

## CURRICULUM VITAE

**NAME :** PROF SHIV DATT KUMAR

**PRESENT POSITION :** Professor (HAG Scale)  
Department of Mathematics  
Motilal Nehru National Institute of Technology Allahabad  
Prayagraj (U.P.), India, Pin - 211004  
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**ORCHID ID :** 0000-0002-5180-3423

**SCOPUS ID :** 56122671300

**FATHER'S NAME :** Shiv Mohan Tripathi

### EDUCATIONAL QUALIFICATION :

Examination	Board/University	Year	Division	Remarks
M.A.(Maths)	Allahabad University	1988	First (77 %)	IInd Position in Alld. Univ.
Post M.Sc.(Maths)	Harish-Chandra Research Institute, Allahabad	1993		
NET(National Eligibility Test)	UGC-CSIR	June 1993		
Ph.D.	Harish-Chandra Research Institute (Alld. University)	2003		Sub.-Commutative Algebra

**RESEARCH INTERESTS :** Commutative Algebra, Algebraic Geometry, Operation Research.

### RESEARCH AWARDS/FELLOWSHIPS RECEIVED

- Mathematics Research Fellowship at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy** from May 18 to July 17, 2009.
- Mathematics Research Fellowship at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy** from May 18 to June 17, 2008.
- Visiting Scientist at the **Johann Radon Institute for Computational and Applied Mathematics(RICAM), Linz, Austria** from May 15, 2006 to June 15, 2006.
- Mathematics Research Fellowship at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy** from June 1, 2004 to September 2, 2004.
- Junior and Senior Research Fellowships at **Harish-Chandra Research Institute, Jhansi, Allahabad** in Commutative Algebra from 14th August, 1992 to 9th May, 1996.

## OTHER AWARDS, HONOURS & RECOGNITION:

1. Elected as a **Member of the Editorial Board of the Journal of Indian Mathematical Society (JIMS)**, a periodical published by the IMS from January, 2024.
2. **International EARG Award 2024** on 19th March, 2024 (Lifetime Achievement award in Academia and Research) by MathTech Thinking Foundation, Fazilka, Panjab, India in association with Poornima College of Engineering, Jaipur, India
3. Elected as a **Council member of Indian Mathematical Society (IMS)** for three years with effect from 1st April, 2023.
4. Education Excellence Award for Best Academician, year - 2021 by SEMS Welfare Foundation, Noida (UP), in the international award convention held on 09th April, 2022 in Greater Noida at International Conference "Contemporary Challenges in Management, Education, Technology & Applied Sciences.
5. Guest of Honour in the International Conference Recent Advances in Pure and Applied Algebra (RAPAA 2021) organized by NIT Jamshedpur during 26-28 October, 2021.
6. Outstanding Scientist Award by VDGGOOD International Scientists Awards in the category of Engineering, Sciences & Medicine during 17 -18 October, 2020 in Kolkata.
7. Expert Member, DRC (Doctoral Research Committee), Madan Mohan Malviya Technological University, Gorakhpur since 2019.
8. **Dewang Mehta National Education Award-2017 for Best Professor in Mathematics** (regional round) on 14th September, 2017 at Vivanta by Taj hotel, Lucknow by Dy Chief Minister on UP (Dr Dinesh Sharma).
9. Guest of Honour in the International Conference on Recent Advances in Engineering Science and Management, August 11-12, 2017 at Vindhya Institute of Technology & Science, Satna (MP).
10. Expert Member, Board of Studies of Mathematics for Dr APJ Abdul Kalam Technical University, Uttar Pradesh, Lucknow since January, 2016.
11. Chairman in parallel session of Algebra in the conference "**International Congress of Mathematicians**" at Coex, **Seoul, South Korea** during August 13-21, 2014.
12. Edushine 2014 : Honoured by the United Group of Institutions for distinguished services in the academic world on June 07, 2014 at United Campus Allahabad.
13. Member, Board of Studies of Mathematics Department, Bundelkhand University, Jhansi during 2014-16.
14. Invited as a Judge in the Chhattisgarh Young Scientists Congress 2013 held at Govt Nagarjuna P.G. College of Science, Raipur during Feb 28- March 01, 2013.
15. Edushine 2012 : Honoured by the United Group of Institutions for distinguished services in the academic world on May 25, 2012 at United Campus Allahabad.
16. Member of selection boards for faculty of several universities, Ph.D. thesis examiners of several universities and institutions.
17. Received Best Teacher Award in Government P. G. College, Ramnagar (Nainital), Uttrakhand in 2004.

## PUBLICATIONS:

**Edited book:** Advances in Pure and Applied Algebra, Ratnesh Kumar Mishra, Manoj Kumar Patel, and Shiv Datt Kumar, Publisher: De Gruyter, Berlin/Boston Proceedings in Mathematics, 2023.

### IN INTERNATIONAL REFEREED SCI /SCOPUS JOURNALS

1. (With Dev Karan Singh, Mani Shankar Pandey), Extension theory for non abelian Lie rings, **Journal of Algebra and its Applications**, Accepted on 28 July 2024, In press.
2. (With Tushar Singh, Ajim Uddin Ansari) Existence and Uniqueness of  $S$ -Primary Decomposition in  $S$ -Noetherian Modules”, **Communications in Algebra**, Taylor and Francis Publication, SCI Journal, Vol 52, pp. 1-10 April, 2024, <https://doi.org/10.1080/00927872.2024.2350598>.
3. (With Dev Karan Singh, Mani Shankar Pandey) Lie Perfect, Lie Central Extension and Generalization of Nilpotency in Multiplicative Lie Algebras, **Czechoslovak Mathematical Journal (SCI Journal)**, Vol. 74, No. 1, pp. 283-299, 2024.
4. (With Tushar Singh, Ajim Uddin Ansari) ”S-Noetherian rings, modules and their generalizations”, Surveys in Mathematics and its Applications”, Volume 18 (2023), 163–182, (**Scopus Journal**). ISSN 1842-6298 (electronic), 1843-7265 (print)
5. (With Ajim Ansari, Brajesh Sharma, Srinivas Behara), Graded Prime Ideals Attached to a Group Graded Module, Iranian Journal of Mathematical Sciences and Informatics, Vol. 17, No. 2 (2022), pp 59-74, DOI: 10.52547/ijmsi.17.2.59 ISSN: 1735-4463, e-ISSN: 2008-473, (**Scopus, ESCI Indexed**).
6. (With Srinivasarao Thota), A new reduction algorithm for differential-algebraic systems with power series coefficients, Information Sciences Letters, 2021, Vol 10(1), 59-66, (**Scopus**).
7. (With Srinivasarao Thota), Symbolic Algorithm to Solve Initial Value Problems for Partial Differential Equations, Bulletin of Computational Applied Mathematics, Vol 8, Issue 1, 2020, ISSN:2244-8659, (**Scopus, ESCI Indexed**).
8. (With Ajim Uddin Ansari, B. K. Sharma), Different Types of  $G$ -Prime Ideals Associated to a Graded Module and Graded Primary Decomposition in a graded Prufer Domain, International Electronic Journal of Algebra, (**Scopus Indexed**), Vol 28, Issue 28, Pages 141 - 155, 2020, <https://doi.org/10.24330/ieja.7>
9. (With Abhishek Juyal), On the family of elliptic curves  $y^2 = x^3 - m^2x + p^2$ , Proceedings-Mathematical Sciences, (Indian Academy of Sciences) (Springer Publication-**SCI Journal**), Vol 128 (5), 2018, page 54-,ISSN: 0253-4142. E-ISSN: 0973-7685. [doi.org/10.1007/s12044-018-0433-0](https://doi.org/10.1007/s12044-018-0433-0)
10. (With Kalyan Chakraborty; Abhishek Juyal; Bibekananda Maji), An asymptotic expansion of a Lambert series associated to cusp forms. Int. J. Number Theory **SCI Journal**, Vol 14 (2018), no. 1, 289-299, MR3726254
11. (With Mamta Balodi, Hua-Lin Huang), On the classification of finite quasi-quantum groups Reviews in Mathematical Physics, **SCI Indexed**, World Scientific Publication, Vol 29, No.10, 2017, pages 11730003-22, PISSN:0129-055X E-ISSN:1793-6659, DOI: 10.1142/S0129055X17300035, MR3720509
12. (With Sumit Kumar Upadhyay, Raja Sridharan) “Projective modules and efficient generation of ideals over Laurent polynomial rings”, Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, Vol 87(3), 349-453, 2017 (**Springer Publication**) **SCI Journal**, In press. ISSN: 0369-8203, E-ISSN: 2250-1762. Impact factor 0.390, DOI : 10.1007/s40010-017-0381-6, MR3680003

13. (With Jyoti Singh) “Mathematical Counterpart of the Heisenberg Uncertainty Principle” for publication in the **Reports on Mathematical Physics, (Elsevier Publication, Scopus Journal, Vol 80 (2), 2017, 161-176, ISSN: 0034-4877, DOI : 10.1016/S0034 – 4877(17)30074 – 5, MR3721904 Impact factor 0.870.**
14. (With Sumit Kumar Upadhyay, Raja Sridharan) Connection between commutative algebra and topology, **Indian Journal of Pure and Applied Mathematics (Springer Publication), SCI Journal, Vol 47 (3), 471-489, September, 2016, Indian National Science Academy Publication, DOI : 10.1007/s13226 – 016 – 0179 – 2, P ISSN: 0019-5588, E ISSN: 0975-7465.**
15. (With Mamta Balodi & Hua-Lin Huang) Diamond lemma for the group graded quasi-algebras, **Proceedings Mathematical Sciences (Indian Academy of Sciences) (Springer Publication), SCI Journal, Vol 126, Issue 3, pp 341-352, August 2016, DOI 10.1007/s12044-016-0292-5. ISSN: 0253-4142, E ISSN: 0973-7685.**
16. (With Srinivasarao Thota) Symbolic algorithm for a system of differential-algebraic equations, *Kyungpook Mathematical Journal (Indexed: Scopus, Korean SCI), 56(4), 2016, 1141-1160.*
17. (With Srinivasarao Thota) Solving system of higher-order linear differential equations on the level of operators, *International Journal of Pure and Applied Mathematics (Scopus Journal), Vol 106 (1), 2016, 11-21, ISSN: 1311-8080 (printed version); ISSN: 1314-3395 (on-line version), doi: 10.12732/ij-pam.v106i1.2.*
18. (With Jyoti Singh) Rees algebra over an ideal in t-rings, **Journal of Pure and Applied Algebra, Elsevier Publication, SCI Journal, Volume 219, Issue 4, April 2015, Pages 830-838, DOI : 10.1016/j.jpaa.2014.04.032, ISSN: 0022-4049, E ISSN: 1873-1376.**
19. (With Priti Singh) Existence of reduction of ideals over semi local rings, *The Mathematics Student, Vol 84, (No. 1- 2), 2015, IMS publication (Scopus Indexed).*
20. (With Priti Singh) Reductions in Rees algebra of modules, **Algebras and Representation Theory, Volume 17, No. 2, April, 2014, 17851795, Springer Publication, SCI Journal, DOI10.1007/s10468–014 – 9471 – 1. ISSN:1386-923X**
21. (With Mamta Balodi & Hua-Lin Huang) Finite Majid algebras over the Klein group, **Communications in Algebra, Taylor and Francis Publication, SCI Journal, Vol 42 , Issue 11 (2014), pages 4962-4983 (ID: 828739 DOI:10.1080/00927872.2013.828739). ISSN: 0092-7872, E ISSN: 1532-4125.**
22. (With Jyoti Singh) On the Involutivity of the Characteristic Variety, **Communications in Algebra, Taylor and Francis Publication, SCI Journal, 42, Issue 8 (2014), 3607-3618. (ID: 790393 DOI:10.1080/00927872.2013.790393). ISSN- 0092-7872, E ISSN- 1532-4125.**
23. (With Raja Sridharan and Ratnesh Kumar Mishra) Completion of unimodular row to an invertible matrix, **Mitteilungen Klosterneuburg Journal, 64 (3) 2014, Scopus Journal. ISSN: 0007-5922**
24. (With Sumit Kumar Upadhyay and Raja Sridharan) On the number of generators of a projective module, *Proceedings of the Indian Academy of Sciences-Mathematical Sciences, (Springer Publication), SCI Journal, Vol. 123, No. 4, November 2013, 469 - 478. DOI 10.1007/s12044-013-0147-2. ISSN: 0253-4142, E ISSN: 0973-7685.*
25. (With Ratnesh Kumar Mishra) Lifting of generators of ideals to Laurent polynomial ring, *Beitrage zur Algebra und Geometrie (Contributions to Algebra and Geometry) (Scopus indexed) (Springer*

**Publication**), March 2013, Volume 54, Issue 1, pages 147-153, ISSN 0138-4821. DOI: 10.1007/s13366-012-0102-x.

26. (With Sumit Kumar Upadhyay) Existence of a unique group of finite order, the Mathematics Student, Vol 81, Nos. 1-4, December, 2012, pages 215-218 (ISSN: 0025-5742), **IMS publication (Scopus Indexed)**.
27. (With Srinivas Behara) Group graded associated ideals with flat base change of rings and short exact sequences, **Proceedings of the Indian Academy of Sciences-Mathematical Sciences, (Springer Publication), SCI Journal**, Vol. 121, No. 2, February 2011, 111–120. ISSN: 0253-4142, E ISSN: 0973-7685.
28. (With Srinivas Behara) Uniqueness of graded primary decomposition of modules graded over finitely generated Abelian groups, **Communications in Algebra, Taylor and Francis Publication, SCI Journal**, Vol 39 (7), 2011, 2607-2614. ISSN- 0092-7872, E ISSN- 1532-4125.
29. (With Markus Perling) Primary decomposition over rings graded by finite Abelian groups, **Journal of Algebra, Elsevier Publication, SCI Journal**, 318(2), 2007, 553-561. ISSN: 0021-8693, E ISSN: 1090-266X.
30. Sections of zero dimensional ideals over a Noetherian ring, **Archiv der Mathematik, Birkhauser Verlag Basel, Switzerland Publication, SCI Journal**, 89, 2007, 124-130. ISSN: 0003-889X, E ISSN: 1420-8938.
31. (With M. Tripathi and K. Pandey) Surface modification of Semiconductor Photo-electrode for improved Solar Cell performance, **Solar Energy Materials and Solar Cells, Elsevier Publication, SCI Journal**, Volume 91, Issue 18, 2007, 1663-1668.
32. A note on a graded ring analogue of Quillen's theorem, **Expositiones Mathematicae, Elsevier Publication, SCI Journal**, Vol 22, 2004, 29-30. ISSN: 0723-0869, E ISSN: 1878-0792.
33. (With Ramji Lal) Lifting of generators of an ideal and Nori's Homotopy Conjecture, **Indian Journal of Pure and Applied Mathematics (Springer Publication), SCI Journal**, Indian National Science Academy Publication, Vol 34 (11), 2003, 1599-1610. ISSN: 0019-5588 (print version) ISSN: 0975-7465 (electronic version)
34. (With Satya Mandal) Some results on generators of an ideal, **Journal of Pure and Applied Algebra, Elsevier Publication, SCI Journal**, Vol. 169 (1), 2002, 29-32. ISSN- 0022-4049, E ISSN 1873-1376.

#### IN INTERNATIONAL REFEREED JOURNALS

35. (With Abhishek Juyal and Dustin Moody), Elliptic Curves Arising From the Triangular Numbers, *Integers* : Electronic journal of combinatorial number theory, A 10, Vol 19, 2019.
36. (With Srinivasarao Thota), On a mixed interpolation with integral conditions at arbitrary nodes, *Cogent Mathematics (Taylor and Francis Publication)*, Vol 3 (1) (2016), 1-10, 3:1151613, [http : //dx.doi.org/10.1080/23311835.2016.1151613](http://dx.doi.org/10.1080/23311835.2016.1151613).
37. (With Ratnesh Kumar Mishra, S. Awasthi) A Lifting Problem on Zero Dimensional Ideals over Laurent Polynomial Ring, *Journal of International Academy of Physical Sciences*, Volume 16, Number 1(2012), 69 – 74, (ISSN 0974 - 9373), (Journal number 48832 in UGC approved List).

38. (With Ratnesh Mishra and Srinivas Behara) On projective modules and computation of dimension of a module over Laurent polynomial ring, ISRN Algebra (**Hindawi Publication, USA**), Vol. 2011, Article ID 926165, 12 pages, doi:10.5402/2012/926165.
39. (With Priti Singh) A note on joint reduction of an ideal over local ring, **International Mathematical Forum**, Vol 7, No. 4 (2012), 183-188.
40. (With Pitam Singh & R. K. Singh) An approach for multiobjective linear plus linear fractional programming problem, International electronic journal of pure and applied mathematics Vol. 2, No. 3 (2010).
41. (With Pitam Singh & R. K. Singh) Fuzzy Method for Multiobjective Linear Plus Linear Fractional Programming Problem, **International Mathematical Forum**, Vol 5 ( No. 60) 2010, 2971 - 2983.
42. (With Pitam Singh & R.K. Singh) Fuzzy efficient and Pareto - Optimal Solution for Multiobjective Linear Fractional Programming Problems, International Journal of Mathematics in Operational Research, Vol. 6, No. 3, 2014.
43. (With Priti Singh) On a variant of Bertini's theorem and generator of ideals of a polynomial ring with monic polynomials, **International Journal of Algebra**, Vol 3, 2009, no. 17, 863 - 872.
44. Some Important Notions of Grobner Basis and Buchberger's Algorithm, **RICAM, website of Grobner basis**, Linz, Austria, 2006.  
*http://www.ricam.oeaw.ac.at/Groebner - Bases - Bibliography/gbbib\_files/publication\_1194.*
45. Analogue of Eakin Sathaye theorem over Rees Algebra, UNESCO & International Atomic Energy Agency, ICTP, IC/049/2009.

#### RESEARCH PAPERS IN ArXiv :

46. Sumit Kumar Upadhyay, Shiv Datt Kumar, Ramji Lal, Public Key Protocol Based on Amalgamated Free Product, *arXiv.org > cs > arXiv : 1105.1086.*

#### PAPER SUBMITTED IN SCI JOURNALS :

47. (With Priti Singh, Shravan Kumar, Ajim Uddin Ansari) "Symbolic Rees Algebra of Modules and reduction of modules".

#### (b) IN INTERNATIONAL CONFERENCES :

1. (With Priti Singh) "Symbolic Rees Algebra and Reduction of Modules" in the International Conference "**International Congress of Mathematicians**" at Riocenter, **Rio de Janeiro, Brazil** during August 01-09, 2018 (poster presentation).
2. (With Srinivasarao Thota) A new method for general solution of system of higher-order linear differential equations, International conference on Inter Disciplinary Research in Engineering and Technology, April 29-30, 2015, New Delhi, India.
3. (With Jyoti Singh) "Coisotropic property of characteristic variety over Weyl algebras and relation with Symplectic geometry & Quantum Physics" in the International Conference "**International Congress of Mathematicians**" at Coex, **Seoul, South Korea** during August 13-21, 2014.
4. (With Sumit Kumar Upadhyay, Raja Sridharan) "On the number of generators of projective modules", International Conference on Computer Algebra CoCoA- 2013 at the Institute of Mathematics, University of Osnabrueck, **Germany**. during June 10-14, 2013 (Poster Presentation).

5. (With Priti Singh) The Rees algebra of a module and ideal module over a Noetherian local ring, International Conference on "Computational Mathematics, Computational Geometry and Statistics", **Singapore**, during Jan 30-31, 2012.
6. (with Ratnesh Kumar Mishra), Lifting of generators of an ideal over Laurent polynomial ring, **International Congress of Mathematicians**, 2010, Hyderabad, August 19-27, 2010.
7. (With Pitam Singh & R.K. Singh) Fuzzy Efficient and Pareto - Optimal Solution For Multiobjective Linear Plus Linear Fractional Programming Problem, International Conference on Computer and Communication (ICCCT-2010) (IEEE Conference) September 17-19, 2010, MNNIT, Allahabad.
8. (With Priti Singh) Analogue of Eakin Sathaye Theorem over Rees Algebra, **International Congress of Mathematicians**, 2010, Hyderabad, August 19-27, 2010.
9. Sections of Zero Dimensional Ideals over a Noetherian Ring at the CIMPA-UNESCO- Spain School during August 14-21, 2006, Universidad Complutense de Madrid, Madrid, Spain.
10. Homotopy of Sections of Ideals over a Noetherian ring , School and Conference on Algebraic K-Theory and its Applications (May 14 - June 1, 2007), Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy.
11. "Projective Modules and completion of a unimodular row to an elementary matrix" 74th Annual Indian Mathematical Society Conference at Allahabad University, Allahabad, during December 27 - 30, 2008.

**(c) IN NATIONAL CONFERENCES :**

1. (With Srinivasrao Thota) Symbolic method for polynomial interpolation with Stieltjes conditions, Proceedings of International Conference on Frontiers in Mathematics 2015, 225-228, March 26-28, 2015, Gauhati University, Guwahati, Assam, India,  
<http://www.gauhati.ac.in/ICFMGU>, ISBN: 978 – 81 – 928118 – 9 – 5.
2. (With Sumit Kumar Upadhyay and Raja Sridharan) "On the Number of Generators of Projective Modules" in the National Conference of Ramanujan Mathematical Society at Shiv Nadar University, New Delhi, during October 20-22, 2011.
3. "Projective modules and completion of a unimodular row to an elementary matrix" Indian Mathematical Society Conference at Allahabad University, Allahabad, during December 27-30, 2008.
4. (With Ratnesh K. Mishra) "Some Remarks on Grobner basis" in the national conference on "Material Science in the service of society " at the CMP Degree College, Allahabad University, Allahabad during February 5-6, 2008. In this conference also worked as Joint Secretary.
5. "Lifting of generators of zero dimensional ideals over Noetherian rings" ACADEMICA at M.B. Govt. P. G. College, Haldwani, Nainital during March 11-12, 2005.
6. "On Generators of Ideals over a Noetherian Ring", Recent Trends in Mathematics, Aligarh Muslim University, March 24 - 26, 2001.

**External Projects completed**

1. National Board of Higher Mathematics sanctioned a research project entitled "Study of Rees Algebra, graded rings in module theoretic setup and its applications" of Rs 10,71,449/- for four years. Duration- April 01, 2010 to March 31, 2014 Status- Completed.

2. DST (Department of Science and Technology), Govt of India, sanctioned a research project "Graded modules over rings graded by finitely generated Abelian groups" in 2011 of Rs 10,04,640/- for three years. Duration- December 12, 2011 to December 11, 2014 (file no. SR/S4/MS:642/10-11) Status- Completed

**Ph.D. GUIDANCE EXPERIENCE :**

S.N.	Name	Present Status	Topic
1	Srinivas Behara	Degree Awarded - 2011 Faculty at Govt. Polytechnic for Minorities, Guntur (AP)	A study on rings graded over finitely generated Abelian groups
2	Pitam Singh	Degree Awarded- 2012 Faculty in MNNIT Allahabad	A study on fuzzy multiobjective fractional programming problems and their applications Co-Supervisor Prof R.K. Singh, EED
3	Ratnesh Kumar Mishra	Degree Awarded - July, 2013 Faculty in NIT, Jamshedpur	Study of Projective Modules, Generators of Ideals and Modules
4	Priti Singh	Degree Awarded - Jan, 2014 Faculty in Patna University	A study on Rees Algebras of ideals, modules and its reductions.
5	Sumit Kumar Upadhyay	Degree Awarded- Dec, 2014 Faculty in IIIT Allahabad	A study on unimodular rows and its topological analogue
6	Mamta Balodi	Degree Awarded- March, 2015, National PDF at IISc Bangalore	Classification of finite dim pointed Majid Algebra (Co-supervisor Prof Hua Lin-Huang, National Huaqiao University, China
7	Jyoti Singh	Degree Awarded - July, 2015 Faculty at VNIT, Nagpur	A study on Characteristic Varieties of Filtered Modules and Rees Algebra of $t$ -rings
8	Srinivasrao Thota	Degree awarded - June, 2017 Faculty at Amrita Vishwa Vidhyapeetham, Amaravati, A.P.	A study on Symbolic algorithms for solving ordinary and partial linear differential equations
9	Abhishek Juyal	Degree Awarded - Dec 2018 Faculty at Hemvati Nandan Bahuguna Garhwal Univ. Srinagar, Uttrakhand	A study of some problems on Diaphantine equations, Elliptic curves and Lambert Series Co-Supervisor: Prof Kalyan Chakraborty

**Conference/Workshop organized :**

- Chairman of National Instructional Workshop on Cryptography (NIWC-2018) during June 6-10, 2018 at MNNIT, Allahabad (budget: Rs 4.91 Lakhs, Participants: 90)
- Joint Organizing Secretary of "National Conference Application of Mathematics in Engineering and Sciences" (AMES-2014) during November 29-30, 2014 at MNNIT, Allahabad.
- Organizing Secretary of National Instructional Workshop on Cryptology (NIWC-2014) during June 5-9, 2014 at MNNIT, Allahabad.
- Chairman of the National Workshop "Optimization Techniques and their applications" (NWOTA-2013) during June 5-11, 2013 (seven days) at MNNIT, Allahabad.
- Convener and Chairman of the National Conference "Advances in Mathematical Sciences" during October 5-7, 2012 (three days) at MNNIT, Allahabad.



- (f) Chairman and Coordinator of the Workshop on Course Curriculum development of M.Sc. (Mathematics and Scientific Computing) and B. Tech. Mathematics Courses on March 24, 2012.
- (g) Joint Secretary of the National Conference on “Application of Material Science in the Service of Society” at C M P Degree College, Allahabad in February 5-6, 2008.
- (h) Convener of Workshop on Course Curriculum development of M.Sc. (Mathematics and Scientific Computing) in April, 2007.

### MEMBER OF EDITORIAL BOARD OF THE JOURNALS

- (a) International Journal of Engineering and Applied Sciences since January 2013.
- (b) American Journal of Applied Mathematics and Statistics, since 2013 (SCIEP).
- (c) Applied Mathematics and Sciences: An International Journal (Math SJ)

### TEACHING EXPERIENCE :

Position Held	Institution	Duration	Pay Scale
Professor (HAG Scale)	Motilal Nehru National Institute of Technology Allahabad	March 26, 2021 to continue	Rs 67000-79000 15th Pay Matrix
Professor	Motilal Nehru National Institute of Technology Allahabad	from Sept 28, 2012 to March 25, 2021	37400-67000 Grade pay 10500
Associate Professor	Motilal Nehru National Institute of Technology Allahabad	from June 20, 2008 to Sept 27, 2012	37400-67000 Grade pay 9500
Assistant Professor (Reader)	Motilal Nehru National Institute of Technology Allahabad	from June 20, 2005 to June 19, 2008	15600-39100
Senior Lecturer	Govt. P. G. College, Ramnagar (Nainital)	May 19, 2003 to June 19, 2005	8000-275-13500
Lecturer(Maths)	Govt. P. G. College, Ramnagar (Nainital) to May 18, 2003	from Dec 29, 1998	8000-275-13500
Lecturer(Maths)	Allahabad Degree College, Allahabad University, Allahabad	from Nov 03, 1997 to Dec 28, 1998	
Lecturer(Maths)	Ewing Christian College, Allahabad University, Allahabad	from Sept 2, 1996 to May 28, 1997	
Lecturer(Maths)	Nagaland University, Medziphema, Nagaland	from May 9, 1996 to Sep 1, 1996	
PGT(Maths)	Army School, Srinagar (J and K)	Oct 15, 1990 to Aug 9, 1992	

### EXPERIENCE OF ACADEMIC ADMINISTRATION :

- (a) **Faculty In-charge, Institute Timetable and Classroom Infrastructure** , Motilal Nehru National Institute of Technology, Allahabad from July, 2022 to continue.
- (b) **Chief Warden (Boys Hostels)**, Motilal Nehru National Institute of Technology, Allahabad from February 09, 2017 to 06 February, 2022.
- (c) **Head**, Department of Mathematics, Motilal Nehru National Institute of Technology, Allahabad from September 01, 2011 to August 31, 2013.
- (d) **Warden-Incharge - C.V. Raman Hostel**, Motilal Nehru National Institute of Technology, Allahabad from 2 July, 2010 to 4 January, 2012.
- (e) **Warden-Incharge - R.N. Tagore Hostel**, Motilal Nehru National Institute of Technology, Allahabad from 01 November, 2010 to 4 January, 2012.

- (f) **Coordinator**, M.Sc.(Mathematics and Scientific Computing) program, Motilal Nehru National Institute of Technology, Allahabad from July, 2010 to June, 2013.
- (g) **President, Student Activity Centre (officiating)**, Motilal Nehru National Institute of Technology, Allahabad from March 22, 2010 to April 29, 2010.
- (h) **Convener**, Departmental Under Graduate Committee (DUGC) in the Department of Mathematics, Motilal Nehru National Institute of Technology, Allahabad from June, 2008 to August, 2010.
- (i) **Coordinator**, Athletics and Gymnastic Activities, Students Activity Centre, Motilal Nehru National Institute of Technology, Allahabad from July, 2008 to August, 2010.
- (j) **Convener**, Departmental Post Graduate Committee(DPGC) in the Department of Mathematics, Motilal Nehru National Institute of Technology, Allahabad from June, 2005 to June, 2008.
- (k) **Hostel Warden** in the Govt. Post Graduate College, Ramnagar (Nainital), Uttrakhand (India) from September, 2004 to June, 2005.
- (l) **N.C.C. Officer (ANO)** in the Govt. Post Graduate College, Ramnagar (Nainital), Uttrakhand (India) from March, 1999 to May, 2004.
- (m) **Assistant Hostel Warden** in the Govt. Post Graduate College, Ramnagar (Nainital), Uttrakhand (India) from March, 1999 to August, 2004.
- (n) **Proctor (Science faculty)** in the Govt. Post Graduate College, Ramnagar (Nainital), Uttrakhand (India) from March, 1999 to August, 2004.
- (o) **Dean (Science faculty)** in the Govt. Post Graduate College, Ramnagar (Nainital), Uttrakhand (India) from August, 2000 to May, 2004.

**FOREIGN COUNTRY VISITED FOR ACADEMIC PURPOSE:**

S.N.	Country visited	Year	Place
1	Italy	2004, 2006, 2008, 2009	The Abdus Slam International Centre for Theoretical Physics, Trieste
2	Iran	2005	Institute for Advanced Studies in Basic Sciences, Zanjan
3	Spain	2005	Universidad Complutense de Madrid
4	Austria	2006	RICAM, Linz
5	Turkey	2008	Istambul
6	Vietnam	2011	Institute of Mathematics, Hanoi
7	Singapore	2011	Singapore
8	Bulgaria	2012	Sofia
9	Germany	2013	University of Osnabrueck
10	South Korea	2014	ICM, COEX, Seoul
11	Brazil	2018	Riocentro, Rio de janeiro
12	Nepal	2018	NAST, Kathmandu
13	Australia	2019	Western Sydney University, Sydney

**REVIEWER OF INTERNATIONAL JOURNALS AND BOOKS:**

- (a) Journal of Algebra and its applications, 05/2024
- (b) National Academy of Science Letters, National Academy of Sciences, 04/2020
- (c) Computational Methods for Differential Equations University of Tabriz 09/2020
- (d) Journal of Prime Research in Mathematics, Abdus Salam School of Mathematical Sciences, GC University, 06/2021

- (e) Journal of Scientific Research, BHU (On reduction and relation type of an ideal) Banaras Hindu University, 06/2021
- (f) Mathematical Reviews/MathSciNet, American Mathematical Society, USA (Reviewer number: 098594).
- (g) Communications in Algebra, Taylor & Francis Publication, SCI Journal.
- (h) Springer Plus, SCI Journal
- (i) Journal of Indian Mathematical Society
- (j) Annals of Fuzzy Mathematics and Informatics
- (k) Science Journal of Applied Mathematics and Statistics, Science PG.
- (l) International Journal of Engineering, science & Technology(IJEST)
- (m) Turkish Journal of Mathematics, published from Ankara, Turkey.
- (n) International Journal of Information Technology & Decision Making.
- (o) "Higher Engineering Mathematics" of Pearson Education Publication, New Delhi

### M.Sc. Project Thesis Supervision at MNNIT, Allahabad

S.N.	Name	Session	Topic	Selection in
1	Atul Srivastav 2009MSC04	2010-11	Topology	Allahabad University
2	Ankur Shukla 2010MSC06	2011-12	Commutative Algebra	IIT (ISM), Dhanbad
3	Rangoli Goyal 2011MSC02	2012-13	Classification and Representation Theory of Finite Groups	IIT Roorkee Ph
4	Garima Gupta 2012MSC01	2013-14	Computational Algebra	PO in bank
5	Shivam Gupta 2013MSC08	2014-15	Galois Theory	IIT Kharagpur (M.Tech)
6	Satyam Kumar 2014MSC03	2015-16	Jacobian Conjecture	NET, GATE & N
7	Saraswati Bajaj 2014MSC02	2015-16	Graph Theory and Commutative Algebra	IIT Kharagpur in
8	Preeti Sharma 2015MSC09	2016-17	Game Theory	
9	Vaibhav Kalia 2016MSC18	2017-18	Introduction to Algebraic Geometry and Homological Algebra	Qualified GAT
10	Akash Yadav 2016MSC01	2017-18	Hilbert Series and Hilbert Function Of Monomial Ideals	Qualified NET, G
11	Jitender 2017MSC03	2018-19	Commutative Algebra	Qualified NET J
12	Shruti 2018MSC10	2019-20	Homological Algebra	NET JRF, GATE, Ph.D
13	Naveen Dixit 2018MSC04	2019-20	Representation Theory	GATE, NET J
14	Ankush Chawla 2019MSC15	2020-21	Algebraic Topology	
15	Anup Singh 2019MSC04	2020-21	Multiplicative Lie Algebra and Schur Multiplier	
16	Shubhankar Kumar 2021MSC23	2022-23	Mathematics behind Machine Learning and Artificial Intelligence	NET
17	Kamakshi 2021MSC10	2022-23	Representation of Groups	
18	Shivam Nandan Singh 2021MSC28	2022-23	Quantum Groups	
19	Janvi Singala 2022MSC04	2023-24	Marketing Mix Modeling	
20	Neha Kumari 2022MSC09	2023-24	Malware Detection Using Machine Learning	

## MEMBER OF PROFESSIONAL ACADEMIC BODIES :

1. Life Member of Indian Mathematical Society since 2010 (Membership No.- K-10-179).
2. Life Member of Ramanujan Mathematical Society since September 2011 (Membership No.- RMS0749).
3. Life Member of Cryptology Research Society of India (CRSI) (Membership ID- L/0636).

## COMPUTER COURSE :

- One year **Diploma in Computer Application (“O” Level )** from Electronics Services and Training Centre, Kania, Ramnagar (Nainital).

## COURSES TAUGHT:

- **Under Graduate Level:** Mathematics I, II, III, Algebra, Linear Algebra, Calculus, Real Analysis, Complex Analysis, Numerical Analysis, Discrete Mathematics.
- **Post Graduate Level:** Algebra, Computational Algebraic Geometry, Topology, Operations Research, Algebraic Number Theory, Optimization, Fuzzy Theory, Weblet Theory, Mathematical Modeling, Discrete Mathematics and Functional Analysis.

## INVITED TALKS/SEMINARS GIVEN OUTSIDE THE PERMANENT INSTITUTE:

1. Delivered invited talk on "Primary Decomposition in S-Noetherian Modules" in the workshop on Recent Development in Algebra at IIIT Allahabad during 8-10 July, 2024.
2. Delivered a talk on "Mathematical Foundation of Cryptography" in the National Instructional Workshop on Cryptology at MNNIT Allahabad during 01-05 July, 2024.
3. Delivered invited talk on "Fundamental Mathematical Models in Science, Engineering and Cryptography" in the International Conference on Recent Advances in Science during 14 - 15 March 2024 (ICRAS-2024) organized by the Faculty of Science Invertis University Bareilly.
4. Delivered an invited talk as a Keynote speaker on 23rd June, 2023 on Representations and Characters of compact and non compact groups in 2nd International Conference on "Recent Advances in Mathematical Sciences and Interdisciplinary Areas (RAMSIA)" during June 22-24, 2023 organized by Dept of Mathematics, GLA University Mathura.
5. Delivered an invited talk on 30th December, 2022 in the 88th Meeting of Indian Mathematical Society (International) during 27-30 December, 2022 at BIT Mesra Ranchi, Jharkhand on Representations of Finite groups and Algebra.
6. Delivered an invited talk on Ideas and Challenges in the Representation Theory of groups in the International Conference on Real World Domains and Interfaces in Mathematics at University of Rajasthan on 18th December 2022 during December 17-18, 2022.
7. Delivered an invited talk on "Representation Theory and its applications" in the Faculty Development Programme on "Recent Advances in Applied Mathematics Using Mathematical Tools (RAAMMT-2022)" during December 14 - 18, 2022 organized by Department of Mathematics & Scientific Computing, Madan Mohan Malaviya University of Technology, Gorakhpur
8. Delivered Invited talk on " Group based Cryptography" on 16th November, 2022 in the "Workshop on Group Theory and Related Areas" during November 14-16, 2022 at IIIT Allahabad.

9. Delivered Invited talk on 02nd November, 2022 on "Differential and Algebraic structures in Technology and Cryptography" in the UGC-HRDC sponsored Two-Week Online Refresher Course on "Mathematics and its Applications" organized by the Department of Mathematics, University of Allahabad, Prayagraj from November 02-15, 2022.
10. Invited talk on "Mathematical Models in Science, Technology and Management" on 10/04/2022 in the International Conference "Contemporary Challenges in Management, Education, Technology & Applied Sciences" organized by Mangalmai Institute of Management and Technology, Greater Noida & SEMS Welfare foundation.
11. Invited talk in the International Conference Recent Advances in Pure and Applied Algebra (RAPAA 2021) on "Attached Prime Ideals in a factorizable Group Graded modules" organized by NIT Jamshedpur during 26-28 October, 2021.
12. Delivered lecture on "Representation Theory of Finite Groups" as a resource person at National Level 05 days Faculty Development Programme on Emerging Trends in Mathematics, Tirumala Engineering College, Jonnalagadda, Guntur District, Andhra Pradesh on 17/06/2021.
13. Delivered Invited talk on National Mathematics Day at CSJM Kanpur University on "Mathematical Models in Technology and Glimpse of Vedic Mathematics" on 22/12/2020.
14. Invited talk on "Algebraic and Differential Models in Engineering and Cryptography" in the workshop on "Applications of Algebra in Science and Engineering (AASE-2020)", at National Institute of Technology, Jamshedpur on 12/10/2020.
15. Invited talk at Virtual Workshop on "Collating Mathematics Resources for Teachers in Higher Education", by National Institute for Educational Planning and Administration, New Delhi on 06/10/2020 entitled Content and reading resources of Commutative Algebra, Group Theory and Differential Geometry (as a Resource Person).
16. Delivered two invited online webinar talks on "Mathematical Modeling in Technology" and "Mathematical Modelling in Cryptography" on 9th July and 10th July, 2020. organized by Institute of Engineering and Technology Lucknow.
17. Delivered an invited online webinar talk on "Applications of Mathematics in Engineering" on 27th May, 2020 organized by IIMT Greater Noida.
18. Delivered an invited talk "On Symbolic Rees Algebra of Modules" during December 20-22, 2019 at Mohanlal Sukhadiya University, Udaipur, Rajasthan in an International Conference on Recent Advances in Algebra, Analysis and Applications.
19. Delivered an invited talk in a DST INSPIRE programme on "Important concepts of Number Theory with Applications" on 14th November, 2019 at Savitri Mahavidyalay, Sonai, Karchhana, Prayagraj.
20. Delivered an invited talk in the DST sponsored programme "INSPIRE Science Camp" on 28th April, 2019 at Prayag Institute of Technology and Management, Bendo, Karchhana, Allahabad
21. Delivered an invited talk on "Geometric Invariant in the theory of D-modules" in the Asia Australia Algebra Conference held at Western Sydney University, Sydney, Australia from 21st January to 25th January, 2019.
22. Delivered an invited talk on "Applications of Mathematics in Present Technology" in CONIAPSXXIII at Kathmandu, Nepal during November 16-18, 2018.

23. Delivered two invited talks on “Mathematical ideas and their applications” during December 24-25, 2017 at Kendriya Vidyalay Old Cantt, Allahabad in a TGT Mathematics Teachers training programme.
24. Delivered two invited talks on “Rational and Jordan Canonical forms” and “Grobner basis and its applications” during December 12-13, 2017 in a National Workshop LTMTA-2017 at National Institute of Technology, Nagaland, Dimapur.
25. Delivered invited talk on KVPY and Mathematics Olympiad: Ideas & Methods in Mathematics and its applications on May 18-19, 2017 at Kendriya Vidyalay Old Cantt, Allahabad to TGT Mathematics Teachers.
26. Delivered Invited plenary talk on “Some Applications of Mathematics in Today’s Technology” in the National conference ”Recent Trends in Mathematical Sciences” (NCRIMS-16) at Madan Mohan Malviya Technical University, Gorakhpur during 12-13 April, 2016.
27. Delivered invited talk “Integrability theorem for Weyl Algebra and its relation with Heisenberg uncertainty principle” in international conference of “Infinite and finite dimensional complex analysis and its applications” at Anand International College of Engineering Jaipur during Aug 22-25, 2016.
28. Delivered Invited talk on “An Elementary Approach to Ideas & Methods in Mathematics and its Applications” on February 18, 2016 in the “Motivational Science Learning Camp” at CMDR, MN-NIT, Allahabad during 17-21 February, 2015.
29. Delivered Invited talk on “Mathematics behind present technology“ and Chaired a session in the National conference on “ Mathematical and Statistical Techniques and their Applications to Science and Engineering“ during November 20-21, 2015 at DIT University Dehradun.
30. Gave invited talk on “Coisotropic property of characteristic variety and its relation with Heisenberg uncertainty principle in the national conference on Commutative Algebra and Algebraic Geometry at IIT, Guwahati during February 5 - 9, 2015.
31. Gave an invited talk on “Algebraic Foundations of Cryptography: Finite Fields” National Instructional Workshop on Cryptology (NIWC-2014) during June 5-9, 2014 at MNNIT, Allahabad.
32. Invited talks (four lectures) on “Nilpotent groups and field extensions“ at Nagarjuna Govt. P.G. College of Science, Raipur(Chhattisgarh) during August 28-29, 2013.
33. Gave a talk on “Game Theory” in the National Workshop on “Optimization Techniques and their applications” (NWOTA-2013) during June 5-11, 2013 at MNNIT, Allahabad.
34. Invited talk on “Applications of Mathematics and Cryptography” as a resource person in a training programme/workshop of HRD Ministry, Hindi Shabdawali Ayog, at Karm Kshetra P. G. College, Etawa on February 27, 2013.
35. Gave an invited talk on “The coisotropic variety of Weyl algebra” in the national conference on “Recent Advances in Mathematics”, at Rani Durgavati University, Jabalpur January 14, 2013.
36. Invited talks on “Projective modules and unimodular rows” in the national conference on “ Analysis and its applications”, at National Institute of Technology, Srinagar (J&K) during November 19-20, 2012.

37. Two invited talks on “Boundary value problems over an Integro-Differential Algebra” and “Cryptosystem based on platform group of amalgamated free products of braid group and Thompson group” in an International conference on “Application of Computer Algebra”, at Sofia, Bulgaria during June 25-28, 2012.
38. Invited talk on “Braid group and Thomson group based Cryptosystem” in an International conference on “Group Theory and Lie Theory”, at Harish-Chandra Research Institute, Allahabad during March 19-21, 2012.
39. Delivered an invited talk on “Cryptosystem based on braid group and Thomson group” in a National workshop on “Recent trends in Graph Theory and Cryptography“, at Govt VYT PG Autonomous College, Durg (Chhattisgarh) on October 13, 2011.
40. Invited talk on “Applications of Mathematics and Cryptography” as a resource person in a training programme/workshop of HRD Ministry, Hindi Shabdawali Ayog, at Janata Degree College, Bakewar, Etawa on September 30, 2011.
41. Invited talks (seven lectures) as a resource person in a DST workshop (UGTPM) in IIT, Patna during May 15-20, 2011.
42. Gave invited talk as a resource person on “Cryptography and Importance of Mathematics“ in a national workshop of HRD Ministry, Hindi Shabdawali Ayog, on March 03, 2011 at Vivekanand P.G. College, Dibiyapur, Oraiya.
43. Invited talk on “Braid and transversal based crypto system” in the CIMPA-Vietnam school on “Braids in Algebra, Topology and Geometry” at the **Institute of Mathematics, Hanoi, Vietnam** during January 17-28, 2011.
44. Two invited talks as a resource person in the UGC Sponsored National Workshop on “Emerging Areas of applications of Mathematics” in B.C.S. Government P.G. College, Dhamtari, Chhattisgarh during October 27 -28, 2010 one on “Representations of finite groups” and another on “ Finite field extensions and Galois theory”.
45. Presented research paper “Analogue of Eakin Sathaye Theorem over Rees Algebra” in the International Congress of Mathematicians, Hyderabad, during August 19-27, 2010.
46. ”Projective Modules and completion of an unimodular row to an elementary matrix”, Indian Mathematical Society Conference at Allahabad University, Allahabad, during December 27-30, 2008.
47. A talk on “Homotopy of Sections of Ideals over a Noetherian ring” in the School and Conference on Algebraic K-Theory and its Applications (May 14 - June 1, 2007) at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy.**
48. Invited talk on the “Sections of zero dimensional ideals over a Noetherian ring ” at the **CIMPA-UNESCO- Spain** School from on 14-21 August, 2006 at Universidad Complutense de Madrid, **Madrid, Spain.**
49. Talk on the topic “Projective modules and generators of an ideal over Noetherian rings” at Allahabad University in Feb, 2005.
50. Gave a seminar on the topic “Sections of projective modules and a question of Nori” at the **The Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy** on 27th August, 2004.

51. Invited talk on the topic “Projective generation of ideals” at the national seminar organized by Jammu Mathematical Society and Dept. of Mathematics, Jammu University from 20-22 February, 2004.
52. A talk on the topic “Generators of ideals” at the University of Allahabad in June, 2001.
53. Presented a paper entitled “Lifting of generators of ideals over a Noetherian ring” presented in the national level conference at Aligarh Muslim University in March, 2001.
54. Talk on the topic “Homotopy sections of projective modules over a Laurent polynomial ring” at Harish Chandra Research Institute, Allahabad in June, 2000.
55. Seminar on the topic of “Set theoretic complete intersection ideals” at Harish Chandra Research Institute(old MRI), Allahabad in 1995.

#### **ORIENTATION/TRAINING PROGRAM / REFRESHER COURSE ATTENDED:**

- Participated in the Short Term Training Program on “Developing Massive Open Online Courses (MOOCs)” organized by ECED and SMS Department sponsored by TIQUIP-III at MNNIT Allahabad, Prayagraj during September 27- October 01, 2019.
- Participated in a Faculty Orientation programme conducted my MNNIT, Allahabad under TIQUIP-II during January 12-13, 2013.
- Participated in the National level U.G.C. sponsored **Refresher Course in Mathematics** from 20th January, 2005 to 9th February, 2005 in the Academic Staff College, Allahabad University, Allahabad.
- Participated in the National level U.G.C. sponsored **Orientation program** from 27 September, 2001 to 25 October, 2001 in the Academic Staff College, Allahabad University, Allahabad.
- Participated in the National level U.G.C. sponsored **Refresher Course in Mathematics** from 27th February, 2001 to 30th March, 2001 in the Academic Staff College, Aligarh Muslim University, Aligarh.

#### **SEMINARS / CONFERENCES ATTENDED: INTERNATIONAL LEVEL**

1. Participated as a council member and Chaired a session in the 78th International of conference of Indian Mathematical Society held at BITS Pilani, Hyderabad campus during December 22-25, 2023.
2. Participated and delivered an invited talks “On Symbolic Rees Algebra of Modules” during December 20-22, 2019 at Mohanlal Sukhadiya University, Udaipur, Rajasthan in an International Conference on Recent Advances in Algebra, Analysis and Applications.
3. Participated and gave a talk on “Geometric Invariant in the theory of D-modules” in the Asia Australia Algebra Conference held at Western Sydney University, Sydney, Australia from 21st January to 25th January, 2019.
4. Participated and presented paper (through poster) on “Symbolic Rees algebra and reduction of modules” in the “International Congress of Mathematicians” at Riocentro, Rio de janeiro, Brazil during August 01-09, 2018.



5. Participated and delivered invited talk on “Integrability theorem for Weyl Algebra and its relation with Heisenberg uncertainty principle” in international conference of “Infinite and finite dimensional complex analysis and its applications” at Anand International College of Engineering Jaipur during Aug 22-25, 2016.
6. Participated and presented a paper on “Reduction of ideals over semilocal Noetherian rings” in national conference of “Ramanujan Mathematical Society” IISER Mohali during May 15-17, 2015.
7. Participated in international conference on “Infinite Dimensional Lie Theory and its Applications” at Harish-Chandra Research Institute, Jhansi Allahabad during December 15-20, 2014.
8. Participated and presented a paper on “Coisotropic property of characteristic variety over Weyl algebras and relation with Symplectic geometry & Quantum Physics” in the “**International Congress of Mathematicians**” at **Seoul, South Korea** during August 13-21, 2014.
9. Participated and made poster presentation on research paper “On the number of generators of projective modules” in the “International Conference on Computer Algebra CoCoA- 2013” at the **Institute of Mathematics, University of Osnabrueck, Germany**“, during June 10-14, 2013.
10. Participated and gave two invited talks on “Boundary value problems over an Integro-Differential Algebra” and “Cryptosystem based on platform group of amalgamated free products of braid group and Thompson group” in an International conference on “Application of Computer Algebra”, at **Sofia, Bulgaria** during June 25-28, 2012.
11. Participated and gave an invited talk on “Braid group and Thomson group based Cryptosystem” in an International conference on “Group Theory and Lie Theory”, at Harish-Chandra Research Institute, Allahabad during March 19-21, 2012.
12. Participated in the International Conference on “Commutative Algebra and Algebraic Geometry (”CAAG-2012”) at the **University of Pondicherry**, Pondicherry during March 5-9, 2012.
13. Participated and gave an invited talk on “Braid and transversal based crypto system” in the CIMPA-Vietnam school on “Braids in Algebra, Topology and Geometry” at the **Institute of Mathematics, Hanoi, Vietnam** during January 17-28, 2011.
14. International Conference on Computer and Communication (ICCCT-2010) (IEEE Conference), September 17-19, 2010, at MNNIT, Allahabad .
15. Participated in the “**International Congress of Mathematicians**”, Hyderabad, August 19-27, 2010 and presented paper entitled “Analogue of Eakin Sathaye Theorem over Rees Algebra”.
16. Participated in the “Summer School and advanced workshop on trends and developments in Linear Algebra” during June 22-July 10, 2009 at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy**.
17. Participated in the School and workshop on “Integrable systems and Scientific Computing” during June 15-20, 2009 at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy**.
18. Participated in the Indian Mathematical Society Conference at Allahabad University, Allahabad, during December 27-30, 2008 and presented a paper entitled “Projective Modules and completion of an unimodular row to an elementary matrix”.

19. Participated in the School and Conference on Differential Geometry (June 2 - June 20, 2008) at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy**.
20. Participated in the, School and Conference on Algebraic K-Theory and its Applications (May 14 - June 01, 2007) at the **Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy** and presented research paper "Homotopy of Sections of Ideals over a Noetherian ring".
21. Participated in CIMPA Summer school on arrangements and systems and singularities at the Galatasaray University, **Istanbul, Turkey** from 11/06/2007 to 22/06/2007.
22. Participated and gave an invited talk on the research paper on "Sections of zero dimensional ideals over a Noetherian ring" at the **CIMPA-UNESCO- Spain** School from on 14-21 August, 2006 at Universidad Complutense de Madrid, Madrid, Spain.
23. Participated in the "Special Semester on Groebner Basis and related methods" from May 15, 2006 to June 15, 2006 at **Johann Radon Institute for Computational and Applied Mathematics(RICAM), Linz, Austria**.
24. Participated in "CIMPA-UNESCO-IRAN School on Groebner bases and its Application" during 9-22 July, 2005 at the **Institute for Advanced Studies In Basic Sciences, Zanzan, IRAN**.
25. Participated in "Advanced School and Conference on Non-Commutative Geometry" from 9-27 August, 2004 at the **The Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy**.
26. Participated in the international school on "Commutative Algebra interaction with Algebraic Geometry and combinatorics" from 2nd June to 11th June, 2004 at the **The Abdus Salam, International Centre For Theoretical Physics, Trieste, Italy**.
27. Participated in the International workshop on "Computational Algebraic Geometry" during 8 - 13 Dec., 2003 at H.R.I., Allahabad jointly organized by Bhaskaracharya Pratisthan, Pune and H.R.I., Allahabad.
28. Participated in the International Conference and Instructional School on "Homological Methods in Commutative Algebra" to 27th Nov. to 16th Dec., 2000 at HBCSE (TIFR), Mumbai.
29. Participated in the "International symposium on rings, modules and groups with homological techniques and their applications" at I.T., B.H.U. Varanasi during 18 - 21 Dec., 1995.

#### **NATIONAL LEVEL**

30. Participated in One Week Online Short Term Course On Machine Learning and its Applications in IoT, Computer Vision and Cloud Computing (MICC-2023) from July 10-14 2023 organised by the Department of Computer Science and Engineering, National Institute of Technology Jamshedpur.
31. Participated "Some Applications of Mathematics in Today's Technology" in the National conference "Developing Open Online" (NCRTMS-16) at MNNIT Allahabad during September 27- October 01, 2019.
32. Participated, Chaired Session and delivered Invited plenary talk on "Some Applications of Mathematics in Today's Technology" in the National conference "Recent Trends in Mathematical Sciences" (NCRTMS-16) at Madan Mohan Malviya Technical University, Gorakhpur during 12-13 April, 2016.

33. Participated and delivered an invited talk on "Mathematics behind present technology" and Chaired a session in the National conference on " Mathematical and Statistical Techniques and their Applications to Science and Engineering" during November 20-21, 2015 at DIT University Dehradun.
34. Participated in a MHRD sponsored workshop on " National Mission on Education of Information and Communication Technology (NMEICT) awareness" during August 29-30, 2014 at MNNIT, Allahabad organized by Computer Science & Engineering Department.
35. Participated in a Instructional workshop on " Schur Multiplier and related topics" during March 01-08, 2014 at Harish Chandra Research Institute, Allahabad
36. Participated in workshop on " Quality Initiatives in Technical & Higher Educational Institutions", (In Compliance with NBA & NAAC Accreditation) during February 11-13, 2014 at Engineering Staff College of India, Gachi Bowli, Hyderabad.
37. Participated in the workshop on "Finite field, Galois Theory & Cryptography", at IIT, Allahabad and NASI, Allahabad during June 25-27, 2013.
38. Participated and delivered an invited talk on "Projective modules and unimodular rows" in the national conference on " Analysis and its applications", at National Institute of Technology, Srinagar (J&K) during November 19-20, 2012.
39. Participated and presented research paper "On the Number of Generators of Projective Modules" in the National Conference of Ramanujan Mathematical Society at Shiv Nadar University, New Delhi, during October 20-22, 2012.
40. Participated in the Conference of Ramanujan Mathematical Society at Allahabad University, Allahabad, during October 2-5, 2011.
41. Participated and gave invited talks (7 lectures) as a resource person in a DST workshop (UGTPM) in IIT, Patna during May 15-20, 2011.
42. Participated in the national seminar during 20-22 February, 2004 at Jammu University and delivered an invited talk on the topic "Projective generation of ideals"
43. Participated in the National workshop on "Computational Algebraic Geometry" during 2 - 11th Jan., 2003. in H.R.I., Allahabad.
44. Participated in the National level "Instructional School on Linear Algebra" during Dec 3-15, 2001. in Harish- Chandra Research Institute, Jhunsi, Allahabad.
45. Participated in the National level Conference on "Recent trends in mathematics" during March 24-26, 2001 and presented paper entitled "Lifting of generators of an ideal" in Aligarh Muslim University, Aligarh.
46. Participated in the National Conference on "Commutative Algebra and Algebraic Geometry" during Feb 1-3, 1999 in HRI (Old Mehta Research Institute), Jhunsi, Allahabad.
47. Participated in the Seminars on "Infinite Permutation Groups" in I.I.T., Guwahati during August 6-15, 1996.
48. Visited Institute of Mathematical Sciences, Chennai, TIFR, Mumbai and H.R.I., Allahabad several times.
49. Participated in I.S.I. winter and summer schools on non-commutative Harmonic Analysis at I.S.I., New Delhi, and I.I.Sc., Bangalore respectively.