2017, IPR Gandhinagar.
13. Study on Neutron Emission from an Inertial Electrostatic Confinement Device, N. Buzarbaruah and **S.R. Mohanty**, 32nd National Symposium on Plasma science & Technology (PLASMA2017), 7th -10th Nov. 2017, IPR Gandhinagar. **(Invited talk)**
14. Modification in potential well of an Inertial Electrostatic Confinement Fusion, N. Buzarbaruah, D. Borgahain and **S.R. Mohanty**, 32nd National Symposium on Plasma science & Technology (PLASMA2017), 7th -10th Nov. 2017, IPR Gandhinagar.
15. An Ion Source based on Inertial Electrostatic Confinement Fusion for Material Studies, N. Buzarbaruah, D. Borgahain and **S.R. Mohanty**, UGC Sponsored National Seminar on "Recent advances in material science and their applications" held at BN College, Dhubri, India, 24-25 March 2017.

16. Pulsed helium ion irradiation on tungsten, N.J. Dutta, **S.R. Mohanty** and N. Buzarbaruah, UGC Sponsored National Seminar on "Recent advances in material science and their applications" held at BN College, Dhubri, India, 24-25 March 2017.
17. Shielding analyses for a portable neutron source, D. Borgohain, N. Buzarbaruah and **S.R. Mohanty**, Xth Biennial Conference of Physics Academy of North East (PANE) at St. Anthony's College, Shillong, India, 10 -12 Nov. 2016.
18. Structural changes of tungsten due to neon ion interaction of Tokamak interest, M. Bhuyan and **S.R. Mohanty,** Xth Biennial Conference of Physics Academy of North East (PANE) at St. Anthony's College, Shillong, India, 10 -12 Nov. 2016.
19. Emission of fusion neutron from an inertial electrostatic confinement fusion device, N. Buzarbaruah, D. Borgahain and **S.R. Mohanty**, 5th PSSI-Plasma Scholars Colloquium (PSC-2016), Ravenshaw University on 27-18 August 2016. (**Best Oral Presentation**)
20. Present Status of IECF based linear neutron source at CPP-IPR, D. Borgahain, N. Buzarbaruah and **S.R. Mohanty**, 30th National Symposium on Plasma Science & Technology (PLASMA-2015), India.
21. Development of IECF based linear neutron source at CPP-IPR and its current status N. Buzarbaruah, N.J. Dutta, J.K. Bhardwaz, D. Borgahain, **S.R. Mohanty**, 29th National Symposium on Plasma Science & Technology (PLASMA-2014), India (**S.H. Sholapurwala Best Poster Award**).
22. Helium ion irradiation on materials relevant to fusion research, N.J. Dutta, N. Buzarbaruah, **S.R. Mohanty**, 29th National Symposium on Plasma Science & Technology (PLASMA-2014) India.
23. A linear neutron source for plasma facing material studies, N. Buzarbaruah, N.J. Dutta, J.K. Bhardwaz, D. Borgahain, **S.R. Mohanty**, CPP-IPR Workshop on Linear Tokamak Divertor Simulators for PSI studies, 24-26 Nov. 2014, Assam, India.
24. Characterization of helium ion irradiation induced defects on tungsten, N.J. Dutta, N. Buzarbaruah, **S.R. Mohanty**, CPP-IPR Workshop on Linear Tokamak Divertor Simulators for PSI studies, 24-26 Nov. 2014 Assam, India.
25. Radiation damage study of graphite exposed to helium ions, N.J. Dutta N. Buzarbaruah, **S.R. Mohanty**, PLASMA 2013, KIIT, Dec. 3-6, 2013 Bhubaneswar, India.
26. Design and Development of a Linear Neutron Source based on Inertial Electrostatic Confinement Fusion Scheme, N. Buzarbaruah, N.J. Dutta, J.K. Bhardwaz, **S.R. Mohanty** in PLASMA 2013, KIIT, Dec. 3-6, 2013Bhubaneswar, India.
27. Plasma Focus Assisted Ion Irradiation on Graphite, N.J. Dutta N. Buzarbaruah, **S.R. Mohanty**, UGC sponsored National Seminar on Plasma Science and Technology, Nabajyoti College, Kalgachi Assam, 6-7 Nov. 2013.
28. Damage Studies on Tungsten due to Proton Irradiation from a Plasma Focus Device, M. Bhuyan and **S.R. Mohanty,** One Day National Seminar of New Frontiers of Physics, 11th May 2012, Guahati University, Guwahati, India.
29. Structural and surface morphological changes on tungsten due to ion irradiation, M. Bhuyan, **S.R. Mohanty**, C.V.S. Rao, P.A. Rayjada, P.M. Raole, 26th National Symposium on Plasma Science and Technology, 20-23 Dec. 2011, BIT Mesra, Patana Campus, India. (**PSSI Best Poster Award**)
30. Characterization of axially emitted proton beam from a plasma focus device, M. Bhuyan and **S.R. Mohanty**, 56th Annual technical session of Assam Science Society, 23rd March 2011, Dibrugarh University, Assam India .
31. Studies on proton emission from a plasma focus device and its application on material modification, M. Bhuyan, N. K. Neog, **S.R. Mohanty**, C.V.S. Rao, P.M. Raole, 25th National Symposium on Plasma Science and Technology, 8-11 Dec. 2010, Guwahati, Assam, India.

32. Studies on ion emission from the plasma focus device by using ion collector and track detector, M. Bhuyan, N. K. Neog, **S.R. Mohanty**, C.V.S. Rao, P.M. Raole, in Physics Academy of North East conference, 3-4 April 2009, Tripura University, India.
33. EUV diagnostics of pulsed plasma systems, **S.R. Mohanty** and E. Hotta, 23rd National Symposium on Plasma Science and Technology, 10-13 Dec., 2008, BARC, Mumbai, India. **(Invited talk)**
34. Characterization of the neon ion beam emitted from a low energy plasma focus device, M. Bhuyan, N.K. Neog, **S.R. Mohanty**, C.V.S. Rao and P.M. Raole, 23rd National Symposium on Plasma Science and Technology, 10-13 Dec., 2008, BARC, Mumbai, India.
35. Room temperature deposition of polyaniline nanowires in nanosecond timescale using electron beam of plasma focus device, **S.R. Mohanty**, N.K. Neog, R.S. Rawat, P. Lee, B.B. Nayak and B.S. Acharay, 22nd National Symposium on Plasma Science and Technology, 6-10 Dec., 2007, Gujurat. (**PSSI Best Poster Award**)
36. Conceptual designing of a capillary dichrage plasma device for production of extreme ultraviolet radition, N.K. Neog and **S.R. Mohanty**, 22nd National Symposium on Plasma Science and Technology (PLASMA2007), 6-10 Dec., 2007, Gujurat.
37. Pulsed electron beam emission from a 2.2 kJ plasma focus device, N.K. Neog and **S.R. Mohanty**, in proceeding of DAE-BRNS-PSI symposium on Power Beams for clean environment and processes, BARC, Mumbai, India, Sept. 2006, page 167-171.
38. Time resolved study on the soft as well as hard x-ray emission from a plasma focus device and their correlation, N. K. Neog, **S.R. Mohanty** and T.K. Barthakur, Presented in PLASMA 2005, India.
39. Soft X-ray enhancement in a plasma focus, N. K. Neog, **S.R. Mohanty** and H. Bhuyan. Presented in PLASMA 2004, India.
40. Plasma focus: a rich source of energetic charge particles and x-rays, N. K. Neog, **S.R. Mohanty** and H.Bhuyan, Proceeding of 4Th Physics academic of North East of India, 2004, page 215-219.
41. Operation of a low energy plasma focus machine in an enhanced soft X-ray mode, N. Neog, H. Bhuyan, **S.R. Mohanty** and S. Bujarbarua, presented in Regional Conference on Physics research in the North East of India, 2002.
42. X-ray studies from CPP dense plasma focus device in different anode design, H. Bhuyan, N.K. Neog, **S.R. Mohanty**, S. Bujarbarua and R. K. Rout, presented in PLASMA 2002, India.
43. Investigation of pulse electron beam emanated from a low energy plasma focus, N. Neog, **S. R. Mohanty**, H. Bhuyan and R. K. Rout, presented in PLASMA 2002, India.
44. Nitriding of stainless steel in glow discharge plasma, M.K. Sharma, A. Baishya, T.K. Borthakur, M. Kakoti, **S.R. Mohanty** and B. K. Saikia, presented PLASMA 2002, India.
45. Energetic ion irradiation of American diamond in a plasma focus device, **S.R. Mohanty**, H. Bhuyan, N. Neog, B.B. Nayak, B.S. Acharya and R.K. Rout, in proceeding of Power Beam and Plasma Processing Conference, Sept. 2002, BARC, Mumbai, India, page 681-685. (***Prize Winning Paper***)
46. An inexpensive multi-channel diode spectrometer for time resolved measurement of pulsed soft X-rays, H. Bhuyan, **S.R. Mohanty**, R.K. Rout, T.K. Borthakur, N. Neog and S. Bujarbarua, presented in National Symposium on Plasma Science and Technology, 17-20 Dec., 2001, India.
47. Design and development of a novel pinhole camera for space resolved measurement of soft X-rays emitted from the CPP plasma focus facility, H. Bhuyan, **S.R. Mohanty**, R.K. Rout, T.K. Borthakur, N. Neog and S. Bujarbarua, presented in National Symposium on Plasma Science and Technology, 17-20 Dec., 2001, India.

48. Experimental research program at Centre of Plasma Physics, **S.R. Mohanty** and B.K. Saikia, in proceeding of Regional Conference on Physics research in the North East of India, 17th Oct. 1998, 111.
49. Ion beam characterization of a low energy dense plasma focus, H. Bhuyan, **S.R. Mohanty** and T.K. Borthakur, presented in 13th National Symposium on Plasma Science and Technology, 27-30 Oct., 1998, Rajkot, India.
50. Nitriding of high carbon steel samples using dense plasma focus, T.K. Borthakur, A. Sahu, **S.R. Mohanty**, B.B. Nayak and B.S. Acharya, presented in 13th National Symposium on Plasma Science and Technology, 27-30 Oct., 1998, Rajkot, India.
51. Possible utilization of dense plasma focus for surface hardening, T.K.Borthakur, A. Sahu, **S.R. Mohanty** and Heman Bhuyan, presented in 12th National Symposium on Plasma Science and Technology, 2- 5 Dec., 1997, IPR, Gandhinagar, India.
52. Dense plasma sequential focus device, R.S. Rawat, **S.R. Mohanty** and M.P. Srivastava, presented in 12th National Symposium on Plasma Science and Technology, 2- 5 Dec., 1997, IPR, Gandhinagar, India.
53. Ion irradiation induced structural changes of EB film using dense plasma focus, **S.R. Mohanty**, S.Annapoorni, R.S. Rawat and M.P. Srivastava, Mini Symposium on Recent trends in Plasma Physics, 19-20 Dec. 1994, University of Rajasthan, Jiapore, India.
54. Current sheath modification in dense plasma focus device under external magnetic field, R.S. Rawat, **S.R. Mohanty** and M.P. Srivastava, Ninth National Symposium on Plasma Science and Technology, 14-17 Nov.1994, Institute of Advanced Study in Science and Technology, Guwahati, India.

POPULAR ARTICLES

- Plasma- The Fourth State of Matter, The Sentinel, Daily News Paper, Guwahati, India, 24th Sept. 1999.

INVITED LECTURES/SEMINARS DELIVERED

1. Delivered Invited Talk on "Inertial electrostatic confinement fusion device and its applications" in 13th International Conference on Plasma Science and Applications(ICPSA 2020) held at Ravenshaw University, Cuttack, Odisha, jointly organized by AAAPT (Asian African Association for Plasma Training) during 26th -28th Dec 2020.
2. Delivered Invited Talk on "Overview of Inertial Electrostatic Confinement Fusion Research at CPP-IPR" in Trends in Modern Physics (TiMP 2020) Assam Don Bosco University, Assam during 24th-25th February 2020.
3. Delivered Invited Talk on "Basics of inertial electrostatic confinement fusion and its application" in 14th Asia-Pacific Physics Conference 2019 (APPC-14), Kuching Malaysia during 17-22 Nov 2019.
4. Delivered Invited talk on "Basics and Applications of Inertial Electrostatic Confinement Fusion" in Recent Trends in Basic Plasma Research (RTBPR-2019), 08th March 2019, CPP-IPR, Assam.
5. Delivered an invited talk on "Compact fusion neutron sources based on Inertial Electrostatic Confinement concept", PLASMA-2017, 32nd National Symposium on Plasma Science & Technology, 7-10 November, 2017, IPR, Gandhinagar, India.
6. Delivered an invited talk on "High energy density pinch plasma- a unique tool for plasma processing and deposition" UGC Sponsored National Seminar on "Recent advances in

material science and their applications" held at BN College, Dhubri, Assam 24-25 March 2017.

7. Deliver an invited lecture at Faculty Development program on Advances in Microelectronics and Plasma Diagnostics 2016 organized by Delhi Technological University, Delhi (Aug29-Sep 02, 2016).
8. Delivered invited talk in International Conference on Plasma Science and Applications 2013 (ICPSA2013) 4-6 Dec 2013, NIE Singapore, Session 4(b).
9. Delivered invited talk "Studies on charged particle emission from plasma focus device and their application in material modifications" in International Workshop on Plasma Science and Applications (IWPSA-2010), 25-26 October 2010, Xiamen, China.
10. Delivered invited talk "EUV diagnostics of pulsed plasma system" in International Workshop on Plasma Diagnostics and Application (IWPDA-2009), 2-3 July 2009, NIE, Singapore.
11. Discharge produced plasma EUV lithography source, Department of Electric and Electronic Systems, University of Toyama, Japan, on 28.05.2009.
12. Plasma Focus: A multiple radiation source for various applications, Prof. Masugata Laboratory meeting, Department of Electric and Electronic Systems, University of Toyama, Japan, on 07.05.2009.
13. Delivered invited talk "EUV diagnostics of pulsed plasma systems" in 23rd National Symposium on Plasma Science and Technology, BARC, Mumbai, Dec.10-13, 2008.
14. Experimental research activities of Centre of Plasma Physics, Department of Energy Science, Tokyo Institute of Technology, Yokohama, Japan, 19th Oct. 2007.
15. Discharge produced plasma source for EUV lithography, Physics Department, Stewart Science College, Cuttack, Orissa, 28th July 2007.
16. Discharge produced plasma source for EUV Lithography, Institute for Plasma Research, Gandhinagar, 7th June 2007.
17. Pinch Plasma Research at Centre of Plasma Physics, Department of Electrical Engineering, Toyama University, Japan, June 14, 2005.
18. Plasma Focus Research at Centre of Plasma Physics, Department of Energy Science, Tokyo Institute of Technology, Yokohama, Japan, 2nd February, 2005.
19. EUV source based on fast capillary plasma, NIE-AAAPT expert meeting, National Institute of Education (NIE), Nanyang Technological University, Singapore, 21-22 August, 2004.
20. Recent progresses of EUV source development work at GREMI, GREMI, Universite d'Orleans, France, Oct.2001.
21. Studies on Dense Plasma Focus and its application, Department of Energy Science, Tokyo Institute of Technology, Yokohama, Japan, June 2000.
22. Delivered invited talk "Dense Plasma Focus, it's associate phenomena and applications" at Institute of Material Science, Bhubaneswar, 14th January 1999.

PARTICIPATION IN RESEARCH PORJECTS IN INDIA

- "Studies on Dense Plasma Focus", a BRNS, DAE, India project 1997-1999: as supervisor.
- "Experimental Studies of X-ray and ion emission form CPP Plasma Focus facility", a BRNS, DAE India project 1999-2002: as Co-investigator.
- "The development of a device for plasma assisted hardening of agricultural and domestic implements", North Eastern Council, India project, 2001-2003: as Co-investigator.
- "Point EUV source based on fast capillary discharge plasma", DST, India 2003-2006: as Principal investigator.
- "Studies on hydrogen and noble gas ion implantation on materials of interest in tokamak reactor" CPP-IPR collaboration project 2007-2010: as Project coordinator.

- Development of Neutron Source based on Inertial Electrostatic Confinement Fusion Scheme and its Application in Damage Study of Fusion Materials, 2012-2020, in house DAE project.
- Upgradation of Neutron Source based on Inertial Electrostatic Confinement Fusion Scheme and its Application in Different Areas, 2020-2023, in house DAE project.

RESEARCH GUIDANCE (PH. D.)

- Mr. H. Bhuyan (Ph.D. degree awarded, Gauhati University, 2004)
  Title of thesis: Studies on X-ray and ion emission from DPF device and its application in material modification
  (At present: Associate Professor, Pontificia Universidad Católica de Chile)

- Mr. N.K. Neog (Ph.D. degree awarded, Gauhati University, 2008)
  Title of thesis: Studies on electromagnetic and charged particle radiation from pinched plasma sources
  (At present: Scientist-SE, Centre of Plasma Physics-Institute for Plasma Research, Nazirakhat, Sonapur, Assam)

- Ms. M. Bhuyan (Ph.D. degree awarded, Gauhati University, 2012)
  Title of thesis: Characterization of ion beam emission from plasma focus device and its application in material modification
  (At present: Assistant Professor, Rangia College, Assam)

- Mr. N. Buzarbaruah (Ph. D. degree awarded, Gauhati University, 2019)
  Title of thesis: A neutron source based on the inertial electrostatic confinement fusion scheme and its applications
  (At present: Assistant Professor, AEC, Guwahati)

- Mr. N.J. Dutta (Submitted thesis for Ph. D. degree, Gauhati University, 2020)
  Title of thesis: Damage studies on materials relevant to fusion research using helium ions
  (At present: Assistant Professor, B. N. College, Dhubri, Assam)

- Mr. D. Bhattacharjee (Continuing for Ph. D. degree, Gauhati University since 2018)

- Ms. L. Saikia (Continuing for Ph.D. degree, Gauhati University since 2021)

RESEARCH GUIDANCE (M. SC.)

- Ms. Upasa Sarma, Kaziranga University did her summer project, June-July, 2015.
- Ms. Upasa Sarma, Kaziranga University did her winter project, Feb- Mar, 2016.
- Mr. Preetam Kumar Nath, Kaziranga University did his summer project June-July2017.
- Mr. Pankaj Bora, Kaziranga University did his two months internship (Jan-Feb2018).
- Mr. Deepjyoti Kashyap, Kaziranga University did his two months internship (Jan-Feb2019).

REFEREE FOR INTERNATIONAL JOURNALS

- Journal of Applied Physics; AIP Publication
- Review of Scientific Instruments; AIP Publication
- Applied Physics Letters; AIP Publication
- Journal of Physics D; Applied Physics; IOP Publication
- Plasma Source Science and Technology; IOP Publication
- Plasma Physics and Controlled Fusion; IOP Publication

- Nanotechnology; IOP Publication
- IEEE Transaction on Plasma Sciences
- Physics Letters A; Elsevier
- Applied Surface Science; Elsevier
- Fusion Engineering and Design; Elsevier
- Current Nanoscience
- Journal of Fusion Energy; Springer
- International Journal of Physical Science
- Radiation Effects and Defects in Solids; Taylor & Francis

REFEREE FOR INTERNATIONAL PROJECTS

- FONDECYT 2007: National Research Funding Agency of Chile
- Academic research fund (AcRF) Tier 1: Nanyang Technological University, Singapore
- FONDECYT 2018: National Research Funding Agency of Chile
- Tier 1 Grant Call Year 2018, Nanyang Technological University, Singapore.

EXAMINER OF THESIS

- National Institute of Education, Singapore
- University of Malaya, Malaysia
- Homi Bhabha National Institute, India

CONFERENCE CHAIR

- Co-Chaired the session Nuclear Fusion of 13th International Conference on Plasma Science and Applications (ICPSA 2020) held at Ravenshaw University, Cuttack, Odisha, jointly organized by AAAPT (Asian African Association for Plasma Training) during 26th -28th Dec 2020.
- Chaired the session Applied and Basic Plasma (AB.2c) of 14th Asia-Pacific Physics Conference 2019 (APPC-14), Kuching Malaysia during 17-22 Nov 2019.
- Poster Session Chair of the 45th IEEE International Conference on Plasma Sciences (ICOPS-2018), Denver, US, June 24-28, 2018.
- Chaired the session 6(b) of International Conference on Plasma Science and Applications 2013 (ICPSA2013) 4-6 Dec 2013, NIE Singapore.
- International Workshop on Plasma Science and Applications (IWPSA-2010), 25-26 October 2010, Xiamen, China.

MEMBER OF CONFERENCE COMMITTEE

- Member of National Advisory Committee of 13th International Conference on Plasma Science and Applications (ICPSA 2020) held at Ravenshaw University, Cuttack, Odisha, jointly organized by AAAPT (Asian African Association for Plasma Training) during 26th - 28th Dec 2020.
- Member of National Advisory Committee of National Conference on Recent Advances in Materials, July2019, Centurion University of Technology and Management, Bhubaneswar.
- Chairman of Organizing Committee of Recent Trends in Basic Plasma Research, March 8, 2019.
- Member of Organizing Committee of CPP-IPR Workshop on Linear Tokamak Divertor Simulators for PSI studies, 24-26 Nov. 2014, Assam, India
- Member of International Scientific Committee of ICPSA 2014.

- Member of International Scientific Committee of ICPSA 2013.
- Member of Organizing Committee of National Symposium on Plasma Physics, PLASMA-2001.
- Member of Organizing Committee of 15th International Symposium on Plasma Chemistry, 9-13 July, 2001, Orleans, France.

ADMINISTARTIVE RESPONSIBILITY AT CPP-IPR

- Designated in-charge Acting Centre Director
- Chairman, Campus Development Committee and Store Committee
- Former Chairman/ Member, Purchase and Store Committee
- Former Chairman/Member, Recruitment, Review & Promotion Committee
- Former Chairman, Medical Committee
- Former Chairman/Member, Academic Committee
- Former Public Information Officer

ADMINISTARTIVE TRAINING

- Attended a training program on the Right to Information Act 2005 conducted by Institute of Public Administration from 23-25 May 2011.