

CURRICULUM VITAE

CONTACT INFORMATION

Subha Sarkar
Assistant Professor
Department of Mathematics
Indian Institute of Engineering Science & Technology,
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EXPERIENCE

1. Assistant Professor (August, 2025–)
Indian Institute of Engineering Science and Technology, Shibpur
2. Assistant Professor (December, 2022– August, 2025)
National Institute of Technology Jamshedpur
3. Assistant Professor (August, 2021– December, 2022)
Birla Institute of Technology Mesra
4. Post-doctoral Fellow (August, 2020–August, 2021)
Ramakrishna Mission Vivekananda Educational and Research Institute

EDUCATION

1. Ph.D in Mathematics (2015–2020)
Harish Chandra Research Institute
Thesis Title: On Some Problems in Additive Combinatorics and Related Areas
Ph.D Supervisor: [Prof. R. Thangadurai](#)
2. M.Sc in Mathematics and Computing (2013–2015)
Indian Institute Of Technology Guwahati
M.Sc Project title: Affine Algebraic Sets
Project Supervisor: [Prof. Anupam Saikia](#)
3. B.Sc in Mathematics (2010–2013)
Malda College, Malda
University of Gour Banga

RESEARCH INTERESTS

1. **Number Theory:**
 - (i) Additive Number Theory
 - (ii) Combinatorial Number Theory
 - (iii) Zero-Sum Problems
2. **Graph Theory:**
 - (i) Ramsey Theory
 - (ii) Unitary Cayley Graph
 - (iii) Signed Graph

PUBLICATIONS

1. A generalization of Tóth identity in the ring of Algebraic Integers involving a Dirichlet Character, Subha Sarkar, *Period Math Hung.* (Accepted for publication) (arXiv:2106.13983).
2. Generalization of some weighted zero-sum theorems and related Extremal sequence, Subha Sarkar, *J. Ramanujan Math. Soc.*, **39(4)** (2024), 369–376. (arXiv:2202.00461).
3. A generalization of Tóth identity involving a Dirichlet Character in $F_q[T]$, Esrafil Ali Molla and Subha Sarkar, *Publ. Math. Debrecen*, **104(1–2)** (2024), 67–88.
4. On a generalization of Menon–Sury identity to number fields involving a Dirichlet character, Jaitra Chattopadhyay and Subha Sarkar, *Ramanujan J.*, **59** (2022), 979–992. <https://doi.org/10.1007/s11139-022-00593-1>.
5. Inverse Problems Related to Some Weighted Zero-Sum Constants for Cyclic Groups, Sukumar Das Adhikari, Shruti Hegde, Md Ibrahim Molla and Subha Sarkar, *Integers*, **22** (2022), A7.
6. Generalization of some weighted zero-sum theorems, Subha Sarkar, *Proc. Indian Acad. Sci. Math. Sci.*, **131** (2021), Art. 32.
7. Weighted zero-sums for some finite abelian groups of higher ranks, Sukumar Das Adhikari, Bidisha Roy and Subha Sarkar, In: Nathanson M. (eds) *Combinatorial and Additive Number Theory III. CANT 2018.*, Springer Proc. Math. Stat., **297** (2020), Springer, Cham, 1–12.
8. On fractionally dense sets, Jaitra Chattopadhyay, Bidisha Roy and Subha Sarkar, *Rockey Mountain J. Math.*, **49 (3)** (2019), 743–760. (arXiv:1804.08068v2).
9. Quadratic nonresidues and nonprimitive roots satisfying a coprimality condition, Jaitra Chattopadhyay, Bidisha Roy, Subha Sarkar and R. Thangadurai, *Bull. Aust. Math. Soc.*, **99 (2)** (2019), 177–183. (arXiv:1809.04827v1)
10. Regularity of certain diophantine equations, Bidisha Roy and Subha Sarkar, *Proc. Indian Acad. Sci. Math. Sci.*, **129 (2)** (2019), Art.19, 8 pp.
11. The determination of 2-color zero-sum generalized Schur numbers, Aaron Robertson, Bidisha Roy and Subha Sarkar, *Integers*, **18** (2018), A96, 7 pp. (arXiv:1803.00861v2).
12. On determination of zero-sum ℓ -generalized Schur numbers for some linear equations, Bidisha Roy and Subha Sarkar, *J. Comb. Number Theory*, **11 (1)** (2020), 1–12. (arXiv:1808.08725v1).

13. Distribution of residues modulo p using the Dirichlet's class number formula, Jaitra Chattopadhyay, Bidisha Roy, Subha Sarkar and R. Thangadurai, *ICCGNFRT-2017 Conference proceedings*.(arXiv:1810.00227)
14. On a polynomial method of Rónyai in the study of zero-sum theorems, Sukumar Das Adhikari, Bidisha Roy and Subha Sarkar, *In: Ramakrishnan B., Heim B., Sahu B. (eds) Modular Forms and Related Topics in Number Theory. ICNT 2018.*, Springer Proc. Math. Stat., **340** (2020), Springer, Singapore.

M.Sc PROJECT SUPERVISED

1. Power Hypergraph, Mr. Ankit Saroha , NIT Jamshedpur (2024–2025).
2. Cayley Hypergraph defined over Cayley Graph, Mr. Utkarsh Rai, NIT Jamshedpur (2024–2025)
3. Prime Numbers in Certain Arithmetic Progressions, Ms. Sharda Kumari, NIT Jamshedpur (2024–2025)
4. Chromatic Number of Power Graph, Ms. Naik Sharayu Mahesh, NIT Jamshedpur (2023–2024).
5. Laplacian Spectrum of Power Graphs of Finite Cyclic and Dihedral Groups, Ms. Naik Aditi Arun, NIT Jamshedpur (2023–2024).
6. A Brief Review on Properties of Paley type Graph, Ms. Tithi Sadhukhan, NIT Jamshedpur (2023–2024).
7. A Study on Undirected Power Graphs, Ms. Anjali Shrivastava, NIT Jamshedpur (2023–2024).
8. From learning with errors to Ring learning with errors, Ms. Rituparna Deb, NIT Jamshedpur (2022–2023).
9. A study of generalized group of units, Ms. Sweta Seth, NIT Jamshedpur (2022–2023).
10. Validation of identification numbers using check digit, Ms. Sahoo Amisha Ranjan, NIT Jamshedpur (2022–2023).

TEACHING

1. Taught MA3205: Functional Analysis (Spring 2024-2025) at NIT Jamshedpur to M.Sc Students. (Credit 4).
2. Taught MA3305: Discrete Mathematics (Autumn 2024-2025) at NIT Jamshedpur to M.Sc Students. (Credit 4).
3. Taught MA1101: Engineering Mathematics-I (Autumn 2024-2025) at NIT Jamshedpur to B.Tech (CSE) Students. (Credit 4).
4. Teaching MA3401: Functional Analysis (Spring 2023-2024) at NIT Jamshedpur to M.Sc Students. (Credit 4).
5. Taught MA3305: Discrete Mathematics (Autumn 2023-2024) at NIT Jamshedpur to M.Sc Students. (Credit 4).

6. Taught CS1303: Discrete Mathematics (Autumn 2023-2024) at NIT Jamshedpur to B.Tech (CSE) Students. (Credit 3).
7. Taught MA1202: Engineering Mathematics-II (Spring 2022-2023) at NIT Jamshedpur to B.Tech Students. (Credit 4).
8. Taught MA3401: Functional Analysis (Spring 2022-2023) at NIT Jamshedpur to M.Sc Students. (Credit 4).
9. Taught MA305: Graph Theory (MO22) at BIT Mesra to IMSc Students. (Credit 4).
10. Taught MA430: Discrete Mathematical Structure (MO22) to B.Tech Students. (Credit 3).
11. Taught MA107: Mathematics-II (SP22) at BIT Mesra to B.Tech Students. (Credit 4)
12. Taught MA206: Linear Algebra (SP22) at BIT Mesra to IMSc Students. (Credit 4)
13. Taught NM LAB (SP22) at BIT Mesra to B.Tech Students.
14. Taught MA102: Real Analysis (SP22) at BIT Mesra to IMSc Students. (Credit 4)
15. Took MA101: Maths-I Tutorial (MO21) at BIT Mesra to B.Tech Students.
16. Taught MA420: Advanced Complex Analysis at BIT Mesra to PG Students. (Credit 4)
17. Taught NM LAB (MO21) at BIT Mesra to B.Tech Students.
18. Taught M210: Algebra 2 for M.Sc 2nd Semester (March, 2021– July, 2021) at RKMVERI. (Credit 4)
19. Taught M200: Introduction to Analysis for M.Sc 1st Semester (September, 2020–February, 2021) at RKMVERI. (Credit 4)
20. Tutor for Algebra course in Virtual AFS-I, 2020.
21. Tutor for Algebra course in AFS-I, HRI, 2019.
22. Gave 4 lecture at the School on Group Cohomology, HRI Prayagraj (Allahabad), March, 2019.
23. Tutor for Algebra course in SPIM-2018.

**WORKSHOPS
AND
CONFERENCES
ATTENDED**

1. 90th Annual Conference of IMS: An International Meet, 23rd December 2024 to 26th December 2024.
2. International Conference on Class Group of Number Fields and Related Topics-2021, 21st October 2021 to 24th October 2021.
3. Modular Forms, An online conference in honour of Prof. B Ramakrishnan's 60th birthday, 17th September 2021 to 19th September 2021.

4. Recent Developments in Number Theory-2020 (RDNT-2020), KIIT Deemed to be University, Bhubaneswar, India, 17th August, 2020 to 20th August, 2020 (Virtual).
5. [Workshop on Additive Combinatorics](#), International Centre for Theoretical Sciences, Bangalore, India, 24th February, 2020 to 6th March, 2020.
6. [5th Mini symposium of the Roman Number Theory Association](#), Università Roma Tre, Rome, Italy, 10-12 April, 2019.
7. [Workshop on PARI/GP](#), Università Roma Tre, Rome, Italy, 8-9 April, 2019.
8. [School on Group Cohomology](#), HRI Prayagraj (Allahabad), March, 2019.
9. [International Conference on Number Theory](#), IISER Thiruvananthapuram, India, 11-13 March, 2019.
10. [Workshop on Topological Dynamics, Number Theory and related areas](#), RK-MVERI Belur, INDIA, 3-12 January, 2019.
11. [Workshop on Number Theory](#), NISER Bhubaneswar, India, 30th November to 6th December, 2018.
12. [International Conference on Class Group of Number Fields and Related Topics](#), Harish-Chandra Research Institute, India, October, 2018.
13. [Transcendental Numbers and Special Values of Dirichlet Series](#), IIT Ropar, India, December, 2017.
14. [International Conference on Class Group of Number Fields and Related Topics](#), Harish-Chandra Research Institute, India, September, 2017.
15. [Advanced Instructional School on Class Field Theory](#), CMI, India, 8th to 27th May, 2017.
16. [Combinatorics and Number Theory Meet](#), On the occasion of 60th birth anniversary of Prof. S.D.Adhikari, Harish-Chandra Research Institute, India, February, 2017.
17. [TIMC-AMS](#), BHU, India, December, 2016.
18. [Annual Foundation School -III \(2016\)](#), IISER Thiruvananthapuram, India, 20th June - 26th July, 2016.
19. [Triveni Number Theory Conference](#), On the occasion of 65th birth anniversary of Prof. R. Balasubramanian, Harish-Chandra Research Institute, India, 04-08 March, 2016.

VISIT TO OTHER INSTITUTE

1. Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, India, 25th November to 7th December, 2019.
2. Institute of Science and Technology Austria (IST Austria), Austria, 31st October to 1st November, 2019.
3. University of Graz, Austria, 30th September to 30th October, 2019.

4. Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, India, 25th February to 9th March, 2019.
5. Ramakrishna Mission Vivekananda Educational and Research Institute, Belur, India, February-March, 2018.

CONFERENCE TALK

1. Quadratic non-residue and non-primitive roots satisfying a coprimality condition, Institute of Science and Technology Austria, Austria, 31st October, 2019.
2. Weighted zero-sum problems for some finite abelian groups of higher ranks, Graz University of Technology, Austria, 25th October, 2019.
3. Regularity of certain Diophantine equations, 5th Mini symposium of Roman Number Theory Association, Università Rome Tre, 10th April, 2019.
4. Regularity of certain Diophantine equations, IISER Thiruvananthapuram, India, 12th March, 2019.
5. On fractionally dense sets, RKMVERI Belur, India, 3rd January, 2019.
6. Regularity of certain Diophantine equations, NISER Bhubaneswar, India, 1st December, 2018.

ACADEMIC AWARD

1. Awarded HRI-Infosys Prize, 2019 for distinction in teaching assistantship.
2. Qualified GATE, 2015 with Gate Score 706 and All Indian Rank 46.
3. Qualified JOINT CSIR-UGC NET, December, 2014 with All Indian Rank CSIR-89.
4. Qualified JOINT CSIR-UGC NET, June, 2014 with All Indian Rank CSIR-88.
5. Selected for NBHM M.Sc Scholarship 2014.

REFERENCES

1. Prof. R. Thangadurai
Professor H
Harish-Chandra Research Institute Prayagraj, India
Email: thanga@hri.res.in; kr.thangadurai@gmail.com
2. Prof. Sukumar Das Adhikari
Professor and Dean, School of Mathematical Sciences
Ramakrishna Mission Vivekananda Educational and Research Institute, Belur Math, Howrah, India
Email: adhikarisukumar@gmail.com