Parasuram Venkatesh

Ph.D. student
TIFR-CAM, Bengaluru, India

venkatesh2020[at]tifrbng[dot]res[dot]in
ORCID: 0009-0001-2681-1982

Research Interests

Nonlinear PDEs, Hyperbolic conservation laws, Fluid equations

Education

Tata Institute of Fundamental Research - Centre for Applicable Mathematics (TIFR-CAM) — August 2022-Present
- Ph.D. in Mathematics
- Advisor: Prof. Shyam Sundar Ghoshal

Tata Institute of Fundamental Research - Centre for Applicable Mathematics (TIFR-CAM) — 2020-2022
- Master of Science (M.Sc.) in Mathematics

Chennai Mathematical Institute (CMI) — 2016-2019
- Bachelor of Science (B.Sc.) in Mathematics and Computer Science (Honours)

Publications and Preprints

1. *Failure of Uniqueness for Scalar Conservation Laws.*
   https://arxiv.org/abs/2601.08771 — 2026
2. *Front Tracking for Scalar Conservation Laws with Spatially Heterogeneous Flux.* In: *Indian Journal of Pure and Applied Mathematics.*
   doi:10.1007/s13226-026-00975-x — 2025
3. L^2 *Stability of Simple Shocks for Spatially Heterogeneous Conservation Laws*, with Shyam Sundar Ghoshal.
   https://arxiv.org/abs/2502.13687 — 2025
4. *A Non-Conservative, Non-Local Approximation of the Burgers Equation*, with Shyam Sundar Ghoshal & Emil Wiedemann. In: *Networks and Heterogeneous Media* Volume 20, Issue 4: pp. 1061-1086.
   doi:10.3934/nhm.2025046 — 2025

Teaching Experience

- Advanced partial differential equations (TIFR-CAM)
  Teaching Assistant — January-April 2026
- Advanced functional analysis (TIFR-CAM)
  Teaching Assistant — August-December 2024
- Real analysis (TIFR-CAM)
  Teaching Assistant — August-December 2023
- Real analysis (TIFR-CAM)
  Teaching Assistant — August-December 2022

Workshops and Conferences

Mathematical Analysis of Fluid Flows by Variational Methods — 29 September-1 October 2025
- Weierstrass Institute for Applied Analysis and Stochastics

Hyperbolic Problems in Nürnberg — 24-26 September 2025
- Friedrich-Alexander-Universität Erlangen-Nürnberg

TIFR-CAM In-house Symposium — 18-19 September 2025
- TIFR-CAM

Horizons in Nonlinear PDEs — 26-30 September 2022
- Universität Ulm

Talks and Presentations

- Contributed talk — 29 September 2025
  - Title: A Non-Conservative, Non-Local Approximation of the Burgers Equation
  - Mathematical Analysis of Fluid Flows by Variational Methods, Berlin
- Poster presentation — 25 September 2025
  - Hyperbolic Problems in Nürnberg, Nürnberg
- Opening talk — 18 September 2025
  - Title: L^2 Stability of Simple Shocks for Spatially Heterogeneous Conservation Laws
  - TIFR-CAM In-house symposium, Bengaluru

Outreach

- SWIM 2025 Lecture — 21 July 2025
  - Title: The Bolzano-Weierstrass Theorem
  - Jawaharlal Nehru Planetarium, Bengaluru
- Pizza Talk — 3 December 2025
  - Title: Blow-up for Hyperbolic Conservation Laws
  - TIFR-CAM

Technical Skills

Systems/Languages Python, LaTeX

Languages

Proficient in English and Hindi.

Personal Information

- Date of Birth: 19 November 1998
- Citizenship: India