Curriculum Vitae
V.B. Kiran Kumar

Official Address
Assistant Professor
Department of Mathematics
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Personal Information
Date of Birth	:	20 May, 1984
Gender	:	Male
Nationality	:	Indian
Permanent Address	:	Aiswarya House, Naderi P.O., Kozhikode Dist., Kerala-673620, India

Research Interests
Functional Analysis, Spectral Theory, Approximation Theory.

Education
Ph.D. in Mathematics (March 2013)
Cochin University of Science and Technology, Cochin, India (January 2009 - November 2012)

Thesis Title	:	Spectral Analysis of Bounded Self-adjoint Operators A Linear Algebraic Approach.
Thesis Advisor	:	Prof. M.N.N. Namboodiri.

M.Sc. in Mathematics (May 2008**), First Class with Distinction**
Cochin University of Science and Technology, Kerala with CGPA 08.94 (2006- 2008).
B.Sc. in Mathematics (April 2006**), First Class with Distinction**
University of Calicut, Kerala with 87.6%.

Publications

(1) **V. B. Kiran Kumar, N.S. Sarathkumar**, *A Note on Generalized Locally Toeplitz Operators*, Numerical Linear Algebra with Applications, 32(2025), no.3, 18pp.

(2) **V. B. Kiran Kumar; P.C. Vinaya**, *Revisiting Korovkin-type theorems in Banach function spaces*, Mediterranean Journal of Mathematics, 22 (2025), no.1, Paper No. 23,, 21 pp.

(3) **V.B. Kiran Kumar, G. Krishnakumar**, *Stability in non-normal periodic Jacobi operators: advancing Börg's theorem*, Advances in Operator Theory 10(2025), no.1, Paper No. 16, 23 pp.

(4) **Tiju Cherian John, V. B. Kiran Kumar, Anmary Tonny** *An Order Relation between Eigenvalues and Symplectic Eigenvalues of a Class of Infinite-Dimensional Operators*,Quantum Studies: Mathematics and Foundations, 11 (2024), no.3, 549-565.

(5) **V. B. Kiran Kumar, Anmary Tonny** *On approximating the symplectic spectrum of infinite-dimensional operators*, J. Math. Phys. 65, 042201 (2024).

(6) **V. B. Kiran Kumar, P. C. Vinaya** *Operator version of Korovkin theorem; Degree of convergence and application to Preconditioners*, J. Math. Anal. Appl. (2023), 127087.

(7) **V. B. Kiran Kumar, A. Lexy, M. N. N. Namboodiri and A. Noufal** *Spectral Analysis of Singular Matrices in SIMO Channel*, Applied Math. Computations, 2023, Volume 442, Pages 127760

(8) **V. A. Anjali, V. B. Kiran Kumar and P. Shankar** *An Expository Note on Wavelets and Garph C^*-algebras*, Indian J. Pure Appl .Math. 55, 123–137 (2024).

(9) **V. B. Kiran Kumar** *Essential Spectrum of Discrete Laplacian - Revisited.* 3C TIC. Cuadernos de desarrollo aplicados a las TIC, 11(2), 52-59 (2022).

(10) **V. B. Kiran Kumar, Rahul Rajan and N. S. Sarathkumar**. *Banach spaces of GLT Sequences and Function Spaces*, Electronic Journal of Linear Algebra Vol. 38, 295–316, 2022.

(11) **Wolfram Bauer, V. B. Kiran Kumar, and Rahul Rajan**. *Korovkin-type Theorems on $B(\mathcal{H})$ and their Applications to Function spaces*, Monatshefte für Mathematik Vol.197, 257–284, 2021

(12) **V. B. Kiran Kumar, M. N. N. Namboodiri, and Rahul Rajan**. *A short survey on preconditioners and Korovkin- type theorems*,J. Anal. **29** (2021), no. 2, 425–447.

(13) **Deepesh K.P., V. B. Kiran Kumar**. *Approximation of entropy numbers*, Complex Anal. Oper. Theory 13 (2019), no. 7, 3429–3440. .

(14) **V. B. Kiran Kumar, M. N. N. Namboodiri, and Rahul Rajan**, *A Korovkin-type theory for non-self-adjoint Toeplitz operators*, Linear Algebra Appl., **543:140–161, 2018**.

(15) **V. B. Kiran Kumar and G. Krishna Kumar**, *A note on discrete Borg-type theorems. Linear and Multilinear Algebra*, **66(7):1418–1433, 2017**.

(16) **Sabu Sebastian and V. B. Kiran Kumar**, *Real powers of bounded linear operators*, Int. J. Appl. Comput. Math., **3(2):645–650, 2017**.

(17) **V. B. Kiran Kumar**, *Preconditioners in spectral approximation*, Ann. Funct. Anal., **7(2):326–337, 2016.**

(18) **V. B. Kiran Kumar**, *Truncation method for random bounded self-adjoint operators*, Banach J. Math. Anal., **9(3):98–113, 2015**.

(19) **V. B. Kiran Kumar**, *Spectral approximation of bounded self-adjoint operators - a short survey*, Semigroups, algebras and operator theory, volume 142 of Springer Proc. Math. Stat., pages **185–203**, Springer, New Delhi, **2015**.

(20) **V. B. Kiran Kumar, M. N. N. Namboodiri, and S. Serra-Capizzano**, *Preconditioners and Korovkin-type theorems for infinite-dimensional bounded linear operators via completely positive maps*, Studia Math., **218(2):95–118, 2013.**

(21) **V. B. Kiran Kumar, M. N. N. Namboodiri, and S. Serra-Capizzano**, *Perturbation of operators and approximation of spectrum*, Proc. Indian Acad. Sci. Math. Sci., **124(2):205–224, 2014.**

(22) **L. Golinskii, V. B. Kiran Kumar, M. N. N. Namboodiri, and S. Serra-Capizzano**, *A note on a discrete version of Borg's theorem via Toeplitz-Laurent operators with matrix-valued symbols. Boll. Unione Mat. Ital.* **(9), 6(1):205–218, 2013.**

Edited Books/Chapters/General articles etc.

A. A. Ambily, V. B. Kiran Kumar (Editors): Semigroups, algebras and operator theory, Springer Proc. Math. Stat., 436, Springer, Singapore, 2023.

Preprints and ongoing projects

(1) V. B. Kiran Kumar; M. N. N. Namboodiri; P.C. Vinaya *Extension of Grunwald's Operator to the L^1-space* (In Preparation).

(2) V. B. Kiran Kumar; M. Mathew *Spectral Approximation of Self-adjoint Linear Relations* (In Preparation).

(3) V. B. Kiran Kumar, A. Lexy, A. Noufal, Stefano Serra-Capizzano *Spectral Analysis of MIMO Channel*,(In Preparation).

International Visits

(1) International Congress of Industrial and Applied Mathematics (ICIAM-2023), Tokyo, Jan 20-25, August 2023 (Fully supported by NBHM)

(2) International Linear Algebra Society (ILAS) Annual Conference at Madrid, Spain, June 12-16, 2023

(3) International Conference on Matrix Analysis and its Applications (MAT-TRIAD-2019), held at Liblice, Czech Republic 08-13 September, 2019. (Travel supported by KSCSTE)

(4) International Workshop on Operator Theory and its Applications (IWOTA-2019), held at Instituto Superior Tecnico, Lisbon, Portugal 22-26 July, 2019. (Travel supported by SERB)

(5) International Workshop on Operator Theory and its Applications (IWOTA 2017), held at Technical University, Chemnitz, Germany, 14-18 August, 2017. (Travel supported by UGC, CUSAT)

Research/Teaching Experience

- **Principal Investigator, SERB-SURE Project, Rs.** $14, 03, 600/-$ $(2023 - 2026)$; Cochin University of Science and Technology, Cochin, India.
- **Principal Investigator, KSCSTE-YSA Research Grant, Rs.** $14, 25, 000/-$ $(2021 - 2024)$; Cochin University of Science and Technology, Cochin, India.
- **Principal Investigator, UGC Start-up Research Grant, Rs.** $10, 00, 000/-$ $(2017 - 2019)$; Cochin University of Science and Technology, Cochin, India.
- **Assistant Professor** (24 July 2015-till date); Cochin University of Science and Technology, Cochin, India.
- **Assistant Professor** (March 2014- July 2015); PSMO College Tirurangadi, India.
- **Visiting Scientist** (October 2013-March 2014); Kerala School Of Mathematics, Kozhikode, Kerala, India.
- **Assistant Professor** (November 2012- September 2013); University of Calicut, Kerala, India.
- **CSIR Research Fellow** (January 2010-November 2012); Cochin University of Science and Technology, Cochin, India.
- **KSCSTE Research Fellow** (January 2009-January 2010); Cochin University of Science and Technology, Cochin, India.
- **Guest Lecturer**(July 2008 - January 2009); Nirmalagiri College, Koothuparamba, Thalassery, Kerala.

Research Grants, Scholarships and Awards

(1) SERB-SURE Project, Rs. $14, 03, 600/-$

(2) KSCSTE-YSA Research Grant, Rs. $14, 25, 000/-$

(3) Kerala State Young Scientist Award 2017 by KSCSTE, Govt. of Kerala.

(4) UGC Start-up Research Grant, Rs. $10, 00, 000/-$

(5) National Board for Higher Mathematics(NBHM)-Postdoctoral Fellowship 2013.

(6) CSIR JRF 2009.

(7) KSCSTE Research Fellowship 2008.

Conferences/ Seminars/ Workshops

(1) International Conference on Spectral and Approximation Theory (ICSAT-2023), organized by Dept. of Mathematics, CUSAT, Cochin, 27-30 November 2023 (Convenor).

(2) International Conference on Semigroups Algebra and operator Theory (ICSAOT 2022), organized by Dept. of Mathematics, CUSAT, Cochin, 28-31 March 2022 (Convenor).

(3) Research Workshop on Wavelets and Frames, Department of Mathematics, Cochin University of Science and Technology (CUSAT), Cochin, Kerala during 24-26 March 2018 (Coordinator).

(4) Two-days training programme for M.Sc. Students Department of Mathematics, Cochin University of Science and Technology, during 04-05 February, 2017(Coordinator).

(5) Research Workshop on Analysis, Department of Mathematics, Cochin University of Science and Technology (CUSAT), Cochin, Kerala during 25-28 July 2016 (Coordinator)

Courses Taught

- M. Phil/Ph.D Course work : Topics in Analysis, Banach Algebras, Advanced Spectral Theory
- M.Sc.: Functional Analysis, Complex Analysis, Banach Algebra & Spectral Theory, Linear Algebra, Differential Geometry, Partial Differential Equations, Probability Theory, Advanced Linear Algebra, Topology, Measure Theory, Wavelets.
- B.Sc.: Real Analysis, Metric Topology.

Research Guidance

- Ph.D : Completed: 3, Ongoing: 2.
- MPhil. : 8, MSc Project : 10.

Administrative Experiences

- Coordinator of the Virtual Centre : Advanced Research in Basic Science, CUSAT from January 2019 to January 2021.
- IQAC Member, CUSAT, 2018-19.
- Head of the Department, Department of Mathematics, CUSAT from November 2017 to July 2018.
- Regional Coordinator for M. A. and M.Sc. Scholarship Test and Research Scholarship screening Test conducted by National Board for Higher Mathematics (NBHM).
- Regional Coordinator for Simon Marais Mathematic Competitions (SMMC conducted world wide by Simon Marais Trust based in Australia)