Marbarisha M. Kharkongor

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Research Interest

Topology, Graph Theory, Coding Theory

Work Experience

Professional experience

2024 – Present	**Assistant Professor**, Department of Mathematics, Royal Global University, Assam, India.
2023 – 2024	**Post-doctoral fellow**, Department of Mathematics, Indian Institute of Technology Delhi (IITD), New Delhi, India.
2019 – 2020	**Visiting Faculty of Mathematics** for Bachelor of Computer Applications (BCA) programme and Bachelor of Commerce (B.Com) programme, Institute of Chartered Financial Analysts of India Meghalaya (ICFAI University Meghalaya), India.

Academic experience

2023 – 2024	Teaching assistant of Algebraic Topology for M.Sc. course at Indian Institute of Technology Delhi (IITD) as part of the Post-doctoral programme.
2020 – 2023	Taught tutorial classes in Linear Algebra, Real Analysis, Single Variable and Multi Variable Calculus for BTech course of Indian Institute of Information Technology Guwahati (IIITG) as part of the Ph.D. programme.
2017	Internship under the guidance of Dr. Harish Seshadri, Department of Mathematics, Indian Institute of Science (IISc), Bangalore, India, as part of the M.Sc. programme.
2016	Volunteered as a teacher in Gangama Hombe Gowda Girls' High School, Karnataka, as part of the M.Sc. programme.

Education

2020 – 2023	**Ph.D.**, Department of Science and Mathematics, Indian Institute of Information Technology Guwahati (IIITG), Assam, India. Thesis title: *A study of a class of maps on surfaces with symmetries and applications.*
2016 – 2018	**M.Sc. in Mathematics**, Department of Mathematics, Christ University, Karnataka, India. Dissertation title: *On the maximum number of non-intersecting diagonals in a square array.* First Class, 7.46 CGPA (67.2%)
2012 – 2016	**B.Sc. in Mathematics**, Department of Mathematics, North Eastern Hill University (NEHU), Meghalaya, India. First Class, (65.75%)
2010 – 2012	**Higher Secondary Education in Science**, St. Anthony's Higher Secondary School Shillong, MBOSE, Meghalaya, India. First Class, (72.6%)
2010	**Secondary Education**, Christian Academy School Shillong, MBOSE, Meghalaya, India. First Class, (82%)

Honours, Awards and Fellowships

2019   Qualified the Joint CSIR-UGC Test for Junior Research Fellowship and Assistant Professor in Mathematics.

Qualified the Graduate Aptitude Test in Engineering (GATE) in Mathematics.

2016   Secured 9th rank in B.Sc. Mathematics examinations of North Eastern Hills University.

Research Articles

1. Marbarisha M. Kharkongor, Debashis Bhowmik and Dipendu Maity, *Homological Quantum Codes Associated with a Class of Surface Maps*, The Journal of the Indian Mathematical Society. $91, 95 - 110$, (2024).

2. Marbarisha M. Kharkongor, Debashis Bhowmik and Dipendu Maity, *3-isogonal planar tilings are not 3-isogonal on the torus*, The Journal of the Indian Mathematical Society. $90, 375 - 386$, (2023).

3. Marbarisha M. Kharkongor, Joseph Varghese Kureethara, *Maximum Number of Non-Intersecting Diagonals in Square Arrays*, International Journal of Mathematical Archive. $11(2), 13 - 21$, (2020).

4. Marbarisha M. Kharkongor, Debashis Bhowmik and Dipendu Maity, *Dihedral and cyclic symmetric maps on surfaces*, arXiv:2101.04284, (communicated).

5. Rishi Raj, Sachin Pathak, Marbarisha M. Kharkongor and Dipendu Maity, *A study of Galois LCD codes over a family of non-chain rings*, (communicated).

6. Marbarisha M. Kharkongor and Dipendu Maity, *A class of maps on the torus and their edge orbits: Part II*, (preprint).

7. Marbarisha M. Kharkongor and Dipendu Maity, *A class of maps on the torus and their edge orbits: Part I*, (preprint).

8. Marbarisha M. Kharkongor and Dipendu Maity, *A class of maps on the torus and their vertex orbits*, arXiv:2201.08328, (communicated).

9. Marbarisha M. Kharkongor, Debashis Bhowmik and Dipendu Maity, *Orbits of a class of maps on the torus*, (preprint).

Conferences, Workshop, Seminar and Exhibition

2023   Attended a 2-days workshop on "Development and Innovation of Emerging Technologies on FinTech", organized by Indian Institute of Information Technology Guwahati, sponsored by IIT Bhilai Innovation and Technology Foundation at Guwahati, India.

2021   Presented a paper entitled *"Some covering maps on surfaces"*, 5th International Conference on Recent Advances in Mathematical Science and its Applications (RAMSA), Jaypee Institute of Information Technology at Noida, India.

Presented a paper entitled *"2-semiequivelar maps of type $[3^6; 3^2, 4^1, 3^1, 4^1]$ on the torus"*, 2nd International Conference on Mathematical Techniques and Applications (e-ICMTA), SRM Institute of Science and Technology at Kattankulathur, India.

2020   Presented a paper entitled *"Fractal dimension of generalized fractional integral of continuous function"*, 4th International Conference on Recent Advances in Mathematical Science and its Applications (RAMSA), Jaypee Institute of Information Technology at Noida, India.

2017   Attended a workshop on "Advanced Topics in Mathematics", organized by Christ University, Bengaluru, India.

2016   Participated in the Science Exhibition, organized by Christ Univeristy at Bengaluru, India.

2012   Attended a national seminar on "Mathematics; the need of the hour", organized by Shillong College at Shillong, India.

Skills

Languages   Full professional proficiency in English, Native/Bilingual proficiency in Khasi, and Elementary proficiency in Hindi.

Coding   C-programming.

Software   LaTeX, Microsoft Office, MATLAB, Scilab, Maxima and Scalable Vector Graphics (SVG).

Miscellaneous

Certified short-term courses attended

2016 (2 months)   Computer Course in "Intermediate Module (MS Office: Part-II)", Ramakrishna Mission Computer Training Unit, Shillong, India.

2014 (4 months)   Communication Skills Programme, St. Anthony's College, Shillong, India.

2010 (2 months)   Computer Course in "Beginner Module (Windows XP, MS Office: Part-I)", Ramakrishna Mission Computer Training Unit, Shillong, India.

References

Available on request.

Declaration

I hereby declare that the details furnished herein are true to the best of my knowledge. Wherever applicable, I can provide the necessary documents to substantiate any information provided here.

Sincerely,   Dated: August 6, 2024

Marbarisha M. Kharkongor