Aasaimani Thamizhazhagan

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M 05, Ramanujan School of Mathematical Sciences, Pondicherry University, Kalapet, Pondicherry - 605 014.

Academic Position(s)

Pondicherry University • Kalapet, Pondicherry, India — Oct 2024 – Present
Guest Faculty • *Department of Mathematics*

University of Waterloo • Waterloo, ON, Canada — Sept 2022 – May 2024
Postdoctoral Fellow and Sessional Instructor • *Department of Pure Mathematics*
Worked with: Dr. Nico Spronk, Dr. Brian E. Forrest

Conestoga College • Kitchener, ON, Canada — Aug 2023 – Jan 2024
Part-time Faculty • School of Business

University of Winnipeg • Winnipeg, MB, Canada — Sept 2021 – Aug 2022
Postdoctoral Fellow and Contract Academic Staff • *Department of Mathematics and Statistics*
Worked with : Dr. Ross Stokke, Dr. Matthew Wiersma
Funding: Joint support from grants held by the host researchers, Dr. Yong Zhang, and Dr. Fereidoun Ghahramani

Education

University of Waterloo • Waterloo, ON, Canada — Sep 2016 – Aug 2021
Doctor of Philosophy • *Pure Mathematics*
Thesis - On the structure of invertible elements in certain Fourier-Stieltjes algebras
Advisors: Dr. Nico Spronk, Dr. Brian E. Forrest

National Institute of Science Education and Research (NISER) • Odisha, India — July 2011 – May 2016
Integrated Masters of Science • *Mathematics*
Thesis - Fourier algebras, amenability and its relations with representation theory
Advisor: Dr. Dr. Varadharajan Muruganandam

Teaching and Research Interests

Teaching: Mathematical proofs, single- and multi-variable calculus, linear algebra, real analysis, complex analysis, functional analysis, measure theory and Lebesgue integration, harmonic analysis, topology, and group theory.
Research:*Functional analysis and its intersection with group theory.*
Abstract harmonic analysis, representation theory of locally compact groups, Banach algebras, operator algebras and operator space theory.

Publications

1. (with Brian E. Forrest and John Sawatzky) *Arens regularity of ideals in $A(G)$, $A_{cb}(G)$ and $A_M(G)$*
Journal of the Iranian Mathematical Society 4 (2023), no. 1, 5–25.
2. (with Brian E. Forrest and John Sawatzky) *Invariant subspaces in the dual of $A_{cb}(G)$ and $A_M(G)$*
Annals of Mathematical Sciences and Applications 8 (2023), no.2, 239—267.
3. On the structure of invertible elements in certain Fourier-Stieltjes algebras
Studia Mathematica, 257 (2021), no. 3, 347–360.

Works in progress

1. *Semisimplicity of the second dual of $A_{cb}(G)$ and $A_M(G)$ and weak-amenability of certain ideals in them* (with Brian E. Forrest and John Sawatzky)
2. *Homomorphisms of Spine Algebras* (with Nico Spronk and Ross Stokke)
3. *Local Fell Groups* (with Nico Spronk and Aleksa Vujičić)

Invited Research Talks:

- **Homomorphisms of Spine Algebras**
Mathematics Seminar, Institute of Mathematical Sciences, Chennai — Jan 9, 2026

- **On the structure of invertible elements in certain Fourier-Stieltjes Algebra**
  Canadian Abstract Harmonic Analysis Symposium, Banff International Research Station — June 19, 2022
  Department Seminar Series, University of Winnipeg — Sep 24, 2021
  Groups, Operators, and Banach Algebras Webinar, Online — Aug 18, 2020
  Analysis Seminar in Pure Mathematics, University of Waterloo — Sep 18, 2019

Invited Colloquiua:

- **On the interplay of harmonic analysis, combinatorics, additive number theory, and ergodic theory**
  Joint PM/CO Grad Colloquium, University of Waterloo — Dec 3, 2020
- **Uncertainty principles and Fourier analysis**
  Grad Student Colloquium, University of Waterloo — Nov 27, 2018

Contributed Talks:

- **Homomorphisms of Spine Algebras**
  19th Discussion Meeting in Harmonic Analysis, IISER Mohali — Dec 16, 2025
- **On the structure of invertible elements in certain Fourier-Stieltjes Algebra**
  National Seminar on Algebra and Graph Theory, Pondicherry University — Feb 22, 2025
- **Invariant subspaces in the Dual of $A_{cb}(G)$ and $A_M(G)$**
  CAHAS 2023, University of St. Boniface — June 15, 2023
- **On the structure of invertible elements in certain Fourier-Stieltjes Algebra**
  Virtual Math Fest, Institute of Mathematical Sciences, Chennai (Online) — July 24, 2020
  Banach Algebras and Applications, University of Manitoba — July 18, 2019
  Grad Seminar in Pure Mathematics, University of Waterloo — May 15, 2019

Presentations:

- **Analytic discs in the maximal ideal space of H^∞**
  Grad course talks on Hardy spaces, University of Waterloo — Dec, 2017
- **Perturbations of approximately finite-dimensional C^*-algebras**
  Grad course talks on K-theory of C^*-algebras, University of Waterloo — April, 2017
- **Amenability and its relation with representation theory**
  Term Presentation, National Institute of Science Education and Research — Dec, 2015

Conferences/Workshops/Seminars Participation

- 19th Discussion Meeting in Harmonic Analysis, IISER Mohali — Dec 16–19, 2025
- International Conference on Special Functions & Applications (ICSFA-2025)
  Pondicherry University, Puducherry — Nov 20–22, 2025
- National Workshop on Python for Scientific Computing and Applications (PSCA-2025)
  Maulana Azad National Institute of Technology (MANIT), Bhopal (Online) — June 16–20, 2025
- National Seminar on Algebra and Graph Theory, Pondicherry University, Puducherry — Feb 19–22, 2025
- Canadian Abstract Harmonic Analysis Symposium(CAHAS),
  University of St. Boniface, Winnipeg — June 15–16, 2023
- A Celebration of Great Math Education Initiatives, FYMSiC Online Meet Up — Feb 28, 2023
- Canadian Abstract Harmonic Analysis Symposium(CAHAS) 2020, BIRS, Banff — June 17–19, 2022
- Virtual Math Fest, Institute of Mathematical Sciences, Chennai (Online) — July 20–26, 2020
- Canadian Operator Symposium (COSy), Fields Institute, Online — May 25–29, 2020
- Banach Algebras and Applications, University of Manitoba, Winnepeg — July 11–18, 2019
- Canadian Abstract Harmonic Analysis Symposium(CAHAS),
  Carleton University, Ottawa — May 31–June 2, 2018

- Canadian Abstract Harmonic Analysis Symposium(CAHAS), University of Manitoba, Winnepeg — May 23–25, 2017
- Canadian Operator Symposium(COSy), Lakehead University, Thunder Bay — May 29–June 2, 2017
- *Workshop on Fourier and signal analysis by G. B. Folland*, NISER, Bhubaneswar — Dec 2015

Teaching Experience

Pondicherry University, Ramanujam School of Mathematical Sciences
Instructor — Oct 2024 – Present

- *Mathematics I & II for Engineers (BTMT 171/172)* - ECE, CSE, ENE; $\sim$ 120 students.

  Topics: linear algebra, ODEs, multivariable calculus, PDEs, Laplace and Fourier transforms. Coordinated syllabi, assessments, and examinations across multiple engineering cohorts.

University of Waterloo, Faculty of Mathematics
Instructor/Sole Instructor

- *Advanced Calculus II for Electrical Engineers (ECE 206/MATH 212)* (Sole Instructor) — Fall 2023

  Multivariable and vector calculus; complex variables (Möbius-based curriculum).
- *Calculus I for Honours Mathematics (MATH 137)* — Fall 2022
- *Calculus for Engineering (MATH 116)* — Fall 2019

University of Winnipeg, Department of Mathematics & Statistics
Instructor/Sole Instructor

- *Complex Analysis (MATH 4101)* (Sole Instructor) — Winter 2022
- *Applied Mathematics for Business & Administration (MATH 1301)* — Fall 2021

Conestoga College, School of Business
Instructor

- *Business Mathematics (MATH 71775)*

University of Waterloo, Department of Pure Mathematics
Graduate Teaching Assistant — 2016-2021

- Tutorials and grading for calculus and linear algebra
- Academic support for upper-year analysis courses: real analysis, measure theory, Fourier analysis, complex analysis.

Professional/Academic Development

CSIR-UGC NET Coach for Math Majors – Professional Service — May 2025 – Present
Pondicherry University, Equal Opportunity Cell

- Provided personalised coaching to undergraduate and postgraduate students, focusing on conceptual clarity, problem-solving strategies, and exam readiness for CSIR-UGC NET-mathematics subject.

Teaching and Curriculum Development Training –Micro-credentials — Summer 2023
Conestoga College,Teaching and Learning Department

- Completed certified micro-credentials in outcomes-based education, active learning, assessment design, and curriculum alignment.

Graduate Student Instructor Training Seminar — Winter 2019
University of Waterloo, Faculty of Mathematics

- Participated in interactive teaching workshops with peer feedback on lesson plans and course materials.
- Attended math-specific sessions on lesson planning, assessment design, student motivation, and lecture delivery.
- Designed and presented three mini-lectures in real analysis and observed multiple classroom teaching sessions.

Learning Seminars — Fall 2016 – Summer 2024
University of Waterloo, Department of Pure Mathematics

- Contributed to and participated in research seminars in operator algebras, harmonic analysis and representation theory, including Banach algebras associated with locally compact groups, C^*-algebras, and tensor categories.
- Regular attendee departmental analysis seminars, graduate colloquia, and graduate seminars.
- Supervision of undergraduate research assistants

Awards and Honours

Received at University of Waterloo, Waterloo, ON, Canada

- International Doctoral Student Award — Fall 2016 – Spring 2020
- Susan and Janoes Aczel Graduate Scholarship — Winter 2018 – 2020 and Fall 2018

Received at National Institute of Science Education and Research, Odisha, India

- INSPIRE Fellowship — July 2011 – May 2016
- Summer Research Fellowship, Indian Academy of Sciences, Bangalore, India — Summer 2013
- Cleared CSIR-UGC-NET for JRF with rank 33 — June 2016

Academic References

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