NEERU BALA

CONTACT INFORMATION

Assistant Professor Grade-I,
Mathematics and Computing Department,
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RESEARCH INTERESTS

Operator theory.

EDUCATION

Ph.D., Mathematics, 2016-2020

Indian Institute of Technology Hyderabad,Telangana, India.

Dissertation Topic: "Spectral properties of absolutely minimum attaining operators and paranormal operators"
Advisor: Prof. G. Ramesh

M.Sc., Mathematics, 2013-2015.

Department of Mathematics, University of Delhi, Delhi, India.

B.Sc., Mathematics, 2010-2013.

Sri Venkateswara college, University of Delhi, Delhi, India.

RESEARCH EXPERIENCE

1. Research Associate, ISI Bangalore: 3 November 2021- 17 August 2023.
2. Post-doctoral fellow, IIT Bombay: 28 December 2020-1 November 2021.
3. Visiting Scientist, ISI Bangalore: 19 October 2020 -23 December 2020.
4. Post-doctoral fellow, IIT Hyderabad: 11 April 2020- 10 October 2020.

ACADEMIC ACHIVEMENTS

1. Selected for NBHM Post-doctoral fellowship in 2023.
2. Qualified GATE exam (Mathematics) in 2016.
3. Qualified National eligibility test (NET) in June -2015.
4. Silver medalist in B.Sc. (Hons.) mathematics, 2013.

TEACHING

1. Measure Theory
2. Mathematics-I.
3. Computational fluid dynamics (practical)
4. Numerical Methods
5. Complex Analysis

PUBLICATIONS

1. Sneha B., Neeru Bala, Jaydeb Sarkar and Samir Panja, Liftings and invariant subspaces of Hankel operators, to appear in Publicacions Matemàtiques
2. Neeru Bala, and G. Ramesh, Hyperinvariant subspaces for normaloid essential isometric operators, accepted for publication in Journal of mathematical analysis and applications.
3. Neeru Bala, Jaydeb Sarker, and Aryaman Sensarma, A Bishop-Phelps-Bolloás theorem for disc algebra, accepted for publication in Indian Journal of Pure and Applied Mathematics (KRP volume).

4. Neeru Bala, Santanu Dey, and M.N. Reshmi, Factorizations of Characteristic Functions of Iterated Liftings. Complex Analysis and Operator Theory **17** (2023), 79.
5. Neeru Bala, Representation and normality of $*$-paranormal absolutely norm attaining operators, Acta Scientiarum Mathematicarum 89 (2023): 167-181.
6. Neeru Bala, Kousik Dhara, Jaydeb Sarkar, and Aryaman Sensarma, A Bishop-Phelps-Bollobás theorem for bounded analytic functions, J. Funct. Anal. **284** (2023), no. 6, Paper No. 109834. MR4531568
7. Neeru Bala, Nirupam Ghosh, and Jaydeb Sarkar, Invariant subspaces of idempotents on Hilbert spaces, Integral Equations and Operator Theory 95, no.1 (2023): 4.
8. Neeru Bala and G. Ramesh, A representation of hyponormal absolutely norm attaining operators, Bulletin des Sciences Mathématiques **171** (2021), 103020.
9. Neeru Bala, Kousik Dhara, Jaydeb Sarkar, and Aryaman Sensarma, Idempotent, model, and Toeplitz operators attaining their norms, Linear Algebra and its Applications **622** (2021), 150–165.
10. Neeru Bala and G. Ramesh, A Bishop-Phelps-Bollobás type property for minimum attaining operators, Operators and Matrices **15** (2021), no. 2, 497–513.
11. Neeru Bala and G. Ramesh, Spectral properties of absolutely minimum attaining operators, Banach Journal of Mathematical Analysis **14** (2020), no. 3, 630–649.
12. Neeru Bala and G. Ramesh, Weyl's theorem for paranormal closed operators, Annals of Functional Analysis **11** (2020), no. 3, 567–582.
13. Neeru Bala and G. Ramesh, Weyl's theorem for commuting tuples of paranormal and $*$-paranormal operators, Bulletin of the Polish Academy of Sciences, Mathematics **69** (2021), no. 1, 69–86.

Pre-prints

1. Characteristic functions: colligations and finite Blaschke products (with M. N. Reshmi and Santanu Dey)
2. Nayak's theorem for compact operators (with B V Rajarama Bhat).

Symposium organized

1. PDF-RS Annual Symposium 2023, 17 March 2023, ISI Bangalore.
2. National Mathematics Day 2024, 22-23 December 2024, IIT (ISM)

Conference Presentations

Title: Weyl's theorem for paranormal closed operators.
Venue: International conference cum workshop on analysis and its applications, 18-22 June 2018, IIT Madras, Chennai.

Title: Spectral properties of absolutely minimum attaining operators.
Venue: International conference on Banach algebras, harmonic analysis and operator theory, 20-22 November, Department of Mathematics, Sardar patel university, Gujarat.

Title: Hyperinvariant subspace for $\mathcal{AN}$ and $\mathcal{AM}$-operators.
Venue: International Workshop on Operator Theory and its Applications, 22-26 July 2019, Instituto Superior Técnico, Lisbon, Portugal.

Title: Weyl's Theorem for Commuting Tuple of Paranormal Operators
Venue: Symposium on Geometry of Banach Spaces, 1-2 December 2019, IIT Hyderabad.

Title: A Bishop-Phelps-Bollobás theorem for bounded analytic functions
Venue: Operator Theory and Complex Geometry, 24-26 November 2022, IISER Kolkata

Title: Invariant Subspaces of Idempotents on Hilbert Spaces
Venue: Indian Women and Mathematics (IWM): Annual Conference, 13-15 July 2023, IISER Bhopal

Title: Nayak's theorem for exponential of compact operators
Venue: 39th Annual conference of Ramanujan Mathematical Society (RMS 2024), 27-29 December 2024, Christ University, Bangalore

Conference and workshops attended

1. 39th Annual conference of Ramanujan Mathematical Society (RMS 2024), 27-29 December 2024, Christ University, Bangalore
2. Indian Women and Mathematics (IWM): Annual Conference, 13-15 July 2023, IISER Bhopal.
3. Operator Theory and Complex Geometry, 24-26 November 2022, IISER Kolkata.
4. Advanced Functional Analysis and its Applications, 25-29 November 2019, Indian Institute of Technology, Hyderabad.
5. Conference on Functional Analysis, 17-20 October 2019, Indian Institute of Technology Bombay.
6. International Workshop on Operator Theory and its Applications, 22-26 July 2019, Instituto Superior Técnico, Lisbon, Portugal.
7. NCM Workshop on Operator Algebras, Quantum Groups and Noncommutative Geometry, 1-13 July, 2019, IISER Bhopal.
8. National Workshop on Topology and Functional Analysis, 11-15 March 2019, The LNM Institute of Information Technology, Jaipur.
9. Recent advances in operator theory and operator algebras, 13-19 December 2018, ISI Bangalore, Bangalore.
10. International conference on Banach algebras, harmonic analysis and operator theory, 20-22 November 2018, Department of Mathematics, Sardar patel university, Gujarat.
11. International conference cum workshop on analysis and its applications, 18-22 June 2018, IIT Madras, Chennai.
12. Annual foundation school (AFS-1), 4-30 December, 2017, IIT Delhi, Delhi.
13. NCM workshop on Operator Algebras, 11-16 September 2017, The institute of mathematical sciences, Chennai.
14. National conference on algebra, analysis, coding and cryptography, 14-15 October 2016, Department of Mathematics, University of Delhi, Delhi.

References

Prof. G. Ramesh,
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Department of Mathematics,
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Prof. Jaydeb Sarkar,
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A-15, Statistics and Mathematics Unit,
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Prof. B V Rajarama Bhat,
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210-F, Department of Mathematics,
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