

Dr. Abhisekh Shekhar

Assistant Professor,  
Department of Mathematics,  
C.M.Science College, Darbhanga-846004, Bihar, India  
(a constituent unit of LNMU.Darbhangha)  
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### **Employment**

- \* Assistant Professor, 18/11/2017 – 30/06/2022, Kalidas Vidyapati Science College , Uchchaith, Madhubani-847223.
- \* Assistant Professor, 01/07/2022- 17/11/2023, C.M.Science College, Darbhanga-846004, Bihar, India
- \* Assistant Professor(Senior Scale), 18/11/2023- Present, C.M.Science College, Darbhanga- 846004, Bihar, India

### **Education**

- \*Ph.d: University Department of Mathematics,  
LNMU.Dabhanga  
Topic: Some investigation in the Theory of fractional Fourier transform and Pseudo-Differential Operators.  
Supervisor : Dr.Navin Kumar Agrawal , Professor & Ex-Head of Department.
- \* M.Sc.: Mathematics, Indian Institute of Technology, Kharagpur. 2010 (67.8%).
- \* B.Sc(Hons.) : Mathematics, Magadh University Bodh-Gaya,2007 (63.12%)

### **Research Interest**

History of Mathematics, Pseudo-differential Operators, Fractional Fourier Transform, Distribution Theory, Functional Analysis and Mathematical Modeling.

### **Scholarship**

- \* GATE Exam, 2010; GATE Exam,2011
- \* Secured UGC-JRF ,NET Exam, June 2011

### **Official Activities in K.V.Sc.College, Uchchaith, Madhubani-847223, Bihar**

- \* Nodal Officer of the College for online reporting, 17/05/2018 –30/06/2022.
- \* Bursar, 04/06/2019 –30/06/2022.
- \* Co-Ordinator of Training and Placement Cell, 28/06/2019 – 30/06/2022.
- \* Co-Ordinator of IQAC, 01/02/2020- 30/06/2022.

\* Warden of Women's Hostel, 02/01/2018 –30/06/2022.

\* Admission In charge, 02/01/2018 –30/06/2022.

\* Centre Superintended, 01/06/2020 – 31/01/2021.

### **Official Activities in C.M.Science College, Darbhanga-846004, Bihar**

\* Co-Ordinator of Department of B.C.A, 12/08/2023 to 03/09/2025.

\* College Internship Nodal Officer (CINO), 29/04/2026 to Present.

### **Teaching Experience**

\* Worked as Faculty Member at K.K.C.E.M. NALANDA, Bihar January 2012 to May 2012, six months.

\* Worked as Faculty Member at Cambridge Institute of Technology,Ranchi, one month June 2012.

\* Worked as Guest Faculty in Central University Jharkhand, February 2015 to May 2015.

\* Worked as Faculty Member at Nilai Educational Trust Group of Institutions,Thakur Gaon,Ranchi, Jharkhand ,From 26/12/2015 to 30/12/2016.

### **Additional Academic Activities**

\* Workshop on Sobolev Spaces, conducted by Department of Mathematics, IIT Patna February 16-23, 2017.

\* 82nd Orientation Programme ,UGC-HRDC, Patna University ,Patna, 22/01/2019 to 18/02/2019.

\* Teaching Learning Centre, Ramanujan College University of Delhi under the aegis of

MINISTRY OF EDUCATION, PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING, 14 - 28 June, 2021.

\* One Week Faculty Development Programme, INVERTIS UNIVERSITY, BAREILLY , 28/07/2020 to 02/08/2020.

\* Refresher Course: Deptt. of Mathematical Sciences, Tezpur University, 11/12/2024 to 24/12/2024.

**Research Published Papers in Referred Journals / Other Reputed Journals as Notified by the UGC:**

1. A.Prasad, **Abhisekh Shekhar**; Sobolev type spaces associated with fractional Fourier transform; Bll.Cal.Soc.,106, (1) 1-12(2014), **Peer-Reviewed**.
2. **Abhisekh Shekhar**, N.K.Agrawal ; Fractional Fourier transform in extended Sobolev type spaces; IOSR Journal of Mathematics (IOSR-JM); Volume 18, Issue 6 Ser. I (Nov. – Dec.2022), PP 45-55, **Peer-Reviewed**.
3. **Abhisekh Shekhar**, N.K.Agrawal; GENERALIZED PSEUDO-DIFFERENTIAL OPERATORS ASSOCIATED WITHSYMBOL CLASSES INVOLVING FRACTIONAL FOURIER TRANSFORM; Serdica Math. J. 48 (2022), 247–270 ; **UGC-CARE**.
4. **Abhisekh Shekhar**, N.K.Agrawal; Non-Archimedean Pseudo-differential Operators  $B_{\psi_1, \psi_2}$  Connected with Fractional Fourier Transform; IJMAA, 11(2)(2023), 59–70; **Peer-Reviewed**.
- 5.**Abhisekh Shekhar**, N.K.Agrawal; Fractional Fourier Transform on Sobolev Spaces Connected to Negative Definite Functions; Asian Journal of Pure and Applied Mathematics, Volume 5, Issue 1, Page 112-122, 2023; Article no.AJPAM.1260, **Peer-Reviewed**.
- 6 . **Abhisekh Shekhar**, N.K.Agrawal; Inequality and estimate of generalized pseudo-differential operators involving fractional Fourier transform; AIP Conference Proceeding, AIP Conf.Proc.3087, 09001 (2024), **Scopus**.
7. **Abhisekh Shekhar**; Fractional Fourier-Bessel type transform; AIP Conference Proceeding, AIP Conf.Proc.3180, 02007 (2024), **Scopus**.
8. **Abhisekh Shekhar**; Compactness of Pseudo-Differential Type Operators Involving Fractional Fourier Transform; Asian Research Journal of Mathematics, Volume 21, Issue 9, Page 44-59, 2025; Article no.ARJOM.143161, **Peer-Reviewed**.
9. **Abhisekh Shekhar**; A Comprehensive Study Of Sustainable Future Of Fractional Fourier Transform; Journal of Harbin Engineering University, Vol 46 No. 9 September 2025, **Scopus**.
10. **Abhisekh Shekhar**; The Estimation of Pseudo-differential Operators Utilising the Coupled Fractional Fourier Transform and a Certain Inequality; Asian Research Journal of Mathematics, Volume 21, Issue 9, Page 99-112, 2025; Article no.ARJOM.143721, **Peer-Reviewed**.
11. **Abhisekh Shekhar**; Coupled Fractional Fourier Transform On Sobolev Spaces Related To The Negative Definite Functions; IOSR-JM, Volume 21, Issue 5, Ser. 1 (Sept. – Oct. 2025), PP. 09-17, **Peer-Reviewed**.

- 12. Abhisekh Shekhar;** A Study on the Fourier Transforms with Their Utilizations; Journal of Harbin Engineering University, Vol 46 No. 9 September 2025, **Scopus**.
- 13. Abhisekh Shekhar;** Notion of Non-archimedean Pseudo-differential Operators Associated with Fractional Fourier Transform; Int. J. Math. And Appl., 13(3)(2025), 175–186, **Peer-Reviewed**.
- 14. Abhisekh Shekhar;** A Note on The History of Mathematics in Ancient World and His Applications; Journal of Harbin Engineering University, Vol 46 No. 9 September 2025, **Scopus**.
- 15. Abhisekh Shekhar;** Some Results on Pseudo-differential Operators Related Coupled Fractional Fourier Transform Involving Semi-norms & Norms; Asian Research Journal of Mathematics, Volume 21, Issue 10, Page 109-128, 2025; Article no.ARJOM.144957, **Peer-Reviewed**.
- 16. Abhisekh Shekhar;** Compactness Properties of Pseudo-differential Operators Related with the Coupled Fractional Fourier Transform; Asian Research Journal of Mathematics, Volume 21, Issue 11, Page 21-35, 2025; Article no.ARJOM.144958, **Peer-Reviewed**.
- 17. Abhisekh Shekhar;** A History of the Mathematics during the Scientific Revolution; International Journal of Scientific Research in Science and Technology, Volume 12, Issue 6, November-December-2025, 272-283, **Peer-Reviewed**.
- 18. Abhisekh Shekhar;** Stein-type Inequalities for the fractional Fourier Transform; Journal of Harbin Engineering University, Vol 46 No. 11 November 2025, **Scopus**.
- 19. Abhisekh Shekhar;** Some mathematical properties of two versions of pseudo-differential operators involving the coupled fractional Fourier transform; Communications on Applied Nonlinear Analysis, Vol 32 No. 7s (2025), 978-993, **Scopus**.
- 20. Abhisekh Shekhar;** Product and Commutator of pseudo-differential operators involving the coupled fractional Fourier transform; International Journal of Applied Mathematics, Volume 38 No. 5 2025, 1598-1623, **Scopus**.
- 21. Abhisekh Shekhar;** Bessel Type Function  $J_0\beta$ , Bessel Type Operator  $\Delta_0\beta$  and Fractional Fourier-Bessel Type Transform  $F_\theta$ ; Int. J. Math. And Appl., 13(4)(2025), 159–168, **Peer-Reviewed**.
- 22. Abhisekh Shekhar;** A discussion on non-archimedean pseudo-differential operator related with the coupled fractional Fourier transform; International Journal of Applied Mathematics, Volume 38 No. 11 2025, 3196-3203, **Scopus**.
- 23. Abhisekh Shekhar;** The use of mathematics in educational institutions during the Scientific Revolution; Educational Administration Theory and Practice, 2024, 30(1), 8372-8384, **Scopus**.

**24. Abhisekh Shekhar;** The non-archimedean pseudo-differential operator  $A_{\phi^{\theta}, k_1, \theta_2}$  involving coupled fractional Fourier transform connected to negative definite functions; Journal of Computational Analysis and Applications, VOL. 33, NO. 8, 2024, 7811-7823, **Scopus**.

**25. Abhisekh Shekhar;** A Mathematical Literature of Nested Intervals from “Archimedes” to “Georg Ferdinand Ludwig Phillip Cantor”; Scope, Volume 15 Number 04 December 2025, 2190-2206, **Scopus**.

**26. Abhisekh Shekhar;** Some Contributions of Calculus Pedagogy in Engineering Mathematics from 19<sup>th</sup> to 21<sup>st</sup> century; Anusandhanvallari, Vol 2023, No.1 January 2023, **UGC-CARE**.

### **Paper Presentation in seminars/ conferences:**

1. Inequality and estimate of Generalized pseudo differential operators Involving fractional Fourier transform; 2<sup>nd</sup> International Conference on Applied Mathematics & Computational Sciences-2022 (ICAMCS- 2022), **Oral**, Department of Mathematics, DIT University, Dehradun, India-248009, October 12-14, 2022

2. Fractional Fourier-Bessel Transform; International Conference of the Mathematical Society-BHU on Recent Trends in Mathematical And Computational Sciences (RTMCS), **Oral**, DST-Centre for Interdisciplinary Mathematical, Sciences (CIMS), Institute of Sciences Banaras Hindu University, Varanasi-221005, India, February 3-5, 2023.

3. Fractional Fourier-Bessel Type Transform; International Conference on Mathematics and its Applications in Technology (ICMAT23), **Oral**, SASTRA Deemed University, Kumbakonam-612001, Tamil Nadu, India, March 24-25, 2023.

4. Norms of pseudo-differential type operator modulo compact operators; International Conference on Recent Advances in Mathematics and Data Science (ICRAMDS-2024), **Oral**, Deptt. Of Maths. , Bioinformatics and Computer Application MANIT, Bhopal, 27<sup>th</sup> to 28<sup>th</sup> June, 2024.

5. Some Mathematical Properties of Fractional Fourier-Bessel Transform; Recent Trends in Mathematics in the Fields of Science and Technology (RMST-2024), **Oral**, Deptt. Maths. , Vasavi College of Engineering, Hyderabad, Telangana, 11<sup>th</sup>-12<sup>th</sup> , March 2024.

6. Product and ComSmutator of pseudo-differential operators Involving the coupled fractional Fourier transform; International Conference on Mathematical Sciences, Physical Sciences and their Applications (ICMSPSA-2024), **Oral**, Deptt. Of Maths., A.P.S. University, Rewa (M.P.), November 13-14, 2024.

7. Coupled Fractional Fourier transform on Sobolev spaces connected to negative definite functions; International Conference on Mathematics and its applications, **Oral**, PG & Research

Department of Mathematics, Periyar Arts College, Cuddalore, Tamilnadu, India, 13<sup>th</sup> December, 2024.

8. Two versions of pseudo-differential operators involving the coupled fractional Fourier transform; International Conference on Recent Advances in Mathematics, Statistics, and Data Science (RAMSDS 2024), **Oral**, Adamas University, Kolkata, West Bengal, India, 27<sup>th</sup> -28<sup>th</sup> November 2024.

9. Compactness of pseudo-differential type operators involving fractional Fourier transform; International Conference on Advances in Mathematical Sciences, **Oral**, MGCU, Motihari, Bihar, India, March 19-20, 2024.

10. Certain Inequality and Estimate of Pseudo-differential operators involving the coupled fractional Fourier transform; International conference on Advances in Computational Mathematics and Applied Physical Sciences (ICACMAPS 2025), **Oral**, G.Pulla Engineering College, Kurnool, Andhra Pradesh, India, 11<sup>th</sup> & 12<sup>th</sup> January, 2025.

#### **Books Published by National/ International Publishers:**

1. Dr. Abhisekh Shekhar; Linear Algebra; Lubicon Publications, 4/4A Bloomsbury Square, London, WC1A2RP, England, ISBN: 978-1-80433-837-7 (**International Publishers**).
2. Dr. Abhisekh Shekhar; Contemporary Engineering Mathematics; Lubicon Publications, 4/4A Bloomsbury Square, London, WC1A2RP, England, ISBN: 978-1-80433-836-0(**International Publishers**)..
3. Dr. Abhisekh Shekhar; Comprehensive Complex Analysis; Weser Books No. 79737, Aussere Weberstr.5702763 Zittau, Germany, ISBN: 978-3-96492-740-8(**International Publishers**).
4. Dr. Abhisekh Shekhar; Ordinary Differential Equation; Swaranjali Publication, 1-B, 10-B, Vasundhara, Ghaziabad, U.P.-201012, ISBN: 978-93-6559-481-2(**National Publishers**).
5. Dr. Abhisekh Shekhar; Theory of Real Function; Adam's Book Company, E Group, Old Vidi Gharkul, Solapur-413005, Maharashtra, ISBN: 978-93-48930-90-5(**National Publishers**).
6. Dr. Abhisekh Shekhar; Partial Differential Equation; Kripa-Drishti Publications, A/503, Poorva Height, SNO 148/1A/1/1A, Sus Road, Pashan-411021, Pune, Maharashtra, India, ISBN: 978-81-992618-4-6(**National Publishers**).
7. Dr. Abhisekh Shekhar; Real Analysis; Swaranjali Publication, 1-B, 10-B, Vasundhara, Ghaziabad, U.P.-201012, ISBN: 978-93-6559-878-0(**National Publishers**).

8. Dr. Abhisekh Shekhar; Functional Analysis; Big Book Distributor, B-507, Saya Zions, Greater Noida West, U.P.-201305, ISBN: 978-93-6558-770-8(**National Publishers**).
9. Dr. Abhisekh Shekhar; Group Theory; Kripa Drishti Publications, A/503, Poorva Height, SNO 148/1A/1/1A, Sus Road, Pashan-411021, Pune, Maharashtra, India, ISBN: 978-81-992618-5-3(**National Publishers**).

### **Chapter in Edited Book**

1. Dr. Abhisekh Shekhar; Negative Definite Functions on Sobolev Type Spaces with Fractional Fourier Transform; Chapter 7, Print ISBN: 978-93-88417-60-0, eBook ISBN: 978-93-88417-42-6, Mathematics and Computer Science: Research Updates Vol. 7; DOI: <https://doi.org/10.9734/bpi/mcsru/v7/6452>.
2. Dr. Abhisekh Shekhar; A Note on Partial Differential Operator, Integrated Science Companion ( Core Concepts in Chemistry, Physics and Mathematics), Swaranjali Publication, 1-B, 10-B, Vasundhara, Ghaziabad, U.P.-201012.

### **Patent**

1. Adjustable Tablet Frame, **National**.
2. Differential Equation and Integral Transform Processing Apparatus, **International**.

### **Computer Proficiency**

- \* Operating system:-Windows, Linux.
- \* Mathematical Softwares:- Matlab and Mathematica.
- \* Programming Language:-C
- \* Typing software:-Latex.

### **Personal Profile**

- \* Father's Name: Sri Devendra Prasad
- \* Mother's Name: Smt. Chintamani Devi
- \* Wife's Name : Smt. Sandhya Kumari
- \* Date of Birth: 20th April, 1986
- \* U.I.D. NO. : 764961774916
- \* PAN NO. : BYHPS9151A

\* VOTERS ID NO : MKP1152164

\* Language Known: English, Hindi.

\* Permanent Address: Village -Chilim, Post Office –Chilim ,Via-Sherghati, District-  
Gaya, Bihar, Pin Code-824211