

RAHUL RAJU PATTAR

rahulrajupattar@gmail.com \diamond +91 7892615252 \diamond [Homepage](#)

RESEARCH EXPERIENCE

Postdoctoral Research Scientist

Dec. 2022 - Present

Tata Institute of Fundamental Research, Centre for Applicable Mathematics (TIFR-CAM), Bengaluru

Visiting Researcher

Aug. 2022 - Nov. 2022

TIFR-CAM, Bengaluru

RESEARCH INTERESTS

Hyperbolic PDEs with irregular coefficients or initial data, Inverse problems for PDEs, Microlocal analysis

EDUCATION

Sri Sathya Sai Institute Higher Learning

2017-2022

PhD, Mathematics (defended on 24th May, 2022)

Thesis: Global Well-posedness and Regularity Issues Associated with Singular Hyperbolic Cauchy Problems

Advisor: Dr. N Uday Kiran

Examiners: Dr. Venkateswaran P. Krishnan (TIFR-CAM) and Prof. Akhilesh Prasad (IIT, Dhanbad)

Sri Sathya Sai Institute Higher Learning

2015-2017

M.Sc. in Mathematics with distinction (gold medal for academic excellence)

CGPA: 9.0/10

Sri Sathya Sai Institute Higher Learning

2012-2015

B.Sc.(Hons) in Mathematics with distinction

CGPA: 8.5/10

Major in Mathematics and minor in Physics and Chemistry

SCHOLARSHIPS AND AWARDS

UGC-CSIR Senior Research Fellowship

2019-2022

UGC-CSIR Junior Research Fellowship (**all India Rank 154**)

2017-2019

GATE- Mathematics (**all India Rank 217**)

2017

INSPIRE Scholarship

2012-2017

Dr. A. P. J. Abdul Kalam Gold Medal for Best Academic Performance in MSc

2017

PUBLICATIONS

1. Pattar, R. R. and Uday Kiran, N. (2022), Global well-posedness of a class of singular hyperbolic Cauchy problems, **Monatshefte für Mathematik**. [Link to the article](#)
2. Pattar, R. R. and Uday Kiran, N. (2022), *Energy Estimates and Global Well-posedness for a Broad Class of Strictly Hyperbolic Cauchy Problems with Coefficients Singular in Time*, **Journal of Pseudo-Differential Operators and Applications**, 13, 9. [Link to the article](#)
3. Pattar, R. R. and Uday Kiran, N. (2021), *Global well-posedness of a class of strictly hyperbolic cauchy problems with coefficients non-absolutely continuous in time*. **Bulletin des Sciences Mathématiques**, 171, 103037. [Link to the article](#)
4. Pattar, R. R. and Uday Kiran, N. (2021), *Strictly Hyperbolic Cauchy Problems on \mathbb{R}^n with Unbounded and Singular Coefficients*. **Annali dell' Università di Ferrara**. [Link to the article](#)

PREPRINTS

5. Pattar, R. R. and Uday Kiran, N. (2021), Strictly hyperbolic equations with coefficients sublogarithmic in time. [arXiv:2111.11701](https://arxiv.org/abs/2111.11701)

TECHNICAL STRENGTHS

Computer Languages Python, ML

MINI PROJECTS

I am interested in computer programming as well. The following mini projects demonstrate this:

1. Programmed a shell using C language in Linux platform (2015)
2. Implimenting PDEs using Finite Difference Schemes in Python (2016)
3. Implimenting PDEs using Finite Element Methods in Matlab (2017)

CONTRIBUTED OR INVITED TALKS

1. October 3, 2022: Seminar talk at **TIFR-CAM**, Regularity issues associated with Singular Hyperbolic Cauchy Problems
2. April, 2022: **Analysis and PDE group seminar, Ghent University**, Belgium (Global Well-posedness and Regularity Issues Associated with Singular Hyperbolic Cauchy Problems)
3. Delivered a series of 3 talks on “Loss Operator Associated to a Class of Strictly Hyperbolic Cauchy Problems” in Inverse Problems Learning Seminar, **TIFR-CAM**, on 16th and 23rd of Aug. and 6th Sept. 2021.
4. Aug. 31 - Sep. 4, 2020: **International Conference on Generalized Functions, Ghent**, Belgium (Global Well-posedness of a Class of Strictly Hyperbolic Cauchy Problems with Coefficients Non-Absolutely Continuous in Time)
5. Jan. 30, 2021: **SSSIHL** (Hyperbolic Operators: Global, Irregular and Degenerate Cases)
6. Feb. 29, 2020: **SSSIHL** (A Generalized Global Levi Condition for Weakly Hyperbolic Cauchy Problems with Coefficients Low-regular in Time)

CONFERENCES/WORKSHOPS ATTENDED

Advanced Instructional School on Inverse Problems, 2022. Organized by: TIFR-CAM, Bangalore.

Workshop on Inverse Problems and Related Topics (Online), 2021. Organized by: **ICTS**, Bangalore

Contact and Symplectic Geometry (NCMW 2018). Organized by: IISER, Bhopal, India.

Parabolic Partial Differential Equations and Applications to Image Processing (NW-PDEAIP 2015). Organized by: SSSIHL, Prasanthi Nilayam, India.

International Workshop on Differential Geometry - Foundations and Developments (IWDiffGeo 2015). Organized by: SSSIHL, Prasanthi Nilayam, India.

TEACHING ASSISTANCE

Functional Analysis(Graduate Course)	Spring 2019
Linear Algebra, (Under graduate Course)	Fall 2018
Measure Theory(Graduate Course)	Spring 2018

PERSONAL SKILLS

Languages: English(Fluent), Kannada(Native)
Others: Latex, Sketching, Shuttle Badminton

EXTRA-CURRICULAR

- ❑ Organizer for Department Math Club: I was one of the organizer for the department math club-Math Enthusiasts.
- ❑ Mathematics Education Activities: Demonstrating Pythagoras theorem using Geoboard and tangram to school students.
- ❑ Mentor for undergraduate students(2018–2020): I have actively participated in the mentorship program of the hostel. In the two years, I have mentored 25 undergraduate students in the hostel.
- ❑ Sri Sathya Sai Hostel Services
 - Incharge of Water Supply Team (2017–2020): The team takes care of water supply and plumbing related issues of the hostel
 - Member of RO Water Supply Team (2015–2017): The team takes care of quality assurance of the drinking water needs of the hostel
 - Member of Audiovisual Centre (2012–2015): The centre takes care of the audiovisual needs (sound mixing, mike and speaker arrangements) of various events organised at the hostel

REFERENCES

1. **Dr. N Uday Kiran**, Associate Professor, Department of Mathematics and Computer Science, Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, nudaykiran@sssihl.edu.in
2. **Prof. Venkateswaran P. Krishnan**, TIFR-CAM, Bengaluru, vkrishnan@tifrbng.res.in
3. **Prof. Ramesh Sharma** Department of Mathematics and Physics, University of New Haven, Connecticut, RSharma@newhaven.edu
4. **Prof. Raghavendra V.** Retired, Department of Mathematics and Statistics, Indian Institute of Technology, Kanpur, vrag@iitk.ac.in