CURRICULUM VITAE

A. ANTONY SELVAN
Assistant Professor
Department of Mathematics and Computing
Indian Institute of Technology Dhanbad
Dhanbad- 826004

Google Scholar
ORCiD
antonyaans@gmail.com
+91-6291016709

Date of Joining in the Institute: 15/04/2019

Academic Profile

Course	College/ Institution	Board / University	% of marks or CGPA	Year of Passing
Ph.D (Maths)	Indian Institute of Technology Madras, Chennai	Indian Institute of Technology Madras, Chennai	8.31 (Course work)	June 2015
M.Sc (Maths)	College of Engineering, Anna University	Anna University Chennai	7.5	Apr 2008
B.Sc (Maths)	Periyar Arts College, Cuddalore	Thiruvalluvar University Vellore	75	Apr 2006
H.Sc (XII Std.)	A. A. Hr. Sec. School, Viriyur	Tamilnadu State Board	87.33	Apr 2003
SSLC (X Std.)	A. A. Hr. Sec. School, Viriyur	Tamilnadu State Board	91	Apr 2001

Research Interests

Broad Area:

- Computational and Numerical Harmonic Analysis

Specific Area:

- Mathematical Sampling Theory, Time-Frequency Analysis, and Wavelets

List of Publications/Preprints (Written as a First/Corresponding Author)

1. **Antony Selvan, A.** and Radha, R. Sampling and reconstruction in shift-invariant spaces on $\mathbb{R}^d$, *Annali di Matematica Pura ed Applicata*, 194 (4). no. 6, 1683-1706, 2015. (**Q1, IF-1.0, MCQ-0.95**)

2. **Antony Selvan, A.** and Radha, R, Sampling and reconstruction in shift-invariant spaces of B-spline functions, *Acta Applicandae Mathematicae*, 145, 175-192, 2016. (**Q2, IF-1.4, MCQ-1.04**)

3. **Antony Selvan, A.** and Radha, R. Separation of zeros and a Hermite interpolation based frame algorithm for bandlimited functions, *Sampling Theory in Signal and Image Processing*, 15, 21-35, 2016. (**MCQ-0.78**)

4. **Antony Selvan, A.** and Radha, R. Invertibility of a tridiagonal operator with an application to a non-uniform sampling problem, *Linear and Multilinear Algebra*, 65(5), 973-999, 2017. (**Q1, IF-0.9, MCQ-0.68**)

5. **Antony Selvan, A.** and Radha, R. Frames in Hermite-Bergman and special Hermite-Bergman spaces, *Journal of Pseudo-Differential Operators and Applications*, 8(2), 241-254, 2017. (**Q2, IF-0.9, MCQ-0.69**)

6. **Antony Selvan, A.** and Radha, R. An optimal result for sampling density in shift-invariant spaces generated by Meyer scaling function, *Journal of Mathematical Analysis and Applications*, 451(1), 197-208, 2017. (**Q1, IF-1.2, MCQ-0.98**)

7. Ghosh, R. and **Antony Selvan, A**. Exponential type bases on a finite union of certain disjoint intervals of equal length, *Banach Journal of Mathematical Analysis*, 16:53, 2022. (**Q1, IF-1.1, MCQ-0.71**)

8. **Antony Selvan, A.** and Ghosh, R. Sampling with derivatives in periodic shift-invariant spaces, *Numerical Functional Analysis and Optimization*, 43(13), 1591-1615, 2022. (**Q2, IF-1.4, MCQ-0.56**)

9. **Antony Selvan, A.** and Priyanka, K. Perturbation theorems for regular sampling in wavelet subspaces, *Acta Applicandae Mathematicae*, 182(1), 8, 2022. (**Q2, IF-1.4, MCQ-1.04**)

10. Bharanedhar, S.V., **Antony Selvan, A.**, and Ghosh, R. Zeros of self-inversive polynomials with an application to sampling theory, *Applied Mathematics and Computation*, 439, 127547, 2023. (**Q1, IF-3.5, MCQ-0.61**)

11. Ghosh, R. and **Antony Selvan, A.** Sampling and interpolation of periodic nonuniform samples involving derivatives, *Results in Mathematics*, 78(2), 52, 2023. (**Q1, IF-1.2, MCQ-0.71**)

12. Priyanka, K. and **Antony Selvan, A**. Derivative sampling expansions in shift-invariant spaces with error estimates covering discontinuous signals, *IEEE Transactions on Information Theory*, 70(8), 5453-5470, 2024. (**Q2, IF-2.2, MCQ-1.07**)

13. Ghosh, R. and **Antony Selvan, A.** On Gabor frames generated by totally positive functions, B-splines, and Hermite functions, *Applied Numerical Mathematics*, 207, 1–23, 2025. (**Q1, IF-2.2, MCQ-1.18**)

14. Priyanka, K. and **Antony Selvan, A.** Sampling with derivatives in finitely generated shift-invariant spaces and an approximation scheme based on periodic Chebyshev samples, *Revised version submitted to Journal of Computational and Applied Mathematics*, 2024.

15. Ghosh, R. and **Antony Selvan, A.** Obstructions for Gabor frames of the second order B-spline, arXiv preprint arXiv:2310.01141. (**Best Poster Presentation (ARI-NUHAG Award First Prize)**, Strobl24, More on Harmonic Analysis, Austria, Europe, July 9-15, 2024, presented by Riya Ghosh).

16. Priyanka, K. and **Antony Selvan, A.** Construction of irregular complete interpolation sets for shift-invariant spaces, arXiv:2408.09099, 2024.

17. **Antony Selvan, A**, Ayush Bhandari, and Radha, R. Approximation from shift-invariant spaces with smooth generators, Preprint, 2024.

18. **Antony Selvan, A.** and Ghosh, R. Beurling-Landau type theorems in Fractional Fourier transform domain, Preprint, 2024.

Reviewer in International Journals

(1) Journal of Computational and Applied Mathematics

(2) Journal of Analysis

(3) Journal of Approximation Theory

(4) Journal of Korean Mathematical Society

(5) MathSciNet- Mathematical Review

Guidance

(1) Riya Ghosh (Ph.D, Title: Sampling with Derivatives and Time-Frequency Analysis for some Specific Functions, 2024, Department Level Best Thesis Award, 2024)

(2) Kumari Priyanka (Ph.D, Title: Sampling and Interpolation in Shift-invariant Spaces and Error Estimates Covering Discontinuous Signals, 2024)

(3) T Sreya, Prime Minister Research Fellow (Ph.D Ongoing)

(4) Sutapa Bhowmik (Ph.D Ongoing)

(5) Puja Garai (Ph.D Ongoing)

(6) Completed 5 M.Sc thesis and 8 M.Tech thesis

Papers Presented in Conferences

- A. Antony Selvan, *Sampling and reconstruction in shift-invariant spaces on* $\mathbb{R}^d$, "XIII Discussion Meeting on Harmonic Analysis (DMHA)" organized by Chennai Mathematical Institute and held at The Institute of Mathematical Sciences during December 16-19, 2013.

Conferences/Seminars/Workshops Attended or Organized

- Attended the Workshop on Functional Analysis at The Institute of Mathematical Sciences, Chennai for the period 28, June - 17, July 2010.
- Attended the Workshop on Functional Analysis at Indian Statistical Institute, Delhi for the period 03, Dec - 22, Dec 2010.
- Organized a National Conference on Harmonic Analysis and Applications at IITISM Dhanbad as a Co-convener, Dec-2022.

Invited Talks

- *Sampling theory in shift-invariant spaces*, Indian Statistical Institue, Chennai, Feb- 2017.
- *Invertibility of a tridiagonal operator with an application to nonuniform sampling problem*, International Conference on Fourier Analysis and Wavelets held at the University of Madras, Chennai during March 21-25, 2017.
- *Sampling theory in shift-invariant spaces*, Sampling Theory and its Applications: Signal, Image Processing and Data Science, IIT Indore, Jan-2022.

Teaching Experience

I taught the following courses as the sole instructor at IIT(ISM) Dhanbad.

- Methods of Applied Mathematics-I
- Modern Algebra
- Real Analysis
- Advanced Analysis
- Numerical Linear Algebra
- Mathematics-II
- Wavelet Theory and Applications
- Complex Analysis and Measure Theory
- Numerical Methods and Lab
- Computer Oriented Numerical Methods
- Fourier Analysis and Its Applications

Postdoctoral Experience

- Postdoctoral Fellow at The Institute of Mathematical Sciences Chennai from 23-03-2015 to 31-05-2017.
- Visiting Scientist at Indian Statistical Institute Kolkata from 12-06-2017 to 23-09-2018.
- Postdoctoral Fellow at IISER Bhopal from 01-10-2018 to 13-04-2019.

Computer Knowledge

Programming	:	C
Computing software	:	MATLAB
Typing Software	:	Latex

Awards and Honours

- Qualified GATE 2008 in Mathematics and secured all India rank 220.
- Qualified Anna University M.Sc Entrance Examination and secured rank 2.