

# Dr Anand Kumar Tiwari

## Indian Institute of Information Technology Allahabad (India)

Prayagraj - 211015, UP, India

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### Research Interest

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Graph Theory (Algebraic, Chemical, Spectral, Topological).

### PhD Details

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- Title of thesis: Semi-equivelar maps and  $d$ -covered triangulations of surfaces
- Department: Mathematics
- Institute: Indian Institute of Technology Patna, India
- Date of defence: 27 Feb 2014

### Academic Record

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Program	Institution/Board	%/CGPA	Year
High school	BNSD Shiksha Niketan Inter college, Kanpur, Uttar Pradesh/UP Board	79.6%	2000
Intermediate	BNSD Shiksha Niketan Inter college, Kanpur, Uttar Pradesh/UP Board	77.2%	2002
BSc	PPN College Kanpur, Uttar Pradesh/CSJM Kanpur University	60.2%	2005
MSc	Banaras Hindu University, Uttar Pradesh	7.9/10	2007

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### Experience and employment records

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- Assistant Professor (15 April, 2021 - till date), Department of Applied Sciences, Indian Institute of Information Technology Allahabad, Allahabad (U.P.), Level-12 (AGP 8000).
- Assistant Professor (01 February 2016 - 14 April 2021), Department of Applied Sciences, Indian Institute of Information Technology Allahabad, Allahabad (U.P.), Level-11 (AGP 7000).
- Assistant Professor (07 March 2015 - 29 January 2016), Department of Mathematics, Birla Institute of Technology Mesra, Ranchi (Jharkhand), (AGP 6000).
- Lecturer (10 October 2013 - 04 March 2015), Department of Mathematics, IIIT RK Valley, Rajiv Gandhi University of Knowledge Technologies (A.P.).

### Awards

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- CSIR NET-JRF in Mathematical Science with All India Rank-79, June-2009.
- GATE in Mathematics with All India Rank 341 (87.11 percentile), December-2009.

## List of Publications

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- A. K. Tiwari, Y. Singh, A. Tripathi, 2-semi equivelar maps on the torus and Klein bottle with few vertices. Communications in Combinatorica and Optimization, Accepted.
- Y. Singh, A. K. Tiwari, Enumeration of doubly semi-equivelar maps on the Klein bottle. Indian Journal of Pure and Applied Mathematics, Accepted.
- A. Tripathi, R. Dubey, A. K. Tiwari, S. Dhawan, Some essential aspects of spectral methods and their applications to PDEs. Mathematics in Engineering, Science and Aerospace, 15(2024), 323-345.
- A. Tripathi, A. K. Tiwari, S. Dhawan, R. Dubey, Computational method to solve Burgers' equation with periodic boundary conditions. Nonlinear Studies, 31(2024), 529-542.
- R. Bhatia, A. Tripathi, A. K. Tiwari, P. Joshi, Computational study of modified regularised and regularised long wave equations using trigonometric splines. Mathematics in Engineering, Science and Aerospace, 15(2024), 323-345
- Y. Singh, A. K. Tiwari, Doubly semi-equivelar maps on the plane and the torus. AKCE International J of Graphs and Combinatorics, 3(2022), 296-310.
- A. K. Tiwari, A. K. Tripathi, Almost semi-equivelar maps on the torus and Klein bottle, International J. Math. Combin. 4(2021), 34-40.
- A. K. Tiwari, A. Tripathi, Y. Singh, P. Gupta: Doubly semi-equivelar maps on the torus and the Klein bottle, Journal of Mathematics, 2020.
- A. K. Tiwari, A. K. Upadhyay: Semi-equivelar maps on the torus and the Klein bottle with few vertices, Mathematica Slovaca, 67(2017), 1(1-14).
- A. K. Tiwari, A. K. Upadhyay: Semi-equivelar maps on the surface of Euler characteristic -1, Note di Matematica, 37(2017), 2(91-102).
- A. K. Upadhyay, A. K. Tiwari, D. Maity: Semi-equivelar maps, Contributions to Algebra and Geometry, 55(2012), 229-242.

## Articles in Arxiv

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- Y. Singh, A. K. Tiwari, F. Ali, M.S. Pandey, On the power graph of a certain gyrogroup, arXiv: 2208.00743.
- Y. Singh, A. K. Tiwari, S. Kushwaha, Hamiltonicity of doubly semi-equivelar maps on torus, arXiv: 2101.02541v2.
- F. H. Lutz, T. Sulanke, A. K. Tiwari, A. K. Upadhyay: Equivelar and d-Covered triangulations of Surfaces. I, arXiv:1001.2777.

## Book Chapter

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- A. Tripathi, R. Bhatia, P. Joshi, and A. K. Tiwari, A Computational Study of Time-dependent Nonlinear Schrodinger Equation with Cubic Nonlinearity, Lecture Notes In Networks & Systems, Proceedings of the Tenth International Conference on Mathematics and Computing: ICMC 2024, Volume 2, Springer Nature, Print ISBN 978-981-97-2068-2, 139-158, 2024.

## Conference/Workshop Organized

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- Conference on Graph Theory and Additive Combinatorics (CGAC-2024), IIIT Allahabad, May 03-05, 2024
- Workshop on Real Analysis and Topology (WRAT-2024), IIIT Allahabad, Sept 06-08, 2024

## Papers in International/National Conferences

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- Paper Title: Semi equivelar and 2-semi-equivelar maps, The 35th Workshop in Topological Graph, November 7-10, 2023, Yokohama National University, Yokohama, Japan.
- Paper Title: Semi equivelar and doubly semi-equivelar maps on the closed surfaces, International Conference on graphs, networks and combinatorics, January 10-12, 2023, Ramanujan College, Delhi University.

- Paper Title: Semi equivelar map and  $d$ -covered triangulations, National Conference on Recent Advances in Mathematics, December 12-14, 2012, Rani Durgawati University, Jabalpur.
- Paper Title: On upper bound for  $d$ -covered Triangulations of Surfaces, Indian Mathematical Society, 81 (1-4), 2012.
- Paper Title: On  $d$ -covered triangulations of closed surfaces, National Conference & Workshop on High-Performance Computing & Application, February 8-10, 2010, Banaras Hindu University, Varanasi.

## **Invited Talks/Lectures In Conferences/Workshops**

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- Invited speaker in International conference on Mathematical Techniques in Application of Science & Technology, December 23, 2021, Dr. C.V. Raman University, Kota, Bilaspur, India. (Title of the talk: Semi-equivelar and doubly semi-equivelar maps).
- Invited speaker in refresher course on Advances in Mathematical and Physical Sciences, November 29, 2021, at Dr Harising Gour central university, Sagar, MP, India.(Title of the talk: Maps on surfaces).
- Invited speaker in 27th International Conference of International Academy of Physical Sciences (CONIAPS XXVII), October 26-28, 2021 at National Institute of Technology Jamshedpur, Jamshedpur, JH, India. (Title of the talk: Some symmetric maps on closed surfaces).
- Invited talk on “Tiling of non planer surfaces and its application”, January 30-31, 2020 at Ramswaroop Memorial University, Lucknow, UP, India.
- Invited talk on “Triangulation of surfaces and its application in Engineering ”, September 09, 2019, at Rajkiya Engineering College, Banda, UP, India.
- Invited speaker in the Impact of Recent Advances in Applied Science on Engineering, February 19-23, 2019 at Rajkiya Engineering College, Banda, UP, India. (Title of the talk-Equivelar and semi-equivelar maps: A generalization of Platonic solids and Archimedean solids).

## **Session Chaired in Conferences/Workshops**

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- Workshop on Fractal Geometry and Related Fields, Sep 25 - Oct 01, 2022, held at IIIT Allahabad, Prayagraj, UP, India.
- National Conference of Academy of Mathematics-RAMAA-2022, May 07-08, held at Banaras Hindu University, Banaras, UP, India.
- Workshop on Functional Analysis and its Applications, Jan 14-16, 2022, held at IIIT Allahabad, Prayagraj, UP, India.
- Workshop on Geometry of Banach Spaces and its Application, Dec 31, 2021-Jan 2, 2022, held at IIIT Allahabad, Prayagraj, UP, India.
- Refresher course on Advances in Mathematical and Physical Sciences, November 16-30, 2021, held at Dr Harising Gour central university, Sagar, MP, India.

## **Project (Institute/Sponsored)/Sponsored fund**

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- A classification of doubly semi-equivelar maps for lower genus surfaces, Seed money projectfunded by IIIT Allahabad, INR 3,73,750 (2018-20).
- Vritika (No. AV/VRI/2022/0211), Funded by Science & Engineering research board (SERB) India, INR 60,000 (November - December 2022).

## **PhD Guided**

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- Yogendra Singh, A study of doubly semi-equivelar maps on the plane, torus, and Klein bottle, Awarded 2024.
- Aditya Singh (RSS2023003) joined in January 2023.

## **Students activity (Internship/project)**

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- Avinash Kumar, internship under Vritika (SERB), November 24-December 23, 2022.
- Deb Sarkar, Winter internship under Vritika (SERB), November 18-December 17, 2022.
- Vinita Meena (IBM2014021), Summer internship, July 2017 - September 2017.
- Zubin Singh (IBM2014022), Summer internship, July 2017 - September 2017.

## **Abroad visits**

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- National Yokohama University, Yokohama, Japan, During November 6-9, 2023.

## **Member of Professional Bodies**

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- Indian Mathematical Society
- Kerala Mathematical Association

## **Reviewer**

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- Discrete Applied Mathematics: Elsevier
- National Academy Science Letters: Springer
- Journal of Indian Mathematical Society
- MathSciNet

## **Research ID's**

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- Google Scholar ID: <https://scholar.google.co.in/citations?user=loC7N5oAAAAJ>
- Scopus Scholar ID: <https://www.scopus.com/authid/detail.uri?authorId=56193030800>
- ORCID ID: <https://orcid.org/0000-0002-7038-1801>
- Vidawan ID: <http://iiita.irins.org/profile/102931>

## **Department/Institute Responsibilities**

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- Member of Campus decoration committee, IITA Global Alumni Meet 2022
- Warden of Boys Hostel-II (IIT Allahabad), from November 2018 to August 2021.
- Member of Departmental purchase committee.
- Member of Publishing Committee in Orientation Camp 2021.

## **Courses Taught in Various Institutions (IIT RK Valley, BIT Mesra, IIT Allahabad)**

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| ○ Univariate and Multivariate Calculus | ○ Linear Algebra     |
| ○ Modern Algebra                       | ○ Number Theory      |
| ○ Discrete Mathematics                 | ○ Graph Theory       |
| ○ Convex Optimization                  | ○ Real Analysis      |
| ○ Ordinary Differential Equation       | ○ Probability Theory |
| ○ Complex Analysis                     | ○ Topology           |

## Personal Details

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- Date of Birth: 10 July 1985
- Father's Name: Late Shree Chunni Lal Tiwari
- Mother's Name: Mithila Tiwari
- Language: Hindi, English
- Marital Status: Married
- Present Address: 5257, CC-III, IIIT Allahabad, Jhalwa, Prayagraj-211015 (U.P.)
- Permanent Address: D-16 (D Block), IIIT Allahabad, Jhalwa, Prayagraj-211015 (U.P.)

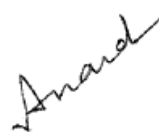
## Declaration

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I do hereby declare that all the details furnished above are true to the best of my knowledge and belief.

Place: Prayagraj, Utter Pradesh (INDIA)

Date: 28th January, 2023



(Anand Kumar Tiwari)