Anzila Laikhuram

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Research Interests

Spectral graph theory, combinatorial matrix theory, and inverse eigenvalue problems of graphs (IEPG). Focus on characterizing spectra of structured matrices using combinatorial tools such as zero forcing, strong spectral property (SSP), strong multiplicity property (SMP), strong Arnold property (SAP), and other tools. Interested in extremal spectral graph theory, matrix inertia, algebraic graph invariants, and applications to network analysis.

Education

National Sun Yat-sen University   **2020 − Expected 2026**

Ph.D. Applied Mathematics   *Kaohsiung, Taiwan*

− Dissertation: *Spectral characterization and matrix construction in the inverse eigenvalue problem for discrete Schrödinger operators on a graph*

− Advisor: Jephian C.-H. Lin

St Joseph's University   **2015 − 2017**

M.Sc. Mathematics   *Karnataka, India*

− Thesis: *Crash test and head injury criterion*

− Advisor: Mohammed Ayesha

Christ University   **2011 − 2014**

B.Sc. Physics, Chemistry, Mathematics   *Karnataka, India*

Publications

− [1] **A. Laikhuram**, and J. C.-H. Lin. Inverse eigenvalue problem for discrete Schrödinger operators of a graph, *Linear Algebra Appl.* (2025), (doi:10.1016/j.laa.2025.10.030)

Conferences, Workshops and Talks

− [1] **Contributed Talk.** 32nd New-Sprout Symposium for Young Combinatorists
Inverse eigenvalue problem for discrete Schrödinger operators of a graph
Fu Jen University, Taiwan   August 4–5, 2025

− [2] **Workshop.** IPPS International Academic Courses
Poster presentation: Inverse eigenvalue problem for discrete Schrödinger operators of a graph
International PhD Program for Science (IPPS), National Sun Yat-sen University, Taiwan   July 7–11, 2025

− [3] **Invited Talk.** The 26th Conference of the International Linear Algebra Society (ILAS)
Mini-symposium: Graphs and matrices in honor of Leslie Hogben's retirement
National Sun Yat-sen University, Taiwan   June 23–27, 2025

− [4] **Science Workshop.** 2025 Make Science Easy!
Inverse eigenvalue problem of graphs
International PhD Program for Science (IPPS), National Sun Yat-sen University, Taiwan   January 16, 2025

− [5] **Research Presentation.** TCUS – 2024 Student Research Forum Presentations
Nonnegative inverse eigenvalue problem
National Chung Hsing University, Taiwan   November 29, 2024

− [6] **Contributed Talk.** NCTS East Asia Core Doctoral Forum in Mathematics
Nonnegative inverse eigenvalue problem for graphs
National Taiwan University, Taiwan   January 9–12, 2023

– [7] **Seminar Talk.** 2022 Math Runway Series – taking off to the math sky!
The contributions of Indian mathematicians
Department of Applied Mathematics, National Sun Yat-sen University, Taiwan   May 4, 2023

– [8] **Seminar Talk.** TWAG Study Group – Seminar (Fall 2022)
Equiangular lines and eigenvalue multiplicities
Department of Applied Mathematics, National Sun Yat-sen University, Taiwan   December 21, 2021

– [9] **Seminar Talk.** TWAG Study Group – Seminar (Fall 2022)
The inverse eigenvalue problem for symmetric doubly stochastic matrices
Department of Applied Mathematics, National Sun Yat-sen University, Taiwan   October 10, 2022

– [10] **Seminar Talk. Introduction to Social Network Analysis**
Department of Computer Science, St. Joseph's University, India   2015

Teaching Experience

Certified Teacher (B.Ed)   **2018–2020**
Manipur University (affiliated college, Ideal Teachers Training Academy), Manipur, India
– Completed Bachelor of Education with formal pedagogical training and supervised classroom teaching

Teaching Assistant, EMI
National Sun Yat-sen University, Department of Applied Mathematics
– [1] Linear Algebra I (2022 Fall Math 103A)   2022
– [2] Linear Algebra II (2023 Spring Math 104A)   2023
– [3] Linear Algebra I (2023 Fall Math 103A)   2023
– [4] Linear Algebra II (2024 Spring Math 104A)   2024
– [5] Linear Algebra I (2024 Fall Math 103A)   2024
– [6] Linear Algebra II (2025 Spring Math 104A)   2025

Awards and Honors

– [1] Excellent Poster Presentation Award, IPPS International Academic Courses, NSYSU   2025
– [2] Outstanding EMI Teaching Assistant Award, NSYSU   2024
– [3] Outstanding Elite International Student Scholarship, NSYSU   2020–2023
– [4] Sir Dorabji Tata Trust fellow recipient   2018–2020

Volunteer

– [1] Volunteer staff, 26th International Linear Algebra Society (ILAS) Conference, NSYSU   2025
– [2] 2–day teaching outreach program at Kamjong, Manipur, organized by Manipur University, India   2019
– [3] 5–day rural exposure outreach camp at Raichur, organized by St. Joseph's University, India   2016
– [4] Teaching outreach program organized by Christ University, India   2013–2014

Computer Skills and Training

– SageMath, Maxima, Scilab, Python, LaTeX, MATLAB

– Data science and scientific visualization tools (data cleaning, analysis, model exploration)