Curriculum Vitae

Dr. Gul Rahmat (HEC Approved Supervisor)
☏ **+923469406195**
✉**gulrahmat@gmail.com**
gulrahmat@icp.edu.pk
https://orcid.org/0000-0002-0805-4930

Personal Information

Father's Name	**:**	Mr. Sher Ali Khan
Date of Birth	**:**	20 /12/1983
CNIC. No.	**:**	15602-0476553-5
Domicile	**:**	Swat (Khyber Pakhtunkhwa)
Religion	**:**	Islam
Nationality	**:**	Pakistani
Permanent Address	**:**	Mingora, Takhtaband, SWAT, Khyber Pakhtunkhwa
Mailing Address	**:**	Department of Mathematics, Islamia College Peshawar.

Education and Qualifications

Degree	Institution/University	Subject	Year	%age	Div.
Ph.D.	Abdus Salam School of Mathematical Sciences, GC University Lahore	Mathematics	2008-2013	81	1st
M.Sc.	Peshawar University	Mathematics	2005-2007	81	1st
B.A	Malakand University	Math A&B, Stat	2002-2004	71	1st
F.A	BISE Swat	Math, Stat, Econ	1999-2001	54	2nd
S.S.C	BISE Swat	Phy, Che, Bio	1997-1999	46	2nd

Awards/Distinction

1. Secure 1st position in BA at Govt Degree College, Mingora Swat, 2004.
2. Got first position in BA, University of Malakand, 2004.
3. Awarded with a Gold Medal by Islamia College Peshawar, in the 8th Convocation, Dec 23, 2023.

Courses Taken in Doctoral Program:

1. Linear Algebra
2. Advance Real Analysis
3. Complex Analysis
4. Number Theory
5. Abstract Algebra
6. Ordinary Differential Equations
7. Numerical Methods & Analysis
8. Partial Differential Equations
9. Convex Analysis
10. Measure Theory and Integration
11. Geometry
12. Advance Functional Analysis
13. Probability Theory
14. Calculus of Variation
15. Fractional Calculus
16. Differential Manifold
17. Dynamical System
18. Multivariable Complex Analysis
19. Cryptography
20. Mathematical Methods in Brain Dynamics
21. Approximation Theory in Real and Complex Domain
22. Fuzzy Analysis- Simple Calculus
23. Algebraic Curves Related to Arithmetic
24. Special Topics in Complex Analysis

PhD Thesis Information

Expertise/Research Interest:

- Ordinary Differential Equations and Difference Equations.
- Dynamical Systems.
- Functional Analysis.
- Operator Semigroup Theory.
- Stability Theory for Abstract Differential and Integral Equations.
- Fixed Point Theory.
- Fractional Calculus.
- Numerical Analysis.

Title of Dissertation:

- Real integral characterizations for asymptotic stability of evolution equations in Banach spaces. ***Higher Education Commission of Pakistan*** (HEC). http://eprints.hec.gov.pk/10213/

- Thesis defended on October 28, 2013.

Supervisor:

- Prof. Dr. Constantin Bușe
  West University of Timisoara, Romania.

Teaching Experience

- Associate Professor (Tenured), Islamia College Peshawar, from 23-06-2022 to date
- Assistant Professor (TTS), Islamia College Peshawar, from 15-12-2016 to 22.06.2022
- Assistant Professor (Contract), Islamia College Peshawar, from 23-12-2014 to 14-12-2016.
- Assistant Professor (IPFP), Islamia College Peshawar, from 23-12-2013 to 22-12-2014.
- Lecturer in Mathematics (visiting), Islamia College Peshawar, from 16-09-2013 to 22-12-2013.

Membership

1. Member Board of Studies, Northern University, Nowshera, Khyber Pakhtunkhwa, Pakistan. 05-10-2016 to 30.09.2019.
2. Member QEC, Islamia College Peshawar, May 2017 till date.
3. Member Board of Studies, Department of Mathematics, Shaheed Benazir Bhutto University, Shiringal, Dir Upper, Khyber Pakhtunkhwa, Pakistan. 19-10-2017 to 18-10-2020.
4. Member Purchase Committee of the Department of Mathematics, Islamia College Peshawar, 2018 till date.
5. Member of the Departmental Discipline Committee, at the Department of Mathematics, Islamia College Peshawar, 25.03.2021 till date.
6. Member of BS Mathematics Admission Committee at ICP for the session 2021-2024.
7. Member F. Sc Admission Committee at ICP for the years 2020 and 2021.
8. Member M. Phil & Ph. D Admission Committee at ICP, for the years 2022.
9. Member Departmental Quality Committee (DQC), at the Department of Mathematics, Islamia College Peshawar, 15.11.2022 till date.
10. Member DTRC at the Department of Mathematics, Islamia College Peshawar, 8.11.2023 till date.
11. Member Board of Studies at the Department of Mathematics, Islamia College Peshawar, 10.12.2020 to Dec 9, 2023.
12. Member Graduate Studies Committee at the Department of Mathematics, Islamia College Peshawar, 28.06.2024 till date.
13. Member Board of Studies at the Department of Mathematics, Islamia College Peshawar, 27.07.2024 to 26.07.2027.

Reviewer

1. Asian Journal of Mathematics and Computer Research
   http://www.ikpress.org/journal/44
2. Journal of Mathematics and Computer Science (JMCS)
   http://www.isr-publications.com/jmcs
3. Mathematical Problems in Engineering
   http://www.hindawi.com/journal/mpe/
4. Guest Editor in a special issue "Distances in Graph Theory" Journal of Mathematics
   https://www.hindawi.com/journals/jmath/si/845216/
5. Demonstratio Mathematica
   http://www.degruyter.com/view/j/dema
6. South African Journal of Chemical Engineering
   https://www.sciencedirect.com/journal/south-african-journal-of-chemical-engineering
7. Open Physics
   https://www.degruyter.com/journal/key/phys/html?lang=en
8. Baghdad Science Journal
   https://bsj.uobaghdad.edu.iq/index.php/B

Courses Taught at MS/MPhil & Ph. D Level

1. Numerical Linear Algebra
2. Advance Functional Analysis
3. Advance Topology
4. Fixed Point Theory and Applications
5. Applied Functional Analysis
6. Advance Mathematical Analysis

Courses Taught at BS/M. Sc Level

1. Functional Analysis
2. Real Analysis
3. Measure Theory
4. Calculus-I, II, III
5. Topology
6. Affine and Euclidean Geometry
7. Ring Theory
8. Mathematical Analysis
9. Mathematical Spaces
10. Ordinary differential equations
11. General Maths
12. Calculus and Analytical Geometry

Research Students at BS Level

S. No	Name	Registration No	Title	Defended on

1	Sundas Jahanzeb	2016/ICP-3413	Riemann integration theory and its applications	14.12.2020
2	Fatima Shehryar	2016/ICP-	Differentiability and its applications	14.12.2020
3	Ali Haider	2016/ICP-	Spectral characterization for Hyers-Ulam stability	22.03.2021
4	Asif Ali	2016/ICP-	Spectral characterization for Hyers-Ulam stability	22.03.2021
5	Zabit Khan Safi	2016/ICP-3432	Dichotomy and boundedness of solution of nonautonomous system	22.11.2021
6	Raza Ilahi	2017/ICP-	Dichotomy and boundedness of solution of nonautonomous system	22.11.2021
7	Muhammad Younas	2017/ICP-	Connection between dichotomy and boundedness of solution of difference equation	10.12.2021
8	Najib Ullah Jan	2017/ICP-	Connection between dichotomy and boundedness of solution of difference equation	10.12.2021
9	Zubair Khan	2018/ICP-8673	Exact admissibility and exponential stability of evolution equations	04.10.2022
10	Laiba Nawab	2018/ICP-8670	Exact admissibility and exponential stability of evolution equations	04.10.2022
11	Muhammad Shahid Salman	181348	Weak Rolewicz's theorem in Hilbert space	03.11.2022
12	Wajahat Iqbal	181346	Weak Rolewicz's theorem in Hilbert space	03.11.2022
13	Sundas Ali	191401	Hyers-Ulam Stability of Non-Autonomous and Non-Singular Delay Difference Equations	06.11.2023
14	Shamla Areeba Ali	191423	Hyesr-Ulam Stability of Non-Autonomous and Non-Singular Delay Difference Equations	06.11.2023
15	Fasiha Shaheen	191415	Ulam-Hyers stability of impulsive difference equations	06.11.2023
16	Alina	191431	Ulam-Hyers stability of impulsive difference equations	06.11.2023
17	S. Fatma Liaqat	191442	Fixed points of continuous and discrete evolution equations on Banach spaces	10.11.2023
18	Sajeela Nayab	191423	Fixed points of continuous and discrete evolution equations on Banach spaces	10.11.2023
19	Afaq Ahmad	191447	Hyers-Ulam and exponential stabilities of autonomous and non-autonomous difference equations	15.11.2023
20	Rizwan Ullah	191439	Hyers-Ulam and exponential stabilities of autonomous and non-autonomous difference equations	15.11.2023

21	Awais Hameed	2020/ICP-0767	Countable and uncountable sets	15.09.2024
22	Anum Nabi	2020/ICP-0732	Countable and uncountable sets	15.09.2024
23	Faisal Khan	2020/ICP-0768	Hyer-Ulam stability of difference system of order two	13.11.2024
24	Safi Ullah	2020/ICP-0730	Hyer-Ulam stability of difference system of order two	Nov, 2024
25	Shakir Ullah	2020/ICP-0737	Sequences and series	13.11.2024
25	Muhammad Sajjad Khan	2020/ICP-0748	Sequences and series	Nov, 2024

Research Students at MS/MPhil Level

S. No	Name	Registration No	Title	Thesis defended on
1	Musharraf Shah	2012/ICP/MS. MATH-21	Conditions for stability of discrete semigroups and periodic evolution families on Banach spaces	May 19, 2017
2	M. Kamraz Khan	2016/ICP-0277	Fixed Point results in d-quasi metric spaces	Feb 22, 2018
3	Raheel Kamal (Northern University, Nowshera)	153-NUN-0969	Estimation for the growth bound of evolution families on Banach spaces	March 22, 2018
4	Saif Ur Rehman (Northern University, Nowshera)	153-NUN-0971	Rolewic's type results in Hilbert space	March 22, 2018
5	Shahzad (Northern University, Nowshera)	161-NUN-0199	Exponential stability and dichotomy of operators on finite dimensional spaces	March 22, 2018
6	Mir Kashif (Northern University, Nowshera)	153-NUN-0957	Uniform exponential stability for discrete non-autonomous systems using evolution semigroups	March 22, 2018
7	Waqar Ullah	2016/ICP-0288	On the families of graphs with unbounded metric dimension	June 27, 2018
8	Muhammad Saeed	161-NUN-0104	Weak exponential expensiveness of evolution families in Banach spaces	Aug 3, 2018

	(Northern University, Nowshera)			
9	Mussawer Jan Durrani (Northern University, Nowshera)	161-NUN-0198	Dichotomy of non-autonomous system over finite dimensional spaces	Aug 3, 2018
10	Faheem Anwar	2016/ICP-0297	Fixed point cone metric spaces alternating function	May 10, 2019
11	Nuzhat Malik (Northern University, Nowshera)	153-NUN-0991	Uniform exponential stability of discrete semigroups	Aug 12, 2019
12	Nayab Zafar (Northern University, Nowshera)	135-NUN-0785	Dichotomy of Poincare maps and boundedness of solutions of difference equations	Aug 12, 2019
13	Sadam Hussain	2017/ICP-F1316	Fixed points for evolution families in Hilbert space	Oct 04, 2019
14	Wajeeha Sundas (Northern University, Nowshera)	171-NUN-0302	Spectral characterization for the Hyre-Ulam stability of differential periodic systems	Jan 31, 2020
15	Amna Zahoor (Northern University, Nowshera)	171-NUN-0155	Exponential dichotomy of evolution equation on the half-line	Jan 31, 2020
16	Junaid Khan (Northern University, Nowshera)	171-NUN-0123	Spectral characterization for Hyer-Ulam stability	Jan 31, 2020
17	Ishtiaq Ahmad (Northern University, Nowshera)	171-NUN-0339	Stability for trajectories of periodic evolution families	Jan 31, 2020
18	Muhammad Aftab	2017/ICP-F1320	Approximate common fixed point of non-expansive evolution families on Banach spaces	Oct 2, 2020
19	Muhammad Raies (Northern University, Nowshera)	171-NUN-0809	Integral condition for stability of semigroups of operators	Jul 15, 2021

20	Shah Khalid (UET Peshawar)	S19PWBSI108	Controllability and Ulam-Hyers stability of linear fractional differential equations with variable coefficients	Feb 09, 2022
21	Tariq Shah	2015/ICP-1007	Fixed points of periodic evolution equations in Banach spaces	June 02, 2022
22	Aziz Ur Rahman	2020/ICP-5205	Hyer-Ulam stability for non-singular delay difference system	June 02, 2022
23	Atta Ullah	2020/ICP-5191	Hyer-Ulam stability, exponential stability and controllability for non-singular delay difference system	June 02, 2022
24	Shawana Yousaf	2015/ICP-980	Spectral conditions for Hyer-Ulam stability of non-autonomous and periodic system of difference equations	June 7, 2022
25	Arshad Yousaf (Peshawar University)	2019-U-4647	Existence and uniqueness of some fixed point results in C^*-algebra-valued generalized metric spaces	June 9, 2022
26	Masaud Khan	2015/ICP-1005	Strong convergence to a common fixed point of a sub-family of non-expansive evolution operators in Hilbert spaces	July 21, 2022
27	Salman Anjum	2019/ICP-5148	Numerical solution of time fractional differential equations using improved Talbot method	Sep 08, 2022
28	Shaheen Fatima (Peshawar University)		Ulam-Hyers stability of a mathematical model of coronavirus infectious disease	Feb 13, 2023
29	Fatima Shehryar	2016/ICP-34	Stability analysis of semi-linear non-autonomous impulsive difference system	July 12, 2023
30	Muhammad Shoaib	2021/ICP-5649	Ulam type stabilities of first order delay difference equations with variable coefficients	Nov 13, 2023
31	Rahimullah	2020/ICP-5200	Hyers-Ulam stability and exact admissibility of discrete semigroup	Nov 17, 2023
32	Faheem Sultan	2022/ICP-5118	Bielecki -Ulam-Hyers stability of Hammerstein type difference equations	June 28, 2024
33	Asmat Ullah	2022/ICP-5117	Hyers stability of delay difference equations of order two	Aug 20, 2024

34	Munif Afridi	2022/ICP-5115	Hyers-Ulam stability of second order non-singular delay difference equations	Aug 20, 2024
35	Ikram Ullah	2022/ICP-5113	Exponential stability of second order non-singular delay difference equations	Sep 19, 2024
36	Shamla Areeba Ali		Stability analysis of difference equations of order m	In progress
37	Aleena		Hyers stability of delay difference systems of higher order	In progress
38	Haris Khan		Hyers-Ulam-Rassias stability of non-autonomous difference equations of order two	In progress
39	Atta Ur Rahman		Hyers-Ulam stability and controllability of second order delay difference system With variable coefficient	In progress
40	Haris		Bielecki-Ulam Stability of Hammerstein difference system of order two	In progress
41	Waqas Ahamd		Modeling and control of acute and chronic hepatitis b with the effect of media coverage	In progress

Research Students at Ph.D. Level

S. No	Name	Registration No	Title	Thesis defended on
1	Rizwan Ullah	2017/ICP-F1311	Edge product cordial labeling of graphs embedded on the surface of torus and Klein bottle	March 2, 2023
2	Musharraf Shah	2012/ICP/MS. MATH-21	Convergence of iterative process for common fixed points of evolution family on Banach space	July 13, 2023

MS/MPhil Thesis Evaluation

1. Nasir Ullah, Optical solitons solution for the perturbed nonlinear Schrödinger's equation, Malakand University, Sep 28, 2024.
2. Muhammad Nisarul Haq, Study of Cauchy type problems using piecewise non-local differential operators, Malakand University, July 20, 2024.
3. Muhammad Sadiq, Matter collineation of lRS Bianchi type-v spacetime, Peshawar University, June 13, 2024.
4. Hamza Khalil, Existence and stability analysis of impulsive fractional stochastic integro–differential equations, Peshawar University, June 11, 2024.

5. Zahoor Akbar, Analytical solution of a tri hybrid nanofluid model based on fractional derivatives, Swat University, June 10, 2024.
6. Izaz Ul Haq, Computational algorithm for the solution of system of second order linear integro-differential equations using Haar wavelet, Peshawar University, Feb 13, 2024.
7. Fazal Wahid, Analysis of multi-term arbitrary order implicit differential equations with variable type delay, University of Swat, Jan 15, 2024.
8. Ahsanullah, Image contrast enhancement and joint dehazing and denoising algorithm, Peshawar University, Jan 9, 2024.
9. Muhammad Sohail, Generalized averages based new functional for image segmentation, Peshawar University, Jan 9, 2024.
10. Mushahid Khan, Generalized upper bounds for the Jensen difference with applications, Peshawar university, Nov 15, 2023.
11. Imdad Ullah Khan, Haar Wavelet Method for the Numerical Solution of System of Second Order Differential Equations, Peshawar University, Oct 23, 2023.
12. Hajira Shabir, Numerical solution of parabolic partial differential equation via linear Legendre multi-wavelets, Peshawar University, Oct 18, 2023.
13. Muhammad Irfan, MHD Cilia-Assisted motion for blood fluid embedded with chemical reaction in an asymmetric conduct, Northern University, Nowshera, Sep 25, 2023
14. Bibi Abida, Uniqueness, existence and stability analysis of non-linear Volterra Hammerstein integro-dynamic system on time scale with delay, Qurtuba University of Science & IT Peshawar, Sep 6, 2023.
15. Abdullah, Existence theory and stability analysis of delay type differential equations VIA non-singular fractional operator, University of Swat, July 26, 2023.
16. Amin Akbar, Controllability of non-linear Volterra-Fredholm impulsive integro-dynamic system with delay, Qurtuba University of Science & IT Peshawar, July 14, 2023.
17. Abeer Iftikhar, Numerical solution of second order boundary value problems with Dirichlet mixed boundary conditions using linear Legendre multi-wavelets, Peshawar University, July 5, 2023.
18. Raishma, Controllability of non-linear Fredholm Hammerstein integro-dynamic system on time scale with delay and control function, Qurtuba University of Science & IT Peshawar, July 4, 2023.
19. Salman Khan, Existence, Uniqueness and Stability Analysis of Non-Linear Fredholm Hammerstein Integro-Delay Dynamic System on Time Scale, Qurtuba University of Science & IT Peshawar, June 15, 2023.
20. Iftikhar-ul-Mulk, On the Bielecki-Hyers-Ulam Stability of Non-Linear Hammerstein Integro-Delay Dynamic System with Fractional Integral Impulses, Qurtuba University of Science & IT Peshawar, June 12, 2023.
21. Humaira Mumtaz Kaka Khel, Improvements of the Jensen inequality for strongly convex functions and their applications, Peshawar University, June 2, 2023.
22. Masud Shah, Application of casual operator in qualitative analysis of fractional order differential equation, University of Swat, April 13, 2023.
23. Saddam Hussain, Numerical solution of third order boundary value problem using linear Legendre multi-wavelets, Peshawar University, Feb 3, 2023
24. Sahar Gul, Innovation outcome analyzing dusty Casson non-Newtonian nanofluid flow over stretching sheet with heat generation and absorption, Qurtuba University of Science & IT Peshawar, Dec 5, 2022.

25. Muhammad Zeeshan Naeem, On the Bielecki-Ulam's type stability results of first order non-linear delay dynamic systems with fractional integrable impulses, Qurtuba University of Science & IT Peshawar, Nov 15, 2022.
26. Muhammad Israr, Analysis of melting and entropy production in flow of hybrid nanofluid through porous system, Northern University, Nowshera, Aug 18, 2022.
27. Bakhtawar Shah, Steady state flow of the non-Newtonian fluid through the horizontal porous parallel plates, Qurtuba University of Science & IT Peshawar, July 18, 2022.
28. Wajid Ullah, Symmetries of the energy-momentum tensor for static plan symmetric spacetimes, Peshawar University, July 5, 2022.
29. Waqas Amjid, Stability analysis of non-linear Hammerstein Integro-dynamic equation on time scale by using integrating factor method, Qurtuba University of Science & IT Peshawar, May 24, 2022.
30. Javaria Fayaz, Numerical solution of fifth order boundary value problem using linear Legendre multi-wavelets, Peshawar University, May 18,2022.
31. Ameer Jan, Some inequalities of the type Hermite-Hadamard for conformable integral, Peshawar University, April 20, 2022.
32. Asia, New Jensen's type inequalities via Taylor formula and strong convexity, Peshawar University, Nov 30, 2021.
33. Faiza, Extension of optimal auxiliary function method to the solution of integral equations, AWKUM, Oct, 2021.
34. Misbah Ullah, Near coincidence point results in metric interval and hyperspaces, Malakand University, April, 2021.
35. Muhammad Altaf, Application of Daftardar-Jafri method to unsteady squeezing flow, Qurtuba University of Science & IT Peshawar, Jan 2021.
36. Ibrahim, A generalization of fuzzy soft bi-deals in ordered semigroups, Malakand University, March, 2020.
37. Fazal Haq, Analysis of periodic heat transfer through extended surfaces (fins), Malakand University, August, 2019.
38. Waqar Ahmad, Numerical solution of delay integral equations using Haar wavelet collocation method, Peshawar University, Mar, 2019.
39. Zaid Mohammed Mohammed Mahdi, Inequalities for Shannon and zipf-mandelbrot entropies, Peshawar University, Jan, 2019.
40. Liaqat Shah, Investigating extremal solutions to a coupled system of fractional differential equations, Malakand University, Jan 25, 2019.
41. Muhammad Yar, Stability analysis of fractional coupled system with integral boundary conditions, Peshawar University, Nov, 2018.
42. Noor Zaman, Stability for wave equations in terms of Ulam, Peshawar University, 2018.
43. Zeeshan Ali, Ulam–Hyers stability of boundary value problems for fractional differential equations, Peshawar University, 2018.
44. Abdullah, Common fixed point theorems satisfying rational type inequalities in G and Gb-metric spaces, Malakand University, 2018.
45. Muhammad Nasir, Analytical solutions of unsteady flows of generalized Burger's fluid, Malakand University, 2018.
46. Malik Aizaz Ali, New parameterized Hermite-Hadamard type inequalities with applications to means, Peshawar University, 2018.

47. Ejaz Hussain, Asymptotic stability of continuous linear switched systems, Peshawar University, 2018.
48. Farhan Ahmad, Unsteady motion of MHD sisko fluid over a stretching surface, Bacha Khan University, Charsadda, 2017.
49. Aneela Shakir, Oham and ADM solution of non-Newtonian magneto hydrodynamic and thermally conducting unsteady thin film flow in a porous medium pasta vertical oscillating plate, Bacha Khan University, Charsadda, 2017.
50. Bakht Zada, Stability analysis of linear switched system, Peshawar University, 2017.
51. Farhan Ullah Khan, Hyer Ulam stability of Volterra integral and summation equations, Peshawar University, 2017.
52. Imtiaz Bacha, Refinement of Jensen's inequality for co-ordinate convex functions, Peshawar University, 2016.
53. Miraj Ul Haq, Unsteady second grade plug flow between two vertical oscillating plates under the effect of (MHD) and temperature, Bacha Khan University, 2016.
54. Usman Riaz, Study of linear discrete time varying system, Peshawar University, 2016.
55. Rizwan Ullah, New refinements of Jensen-Mercer's inequality with application for means, Peshawar University, 2016.
56. Bakht Zaman, Existence and stability analysis of infinitely long Josephson junction with phase shifts, Malakand University, 2016.
57. Waqas Ahmad, On inequalities for $\alpha(x)$ −convex functions, Peshawar University, 2016.
58. Badshah-E-Rome, Generalization of Banach and Kannan type theorems in multiplicative metric spaces, Malakand University, 2015.
59. Syed Omer Shah, Hyers-Ulam stability on time scale over finite dimensional spaces, Peshawar University, 2015.
60. Muhammad Arif, Hyers-Ulam stability on time scale over finite dimensional spaces, Peshawar University, 2015.
61. Syed Amanat Shah, Results related to Jensen's inequality, Peshawar University, 2014.
62. Muhammad Jamil, On Jensen-Mercer's inequality and related results, Peshawar University, 2014.
63. Rashid Jan, Stability of autonomous and non-autonomous linear homogeneous dynamic equations on time scales, Peshawar University, 2014.
64. Aziz Khan, On existence and uniqueness of solutions for P-Laplacian fractional boundary value problem, Peshawar University, 2014.

Ph. D Thesis Evaluation

1. Shahid Khan, Study of fractional order problems using piecewise power law type differential operators, University of Malakand, August 30, 2024.
2. Sadam Hussain, Study of fractional order differential systems for controllability analysis using fixed point theory and semigroup properties, University of Malakand, May 13, 2024.
3. Shahid Saifullah, Existence and uniqueness results for Hadamard-type random fractional differential equations, Peshawar University, Jan 22, 2024.
4. Abdullah, Mathematical analysis and optimal control of Covid-19 epidemic models, University of Malakand, Nov 06, 2023.

Research Papers

1. G. Rahmat, A. Ahmad, M. Sarwar, K. Abodayeh and C. Tunc, [Y], Hyers-Ulam and exponential stabilities of autonomous and non-autonomous difference equations, ***Computational Methods for Differential Equations,*** pp 1-11, Aug 19, 2024.
   https:// 10.22034/cmde.2024.59702.2544

2. A. Ullah, A. Ali, A. Ullah, **G. Rahmat** and S.O. Shah, [Y], Stability results of autonomous and non-singular delay difference equations over bounded and unbounded discrete intervals, ***The Sciencetech***, Vol. 5, Issue 3, pp 16-28, July 14, 2024.
   https://journals.qurtuba.edu.pk/ojs/index.php/tst/article/view/8599/394

3. S. Hussain, M. Sarwar, **G. Rahmat,** H. Aydi and M.D.L Sen [IF 6.8, W] Mild solutions and controllability of fractional evolution inclusions of Clarke's subdifferential type with nonlocal conditions in Hilbert spaces, ***Alexandria Engineering Journal,*** Vol. 80, 2023, Pages 58-73, August 24,2023.
   https://doi.org/10.1016/j.aej.2023.08.008

4. **G. Rahmat**, T. Shah, M. Sarwar, S. Mansour, H. Aydi, [IF 2.739, W], Strong convergence to fixed points of an evolution subfamily, Math-7520, ***AIMS Mathematics***, Vol 8, Issue 9, 20380-20394, June 21, 2023.
   http://doi.10.3934/math.20231039

5. **G. Rahmat**, A. Yousaf, M. Sarwar, M. Shoaib, C. Tunc, Fixed point results VIA ψ-contraction in C^*- algebra valued generalized metric spaces with applications, Volume 14 Issue 2 (2023), Pages 12-24, ***Journal of Mathematical Analysis,*** April 6, 2023.
   https://doi.org/10.54379/jma-2023-2-2.

6. S. Moonsuwan, **G. Rahmat**, A. Ullah, M.Y. Khan, Kamran and K. Shah, [ISI, IF 2.121, W], Hyers-Ulam stability, exponential stability and relative controllability of non-singular delay difference equations, ***Complexity,*** Vol. 2022, Article ID. 8911621, Oct 18, 2022.
   https://doi.org/10.1155/2022/8911621

7. M. Shah, **G. Rahmat**, S.I.A. Shah, Z. Shah and W. Deebani [ISI, IF 1.430, X] Strong convergence of Krasnosel's Skii-Mann process for nonexpansive evolution families, ***Mathematical Problems in Engineering***, Volume 2022, Article ID. 3007572, Oct 13, 2022.
   https://doi.org/10.1155/2022/3007572

8. Y. Almalki, **G. Rahmat**, A. Ullah, F. Shehryar, M. Numan and M. U. Ali, [ISI, IF 3.120, W] Generalized β-Hyers-Ulam-Rassias stability of impulsive difference equations, ***Computational Intelligence and Neurosciences***, Vol 2022, Article ID. 9462424, Sep 15, 2022.
   https://doi.org/10.1155/2022/9462424

9. M. Shah, **G. Rahmat**, S.I.A. Shah, E. Bonyah, Z. Shah and M. Shutaywi, [ISI, IF 1.555, X] Convergence for a fixed point of evolution families in Banach space VIA iterative process, ***Journal of Mathematics,*** Vol 2022, Article ID. 4907226, 14 Pages, Aug 26, 2022.
https://doi.org/10.1155/2022/4907226

10. S.W. Ahmad, M. Sarwar. **G. Rahmat** and F. Jarad [ISI, IF 1.305, X], Existence of unique solution of Urysohn and Fredholm integral equations in complex double controlled metric type spaces, ***Mathematical Problems in Engineering,*** Vol. 2022, Article ID **4791454**, 11 pages, May 29, 2022.
https://doi.org/10.1155/2022/4791454

11. R. Ullah, **G. Rahmat**, T. Bibi, M. Numan and A. S. Fenovcikova, [ISI, IF 0.378, X] On 3-total edge product cordial labelling of octagonal plane map, ***Comptes Rendus de I'Academie bulgare des Sciences***, Vol. 74, Issue 11, Pages 1590-1598, Dec 2, 2021.
https:// DOI: 10.7546/CRABS.2021.11.02

12. R. Ullah, **G. Rahmat**, M. Numan, K. A Yannick and A. Aslam, [ISI, IF 0.971, Y], 3-total edge product cordial labelling for stellation of square grid graph, ***Journal of Mathematics***, Vol 2021, Article ID 6668305, 7 pages, Dec 6, 2021.
https://doi.org/10.1155/2021/1724687

13. A. Ali, S. Khalid, **G. Rahmat**, Kamran, G. Ali, K. S. Nisar and B. Alshahrani, [ISI IF 3.732, W], Controllability and Ulam-Hyers stability of fractional order linear system with variable coefficients, ***AEJ- Alexandria Engineering Journal,*** Vol. 61, Issue 8(2022), Pages. 6071-6076, Nov. 25, 2021.
https://doi.org/10.1016/j.aej.2021.11.030

14. **G. Rahmat,** A. Ullah, A.U. Rahman, M. Sarwar, T. Abdeljawad and A. Mukheimer, [ISI, IF 2.803, W], Hyers-Ulam stability of non-autonomous and non-singular delay difference equations, ***Advances in Difference Equations,*** 2021, No. 474, Oct 26, 2021.
https://doi.org/10.1186/s13662-021-03627-y

15. Kamran, R. Kamal, **G. Rahmat** and K. Shah, [ISI, IF 1.305, X], On the numerical approximation of three-dimensional time fractional convection-diffusion equations, ***Mathematical Problems in Engineering,*** Vol. 2021, Article ID 4640467, 16 pages, Oct 8, 2021.
https://doi.org/10.1155/2021/4640467

16. S.W. Ahmad, M. Sarwar, **G. Rahmat**, K. Shah, H. Ahmad and ABD. Allah. A. Mousa, [ISI, IF 3.665, W], Fractional order model for the coronavirus (Covid-19) in Wuhan, China, ***Fractals***, Vol. 30, No. 1 (2022), 2240007, 2022, Sep 3, 2021.
https://doi.org/10.1142/S0218348X22400072

17. **G. Rahmat,** M. Sarwar and C. Tunc, Strong convergence to a fixed point of non-expensive discrete semigroup in strictly convex Banach spaces, ***Journal of Mathematical Analysis,*** Vol. 12, Issue 4, Pages: 26-37, Aug 10, 2021.
http://www.ilirias.com/jma/repository/docs/JMA12-4-3.pdf

18. R. Cheng, G. Ali, **G. Rahmat**, M.Y. Khan, A.S. Fenovcikova and J.B. Liu [ISI, IF 2.833, W], Investigation of a general power sum-connectivity index for some classes of extremal graphs, ***Complexity***, Vol 2021, Article ID 6623277, 8 pages, Aug 23, 2021.
https://doi.org/10.1155/2021/6623277

19. **G. Rahmat,** T. Shah, M. Sarwar, H. Aydi and H. Alsamir, [ISI, IF 0.971, Y], Common fixed points of a subfamily of non-expansive periodic evolution family on strictly convex Banach space, ***Journal of Mathematics***, Vol 2021, Article ID 6668305, 7 pages, Aug 14, 2021.
https://doi.org/10.1155/2021/6668305

20. **G. Rahmat**, M. Khan, M. Sarwar, H. Aydi and E. Ameer, [ISI, IF 0.971, Y], A strong convergence to a common fixed point of a subfamily of a nonexpansive evolution family of bounded linear operators on a Hilbert space, ***Journal of Mathematics***, Vol 2021, Article ID 2392088, 5 pages, July 23, 2021.
https://doi.org/10.1155/2021/2392088

21. R. Kamal, Kamran, **G. Rahmat**, A. Ahmadian, N. Izza Arshad and S. Salahshour, [ISI, IF 2.803, W], Approximation of linear one-dimensional partial differential equations including fractional derivative with non-singular kernel, ***Advances in Difference Equations***, 2021, 317, July 2, 2021.
https://doi.org/10.1186/s13662-021-03472-z

22. A. Iqbal, G. Ali, J. Khan, **G. Rahmat**, M. Numan and A. Kausar, On topological indices of dual graph of Benzene ring embedded in P-type surface in 2D network, ***International Journal of Advanced Trends in Computer Science and Engineering***, Volume 10, No.3, Article 62, May - June 2021.
http://www.warse.org/IJATCSE/static/pdf/file/ijatcse621032021.pdf

23. Z.W. Tong, Y.P. Lv, R.U. Din, I. Mahariq and **G. Rahmat**, [ISI, IF, 4.019, W], Global transmission dynamic of SIR model in the time of SARS-CoV-2, ***Results in Physics,*** Vol. 25, 104253, May 13, 2021.
https://doi.org/10.1016/j.rinp.2021.104253

24. L. Luo, R. Ullah, **G. Rahmat**, S.I. Butt and M. Numan, [ISI, IF 0.712, Y], Approximate common fixed points of an evolution family on a metric space, ***Journal of Mathematics***, Vol. 2021, Article ID 6764280, 7 pages, March 25, 2021.
https://doi.org/10.1155/2021/6764280

25. S.W. Ahmad, M. Sarwar, T. Abdeljawad and **G. Rahmat**, [ISI, IF 0.882, X], Multi-valued versions of Nadler, Banach, Branciari and Reich fixed point theorems in double controlled metric type spaces with applications, ***AIMS Mathematics***, 6(1): 477–499, Oct 19, 2020.
https://www.aimspress.com/article/10.3934/math.2021029

26. S. Fuan, R. Ullah, **G. Rahmat**, M. Numan, S.I. Butt and X. Ge, [ISI, IF 0.712, W], Approximate fixed point sequences of an evolution family on a metric space, ***Journal of Mathematics***, Vol. 2020, Article ID 1647193, 6 pages, April 14, 2020.

http://doi.org/10.1155/2020/1647193

27. C. Buse, A. Khan, T. L. Nguyen, D. O'Regan and **G. Rahmat**, [ISI, IF 1.09, JCR]**,** Asymptotic behavior of discrete evolution families in Banach spaces, ***Applicable Analysis,*** 97(2), 160-178**,** 2018.
http://dx.doi.org/10.1080/00036811.2016.1257122

28. A. Zada, S. Arshad, **G. Rahmat** and A. Khan, On the dichotomy of non-autonomous systems over finite dimensional spaces, ***Applied Mathematics & Information Sciences,***
Appl. Math. Inf. Sci. **9**, No. 4, 1941-1946, July 1, 2015.
http://dx.doi.org/10.12785/amis/ZadaAMIS14

29. C. Buşe, A. Khan**, G. Rahmat** and O. Saierli, [ISI, IF 0.63, JCR], Weak real integral characterizations for exponential stability of semigroups in Reflexive spaces. ***Semigroup Forum.*** DOI 10.1007/s00233-013-9520-9, Volume 88, Issue 1, February 2014, Pages 195-204, 2014.
http://link.springer.com/journal/233

30. A. Zada, T. Li, R. Amin and **G. Rahmat**, A survey on the recent results of the characterizations of exponential stability and dichotomy over finite dimensional spaces, ***Eurasian Mathematical Journal***, Volume 5, No. 4, 113 – 133, 2014.
http://emj.enu.kz/images/pdf/2014/5-4-8.pdf

31. C. Buşe, A. Khan, **G. Rahmat** and A. Tabassum, [ISI, IF 0.572, JCR], Uniform exponential stability for discrete non-autonomous systems via discrete evolution semigroups. ***Bull. Math. Soc. Sci. Math. Roumanie***. Tome 57(105) No. 2, 2014, pp. 193-205, 2014.
https://www.jstor.org/stable/43678897

32. C. Buşe, A. Khan, **G. Rahmat** and A. Tabassum, [ISI, IF 0.551, JCR], A new estimation of the growth bound of a periodic evolution family on Banach spaces. ***Journal of Function Spaces and Applications. (Journal of function spaces)*** Volume 2013 (2013), Article ID 260920, 6 pages, 2013.
http://dx.doi.org/10.1155/2013/260920

33. A. Zada, **G. Rahmat**, G. Ali and A. Tabassum, Characterizations of stability for discrete semigroups of bounded linear operators. ***International Journal of Mathematics and Soft Computing***. Vol. 3, No. 3, pp. 15-19, 2013.
http://www.ijmsc.com/index.php/ijmsc

34. A. Khan, **G. Rahmat** and A. Zada, On uniform exponential stability and exact admissibility of discrete semigroups. ***International Journal of Differential Equations***.
Vol. 2013, Article ID 268309, July 10, 2013.
http://dx.doi.org/10.1155/2013/268309

35. C. Buşe and **G. Rahmat**, [ISI, IF 0.426, JCR], Weak Rolewicz's theorem in Hilbert spaces.
Electronic Journal of Differential Equations. Vol. 2012, No. 218, pp. 1-10, Nov 29, 2012.
http://ejde.math.txstate.edu/

36. A. Zada, S. Arshad, **G. Rahmat** and R. Amin, Dichotomy of Poincare maps and boundedness of some Cauchy sequences, ***Applied Mathematics E-Notes***. Vol. 12, No. 3, pp. 14-22, 2012. http://www.math.nthu.edu.tw/~amen/

37. **G. Rahmat**, Z. Khan, M. Shoaib, [IF 0.54, Cat X] Hyer-Ulam stability, exponential stability and exact admissibility of non-autonomous difference equations, ***Bol. Soc. Paran. Mat.*** 2024.

38. G. Rahmat, N. Mlaiki, S. A. Ali, S. Ali, M. Sarwar, A. Aloqaily and I. Ayoob, Ulam-Hyer and exponential stability of non-singular and non-autonomous delay difference equations, submitted, 2024.

39. T. Shah, G. Rahmat, M. Sarwar, S. A. Shah, β-Hyers-Ulam stability of non-linear Volterra integro type difference system, submitted.

40. **G. Rahmat**, T. Shah, On strong convergence for a subfamily of a non-expansive evolution family in Hilbert spaces, in progress.

41. **G. Rahmat**, A. Ullah, M. Sarwar, K. Shah, Generalized β-Hyers-Ulam-Rassias stability of impulsive discrete evolution equations, submitted.

42. **G. Rahmat**, A. Ullah, M. Sarwar, Generalized Hyers-Ulam-Rassias stability of impulsive difference equations, submitted.

43. **G. Rahmat**, F. Shehryar, Generalized β-Ulam-Hyers-Rassias stability of non-autonomous impulsive discrete dynamical system, submitted.

44. G. Rahamt, F. Shaheen, Aleena, On the stability of non-autonomous impulsive difference equations, submitted. Boletim da Sociedade Paranaense de Matemática)

45. G. Rahmat, A. Ullah and M. Sarwar, Controllability and Ulam-Hyers stability of the second order linear delay difference equations, submitted.

46. G. Rahmat, S, Ahmad, Ulam stability of second order non-singular delay difference equations, Submitted.

47. A.S. Alqahtani, S. Ahmad, **G. Rahmat**, M. Awais, M.Y. Malik, Fixed point results for a subfamily of non-expansive evolution families of bounded linear operators, submitted.

48. G. Rahmat, S. Ahmad, Hyers-Ulam stability of Hammerstein type difference system, submitted.

49. S. Ahmad, G. Rahmat, M. Zeb, K. Shah, T. Abdeljawad, Ulam stability and control analysis of linear second-order delay difference system, submitted

Conferences and Workshops

1. 97th FEFA Training Course, Continuing Professional Development Course-02, June 21-26, 2019, Frontier Education Foundation Academy Peshawar, Pakistan.

2. 2nd Workshop on "Advancements in Pure and Applied Mathematics (APAM)", April 20-21, 2017; COMSATS Institute of Information Technology, Attock, Pakistan.

3. Workshop on "Self-Assessment" March 9-10, 2017, Quality Enhancement Cell, Islamia College Peshawar, Pakistan.

4. 13th International Conference on Statistical Sciences, March 16-18, 2015; Department of Statistics, Islamia College Peshawar, KPK, Pakistan.

5. Workshop on "What is Quality and Importance of QEC in the University" January 06, 2015; Islamia College Peshawar, Pakistan.

6. Computational Complexities Innovations and Solutions, May 12-13, 2014*;* COMSATS Institute of Information Technology, Abbottabad, Pakistan.

7. Workshop on Number Theory and Related Areas, March 11, 2013*;* Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan.

8. 6th World Conference on 21st Century Mathematics, March 06-09, 2013, Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan.

9. 5th World Conference on 21st Century Mathematics, February 09-13, 2011*;* Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan.

10. 4th World Conference on 21st Century Mathematics, March 04-08, 2009*;* Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan.

Other Information

Membership in Academic Professional Societies:

- National Mathematical Society of Pakistan (NSMP)

Computer Literacy:

- Professional Microsoft Word, PowerPoint, Simulink
- Typesetting with TeX & Latex

Languages

- Fluent in Urdu & Pashto
- Conversational English

Academic References

1. **Dr. Gohar Ali**
   Associate Professor
   Department of Mathematics
   Islamia College Peshawar, Pakistan
   E-Mail: gohar.ali@icp.edu.pk

2. **Dr. Muhammad Sarwar**
   Associate Professor
   Department of Mathematics,
   University of Malakand, Dir Lower, Pakistan
   E-Mail: sarwar@uom.edu.pk