

Fractals: GAANA 2025

*Workshop in hybrid mode
(GAANA: Geometry, Analysis, Algebra, Numerics, and Applications)*



IIIT Allahabad, Prayagraj



29 Jan - 31 Jan, 2025



<http://fgaana.iita.ac.in/>

ORGANIZERS

Chief Patron

Prof. Mukul Sharad Sutaone
Director, IIIT Allahabad

Chairperson

Dr. Pramod Kumar
HoD, Department of Applied
Sciences, IIIT Allahabad

Coordinator

Dr. Saurabh Verma
Assistant Professor, Department of
Applied Sciences, IIIT Allahabad

ORGANIZING COMMITTEE

- ❑ Dr. Abdullah Bin Abu Baker, IIIT Allahabad
- ❑ Dr. Sumit Kumar Upadhyay, IIIT Allahabad
- ❑ Dr. Anand Kumar Tiwari, IIIT Allahabad
- ❑ Dr. Seema Kushwaha, IIIT Allahabad
- ❑ Dr. Savitri Joshi, IIIT Allahabad

Keynote Speakers

- ❑ Prof. Balazs Barany, Budapest University of Technology and Economics, Hungary
- ❑ Prof. M. Sajid, Qassim University, Saudi Arabia

Invited Speakers

- ❑ Dr. Anuj Kumar, Siddharth University Kapilvastu
- ❑ Dr. Rattan Lal, PEC Chandigarh
- ❑ Dr. Narendra Singh, IIIT Sri City
- ❑ Dr. Saurabh Verma, IIIT Allahabad

Guest Talks

- ❑ Dr. Manuj Verma, Budapest University of Technology and Economics, Hungary
- ❑ Dr. Subhash Chandra, HRI Allahabad

Tutorial Assistants

- ❑ Shivam Dubey, IIIT Allahabad
- ❑ Gurubachan, IIT Jodhpur
- ❑ Ekta Agrawal, IIIT Allahabad

❖ Topics to be covered

- ❑ Complete metric spaces, compact sets, and Banach spaces
- ❑ Banach fixed point theorem and its applications
- ❑ Hausdorff distance
- ❑ Borel probability measures and Monge-Kantorovich metric
- ❑ Construction of fractal sets and fractal measures
- ❑ Hausdorff dimension, Box dimension, and Assouad dimension
- ❑ Fractal dimension of self-similar sets
- ❑ Dimension of compact sets, Besicovitch sets, and functions
- ❑ Dimension of Groups, Rings, and Fields
- ❑ Continued fractions, complex continued fractions, and dimensions of related sets
- ❑ Conjectures in Fractal Geometry: Falconer's distance set conjecture, Total overlap conjecture, Kakeya conjecture, and Bernoulli convolutions.

❖ Emerging Researcher Award (ERA)

We will take three quizzes, which will be held at the end of each day. Based on this, the first-three ranked candidates will be awarded ERA.

❖ Registration Details

- ❑ BSc/BTech/MSc/MTech student: Rs. 400 + GST (FGAANA2025 for BSc/MSc)
- ❑ PhD student: Rs. 800 + GST (FGAANA2025 for PhD Student)
- ❑ Postdoc/Faculty: Rs. 1500 + GST (FGAANA2025 for Postdoc/Faculty)

Link for the Registration: <https://apply.iiita.ac.in/event/register/>

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