

Rudresh Gade

BS-MS Student at IISER Pune

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About Me

I am a motivated and research-oriented undergraduate student at IISER Pune, with a strong academic background and a deep passion for Number Theory, Graph Theory, and Spectral Analysis. My fascination with Number Theory arose from exploring numerical patterns and their surprising connections to various fields. Through research internships and academic projects, I have honed my analytical and problem-solving skills, further fueling my interest in advanced mathematical research. I have also explored algebraic graph theory, broadening my interests in this field. I am eager to pursue a Master's degree to deepen my expertise and contribute to innovative research.

Education

- 2021–2026 **Bachelor and Master Dual Degree (BS-MS), IISER Pune, India**
CGPA: 7.9
- 2021 **Senior Secondary (Class 12), Shri Shivaji Science Junior College, Nagpur, India**
Percentage: 92.2%
- 2019 **Matriculation (Class 10), Somalwar Nikhalas High School, Nagpur, India**
Percentage: 96.4%

Research Projects and Experience

- August–Present **Analytic Number Theory, IISER Pune, India**
2024 Semester Project supervised by Prof. Kaneenika Sinha, focused on the analytic analysis of Number Theory.
- May–Present **Spectral Graph Theory, IISER Pune, India**
2024 Research on algebraic connectivity of graphs and its applications, under the guidance of Prof. Anisa Chorwadwala.
- May–August **Homogeneous and Non-Homogeneous Complementary Beatty Sequences, Smith University, USA**
2024 Worked on the generalization of non-homogeneous complementary sequences under the guidance of Prof. Geremias Polanco.
- Jan–April 2024 **Spectral and Algebraic Graph Theory, IISER Pune, India**
Semester project supervised by Prof. Chandrasheel Bhagwat, focused on the applications of Spectral Graph Theory.
- May–Aug 2023 **Stochastic Partial Differential Equations, VNIT Nagpur, India**
Investigated stochastic PDEs and their behavior under Prof. Naga Raju Gande.

Workshops and Conferences

Jan 2024 **Conference on Combinatorial Game Theory, IIT Bombay, India**
Attended Conference on Combinatorial games and their applications in combinatorial mathematics.

Relevant Courses

Mathematics:

- Functional Analysis
- Probability
- Calculus of Manifolds
- Measure Theory
- Complex and Real Analysis
- Graph Theory
- Point Set Topology
- Ordinary Differential Equations
- Field and Galois Theory
- Rings and Modules
- Advanced Linear Algebra
- Group Theory

Physics:

- Gravitation
- Non-Linear Dynamics
- Group Theory in Physics
- Classical Mechanics
- Statistical Mechanics
- Thermodynamics
- Quantum Physics

Technical Skills

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| Scientific Writing | LaTeX, Microsoft Word |
| Programming Languages | Python, MATLAB |
| Operating Systems | Windows, Linux |
| Presentations | Microsoft PowerPoint |

Honors and Awards

- 2021 INSPIRE Fellowship (Govt. of India): Awarded by the Department of Science and Technology for outstanding academic potential.
- 2021 IISER Aptitude Test (AIR: 129): Secured top rank in the IISER entrance exam.
- 2021 JEE Advanced (AIR: 3913): Ranked in India's top engineering entrance examination.
- 2021 JEE Mains (AIR: 6105): Ranked in India's top engineering entrance examination.

Extracurricular Activities

- 2023 **Integration Bee Organiser**, *IISER Pune*, India
Core Team member responsible for organizing and contributing to the success of the Integration Bee competition organised under Maths Club.
- 2023 **Mimamsa Science Quiz**, *IISER Pune*, India
Team member responsible for organizing and contributing to the success of the nation-wide science quiz competition.
- 2022–2023 **DISHA Abhyasika Club Volunteer**, *IISER Pune*, India
Led tutoring sessions for underprivileged children, improving their understanding of mathematics and science.
- 2022–2023 **Vidya Bhavan Teaching Volunteer**, *Udaipur*, India
Volunteered teaching class 12th Mathematics to the underprivileged students of rural areas of Udaipur and Chittorgarh in India.

Languages

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| English | Professional working proficiency |
| Hindi | Professional working proficiency |
| Marathi | Native proficiency |
| German | Beginner |

Hobbies

Manga reading(One Piece), watching anime and movies, studying different working principles and application in electronics.