SOUMYAJIT GHOSH

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RESEARCH INTERESTS

➢ Fractional Differential Equations and its applications
➢ Fractional Neural Network
➢ Eigen-value problems of Differential operators

EDUCATION

Indian Institute of Technology Palakkad | PhD in Mathematics   **pursuing from July, 2024**

National Institute of Technology Hamirpur | M.Sc in Mathematics and Computing   **2021-2023**

- CGPA : 8.63

Ramakrishna Mission Residential College (AUTONOMOUS) | B.Sc. (H) in Mathematics   **2018-2021**

- CGPA : 8.33

Govt. Spons. Multipurpose School (Boys') Taki House | 12th standard   **2018**

- Secured 89.2 % marks

Govt. Spons. Multipurpose School (Boys') Taki House | 10th standard   **2016**

- Secured 90.2 % marks

SKILLS

➢ Programming Languages : Python, LaTex.
➢ Softwares : SPSS, MATLAB, R (basic proficiency)

RELEVANT COURSEWORK

✓ Abstract & Linear algebra, Complex, Functional & Numerical Analysis , Topology, Multivariable Calculus, ODE & PDE, Optimization, Mathematics behind Machine Learning, Soft Computing, DBMS, Computer Networks, OOPS.
✓ Introduction to Fuzzy Set Theory , Number theory .

INTERNSHIPS

❖ **Study on various proofs of The Prime Number Theorem** | Summer Internship Programme May-July, 2023

   Under supervision of **Dr. Tapas Chatterjee, Department of Mathematics, IIT ROPAR**

- Studied elementary ideas of bounds of $\pi(n)$ from the works of Riemann and Chebyshev. The main aim of this project is to learn rigorous and in-depth understanding of proofs of PNT by Hadamard and de la Valle Poussin. Also the modern compact proof by Neumann. Using Abel's

summation formula and Perron's formula, we can give bounds of Chebyshev theta function. Some basic concepts of transcendence of numbers with Diophantine approximations have been introduced.
https://drive.google.com/file/d/1utQq5sdYvkxis5xyXhkwJQ_MqxZarEvU/view?usp=sharing

❖ **On the Irrationality of Apery's Constant** |Online Summer Internship Programme
June-July, 2021

Under supervision of **Dr. Bibekananda Maji , Department of Mathematics , IIT INDORE**

- Studied the ingenious proof of the Irrationality of $\zeta(3)$ based upon paper by Roger Apery (1979) and Beukers'. Also learned the odd and even values of Riemann's zeta function and its series representations. In the project a little bit glimpse of Prime Number Theorem, bounds of L.C.M. were also touched upon.
  https://drive.google.com/file/d/1BiAmArHyZLxsavZH9f22-1OWD--ZAioj/view?usp=sharing

MSC DISSERTATION

This dissertation was about Study on Controllability of Sobolev-type Impulsive Fractional differential equations . Sobolev-type delay integro-differential system with non-instantaneous impulses has been studied by using Krasnoselskii''s fixed point theorem , Mainardii's Wright type function and strongly continuous cosine family. Secondly, attention was paid to find suitable controllability of an impulsive evolution inclusion system of 2nd order by the novel means of linear evolution family and Bohnenblust-Karlin fixed point theorem to deduce a mild solution of the system.

https://drive.google.com/file/d/1mFAQ4oXGxZCpadoljd-OJAxHlnPBr2Qu/view?usp=sharing

PUBLICATION

✓ "Approximate Controllability of Sobolev-Type Non-Instantaneous Impulsive Delay Differential System of Order r ∈ (1,2)" (submitted and under review in **Mathematical Methods in the Applied Sciences**)

PAPER PRESENTATION

♦ Presented a paper in **" International Seminar on Physical and Mathematical Sciences, 2024 "** by Calcutta Mathematical Society, Kolkata on 2-3 March, 2024.
♦ Presented a paper in " **National Conference on Recent Trends in Mathematics** " by Dept. of Mathematics, Guru Nanak College, Sri Muktsar Sahib, Punjab on 27th March, 2024.

WORKSHOPS / SEMINARS / WEBINARS

➢ Selected for CIMPA workshop of Linear Preserver Problems by IISER Bhopal during 8-13th July, 2024.
➢ Participated in 2nd Workshop on " Fractal Geometry and Related Fields – 2024 " by Dept. of Applied Sciences, Indian Institute of Information Technology, Allahabad during 5-7th April, 2024.

- Participated in one day "National Conference on Recent Trends in Mathematics", organized by Dept of Mathematics, Guru Nanak College, Punjab on 27th March, 2024.
- Participated in "International Seminar on Physical and Mathematical Sciences- 2024" by Calcutta Mathematical Society during 2-3 March,2024.
- Participated in "National Symposium on Implementation and Application of Mathematics in Real life" by Department of Mathematics, SAS, VIT Vellore during 8-12 May, 2023.
- Attended a workshop titled " **Cyber Security and Blockchain Technology**" by NIT Hamirpur on 23-27th April, 2022.
- Participated in the webinar "**Srinivasa Ramanujan- a legend and a symbol** " by Dept. of Mathematics, RKMRC Narendrapur & Dept. of Pure Mathematics, University of Calcutta on 30th sept, 2020.
- Participated in the webinar "**Algebraic structures in the crossroads of Mathematics**" by Dept. of Mathematics, RKMRC Narendrapur & Dept. of Mathematics, Netaji Nagar Day college, Kolkata on 28th August, 2020.
- Participated in "**Two days National Seminar on Pure and Applied Mathematics**" by Dept. of Mathematics, Behala College during 9-10th August 2020.
- Participated in the webinar "**An Introduction to Calderon's Inverse problem**" by Dept. of Mathematics, RKMRC Narendrapur & Dept. of Mathematics, RKM Vidyamandira, Belur on 31st July, 2020.
- Participated "**Online Summer School 2020 on Mathematics** " by Department of Mathematics, Presidency University , Kolkata during 27th June – 6th July, 2020.
- Participated in the webinar " **Application of Number Theory in Cyber Security : Few illustrations through SageMath** " by Dept. of Mathematics, The Bhawanipur Education Society College on 20th June, 2020.

EXTRA-CURRICULAR ACTIVITIES

- Organized as a core member of academic event "**INFINITY-2020**" of Department of Mathematics, RKMRC, Narendrapur.
- Participated in "**Madhava Mathematics Competition** " in 2019,2020 .

LANGUAGES

- English (Workable proficiency)
- Hindi (Workable proficiency)
- Bengali (Native)