

DR FIZA ZAFAR

D/o Zafar Ahmed Siraj

Associate Professor (Tenured)

B. Z. University, Multan, Pakistan

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Teaching Philosophy

I believe that a teacher must understand diverse capacities and capabilities of each student towards learning. A teacher must be capable of giving every student the right motivation and guidance to lead them to the right direction.

Research Philosophy

It would like to acknowledge the words of Bertrand Russell:

“Mathematics is a study which, when we start from its most familiar portions, may be persuaded in either of two directions. ... The other direction, which is less familiar, ...; instead of asking what can be defined and deduced from what is assumed to begin with, we ask instead what more general ideas and principles can be found, in terms of which what was our starting point can be defined or deduced.”

Research Statement

My core expertise is in the field of Integral Inequalities, Numerical Solutions of Nonlinear Equations and Numerical Integration. My current research projects are in the areas of Information-theoretic inequalities, numerical optimization using intelligent and evolutionary algorithms and matrix and tensor decompositions for data analysis. I see myself using my expertise in Mathematics to get interdisciplinary research outcomes as a researcher.

Education & Research

2017- 2018	<u>Universitat Politecnica De Valencia, Valencia, Spain</u> Post-Doctoral Research Fellow Institute of Multidisciplinary Mathematics Applied Mathematics Department Awarded by Schlumberger Foundation-Faculty for Future
2004 – 2010	<u>Bahauddin Zakariya University, Multan, Pakistan</u> Doctor of Philosophy in Mathematics HEC Scholar under Indigenous 5000 Ph.D. Fellowship Program, Batch I
2000 – 2002	<u>Bahauddin Zakariya University, Multan</u> Master of Science in Applied Mathematics Secured 1049/1200 [1 st Division, Goldmedallist]

1998 – 2000

Govt. Degree College for Women, Multan

B. Sc. (Mathematics A, Mathematics B, Physics)

Secured 629/800 [1st Division, 2nd Position Holder, Silver Medal]

Employment

Oct 25, 2019 – to date

Bahauddin Zakariya University, Multan

Associate Professor in Mathematics (Tenured)

Teaching Mathematics Courses upto Ph.D. Level

(Special Interest: Modelling & Simulation, Advanced Numerical Analysis, Numerical Linear Algebra, Mathematical Optimization, Matrix Computation, Computer Programming, Data Science & Machine Learning)

▪ **Post-Graduate Supervision**

PhD Theses: 4 (Completed), 1 (In Progress)

M.Phil. Theses: 37 (Completed), 6 (In Progress) ▪

Under-Graduate Supervision

B.S. Mathematics Projects: 39 (Completed)

Feb 13, 2018 – Oct. 24, 2019

Bahauddin Zakariya University, Multan

Assistant Professor in Mathematics (Tenured)

Feb 13, 2012– Feb. 12, 2018

Bahauddin Zakariya University, Multan

Assistant Professor in Mathematics (TTS)

Dec. 12, 2011– Feb 12, 2012

Bahauddin Zakariya University, Multan

Assistant Professor in Mathematics

Feb. 18, 2006 – Dec. 11, 2011

Bahauddin Zakariya University, Multan

Lecturer in Mathematics

Achievements

- Listed as Young Productive Scientist under 40 by Pakistan Council for Science and Technology
- Listed as Dynamic Women Scientist of Pakistan by Pakistan Council for Science and Technology in 2014
- TTS Performance-based increment for the year 2014 and 2016-2020, honorarium for 2019
- Certificate of Merit by Bahauddin Zakariya University for 1st position in M. Sc.
- Certificate of Merit by Bahauddin Zakariya University for 2nd position in B. Sc.
- Academic Career of throughout First Division

Research Interests

- Integral Inequalities and their Applications
- Numerical Solutions of Non-Linear Equations
- Numerical Optimization using Intelligent and Evolutionary Algorithms
- Matrix and Tensor Decompositions for Data Analysis

Researcher IDs

- Web of Science Researcher ID: AAA-9774-2020
- ORCID: 0000-0003-0552-2783
- https://www.researchgate.net/profile/Fiza_Zafar
- <https://scholar.google.com.pk/citations?user=xupwUt4AAAAJ&hl=en>

Research Publications (Impact Factor: 59.805)

1. Fiza Zafar, Alicia Cordero, Husna Maryam, Juan R. Torregrosa, A novel higher-order numerical scheme for system of nonlinear load flow equations, *Algorithms*, 17(2)(2024), Art. 86. **(Impact Factor: 2.3, Q2)**
2. Fiza Zafar, Sikander Mehmood and Asim Asiri, Weighted Hermite-Hadamard inequalities for r -times differentiable preinvex functions for k -fractional integrals, *Demonstratio Mathematica*, 56(2023), Art. 20220254, 17 pages. **(Impact Factor: 2.093, Q1, HJRS: X)**
3. Fiza Zafar, Sofia Iqbal and Tahira Nawaz, A Steffensen type optimal eighth order multiple root finding scheme for nonlinear equations, *Journal of Computational Mathematics and Data Science*, 7 (2023), Article 100079.
4. Saima Yaseen, Fiza Zafar, Hamed H. Alsulami, An Efficient Jarratt-Type Iterative Method for Solving Nonlinear Global Positioning System Problems, *Axioms*. 12(6)(2023), Article 562. **(Impact Factor: 2.0, Q2, HJRS: X)**
5. Sikander Mehmood, Fiza Zafar, Hasan Furkan, Nusrat Yasmin, Ahmet Ocak Akdemir, On Fejer-Hermite-Hadamard inequalities for functions involving fractional integrals, *Miskolc Mathematical Notes*, 24(1)(2023), 279-299 **(Impact factor: 0.677, HJRS: X).**
6. Saima Yaseen, Fiza Zafar and Francisco I. Chicharro, A Seventh Order Family of Jarratt Type Iterative Method for Electrical Power Systems, *Fractal and Fractional*, 7(4)(2023), Article 317. **(Impact Factor: 5.4, Q1, HJRS: W)**
7. Sikander Mehmood and Fiza Zafar, Hermite-Hadamard-Fejér inequalities for preinvex functions on fractal sets, *Sahand Communications in Mathematical Analysis*, 20 (4)(2023), 117-137. **(ESCI indexed, HJRS: Y)**
8. Fiza Zafar, Alicia Cordero, Dua E Zahra Rizvi and Juan R. Torregrosa, An optimal eighth order derivative free scheme for multiple root finding scheme and its dynamics, *AIMS Math*. 8(4) (2023), 8478-8503. **(Impact Factor: 2.739, Q1, HJRS: X)**
9. Sikander Mehmood, Fiza Zafar, Fejér-Type Midpoint and Trapezoidal Inequalities for the operator (ω_1, ω_2) -Preinvex Functions, *Axioms*, 12(1)(2023), Article 16. <https://doi.org/10.3390/axioms12010016> **(Impact Factor: 2.0, Q1, HJRS: X)**
10. Fiza Zafar, Alicia Cordero, Ifra Ashraf and Juan Ramon Torregrosa, An optimal eighth order derivative free multiple root finding numerical method and applications to chemistry, *Journal of Mathematical Chemistry*, 61(2022), 98-124. <https://doi.org/10.1007/s10910-022-01411-1> **(Impact Factor: 2.413, Q2, HJRS: X)**
11. Alicia Cordero, Smmayya Iqbal, Juan R. Torregrosa and Fiza Zafar, New iterative methods for solving nonlinear systems with symmetric basins of attraction, *Symmetry*, 14(8) (2022), Article 742. <https://doi.org/10.3390/sym14081742>. **(Impact factor: 2.94, Q2, HJRS: W)**

12. Saima Yaseen and Fiza Zafar, A new sixth order Jarratt type iterative methods for systems of nonlinear equations, *Arabian Journal of Mathematics*, 11(2022), 585-599. <https://doi.org/10.1007/s40065-022-00380-2>. **(ESCI indexed, HJRS: Y)**
13. Fiza Zafar, Alicia Cordero, Husna Maryam and Juan R. Torregrosa, A Seventh Order Jarratt type Iterative Method for Solving Systems of Nonlinear Equations and Applications, *Proceedings of “Mathematical Modelling in Engineering & Human Behaviour 2022”*, July 15-17, 2022, Polytechnic University of Valencia, Spain, ISBN: 978-84-09-47037-2, Pages 285-290. **(Conference Proceedings)**
14. Saima Yaseen and Fiza Zafar, A Seventh Order Family of Jarratt type Iterative Method for Solving Systems of Nonlinear Equations and Applications, *Proceedings of “Mathematical Modelling in Engineering & Human Behaviour 2022”*, July 15-17, 2022, Polytechnic University of Valencia, Spain, ISBN: 978-84-09-47037-2, Pages 279-284. **(Conference Proceedings)**
15. Sana Sultana and Fiza Zafar, A Seventh Order Steffensen type Iterative Method for Solving Systems of Nonlinear Equations and Applications, *Proceedings of “Mathematical Modelling in Engineering & Human Behaviour 2022”*, July 15-17, 2022, Polytechnic University of Valencia, Spain, ISBN: 978-84-09-47037-2, Pages 251-256. **(Conference Proceedings)**
16. Sikander Mehmood, Artion Kashuri, Fiza Zafar and Nusrat Yasmin, Some New Hermite-Hadamard Fejér type Inequalities for functions whose second-order mixed derivatives are coordinated preinvex, *Italian J. of Pure and Applied Mathematics*, 47(2022), 812-840. **(ESCI, Q4, HJRS: Y)**
17. Sikander Mehmood, Fiza Zafar, H. Hamza and A. Rasheed, Hermite-Hadamard-Fejér Inequalities for fractional integrals for functions whose second-order mixed derivatives are coordinated preinvex, *Malaysian J. of Mathematical Sciences*, 16(1)(2022), 153-174. **(ESCI, Q4, HJRS: Y)**
18. Fiza Zafar, Alicia Cordero, Muhammad Tahir and Juan R. Torregrosa, An optimal eighth order multiple root finding scheme with unknown multiplicity, *Proceedings of “8th International Conference on Recent Advances in Pure and Applied Mathematics”*, September 24-27, 2021, Turkey, ISBN: 978-605-68969-1-0, Pages 109-117. **(Conference Proceedings)**
19. Fiza Zafar, Alicia Cordero, Syeda Dua E Zahra Rizvi and Juan R. Torregrosa, An optimal eighth order derivative free scheme for multiple roots of non-linear equations, *Proceedings of “Mathematical Modelling in Engineering & Human Behaviour 2021”*, July 14-16, 2021, Polytechnic University of Valencia, Spain, ISBN: 978-84-09-36287-5, Pages 257-261. **(Conference Proceedings)**

20. Sikander Mehmood, Fiza Zafar, Muhammad Amer Latif and Nusrat Yasmin, Fejer-Hermite-Hadamard inequalities for n-times differentiable preinvex functions, Tbilisi Mathematical Journal, 14(2) (2021), 255-270, DOI: 10.32513/tmj/19322008137. **(ESCI indexed, HJRS: Y, Q3)**
21. Sikander Mehmood, Fiza Zafar and Nusrat Yasmin, Hermite-Hadamard-Fejér inequalities for generalized conformable fractional integrals, Mathematical Methods in the Applied Science, 44(5)(2021),. 3746-3758, DOI: 10.1002/mma.6978 **(Impact factor: 3.007, Q1, HJRS: W)**
22. Fiza Zafar, Alicia Cordero and Juan Ramon Torregrosa, A family of optimal fourth order methods for multiple roots of non-linear equations, Mathematical Methods in the Applied Sciences, 43(14) (2020), 7869–7884, DOI: 10.1002/mma.5384. **(Impact factor: 1.626, Q2, HJRS: W).**
23. Fiza Zafar, Alicia Cordero, Moin-Ud-Din Junjua and Juan Ramon Torregrosa, Optimal eighth order iterative methods for approximating multiple zeros of nonlinear functions, Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Series A. Matemáticas, 114:64, 2020. **(Impact Factor: 1.028, Q1, HJRS: W).**
24. Ramandeep Behl, Fiza Zafar, Moin-ud-Din Junjua and Ali Saleh Alshomrani, A new two-point scheme for multiple roots of nonlinear equations, Mathematical Methods in the Applied Sciences, 43(5)(2020), 2421-2443. **(Impact Factor: 1.533, Q2, HJRS: W).**
25. Saima Akram, Fiza Zafar, Moin-ud-Din Junjua and Nusrat Yasmin, A general family of derivative free with and without memory methods, Journal of Prime Research in Mathematics, 16(1) (2020), 64 – 83. **(HEC recognized: Y category)**
26. Sikander Mehmood, Fiza Zafar and Nusrat Yasmin, Hermite-Hadamard-Fejér type inequalities for (s, m) -preinvex functions and applications, Turkish Journal of Inequalities, 4 (1) (2020), 31 –41.
27. Sikander Mehmood, Fiza Zafar and Nusrat Yasmin, Hermite-Hadamard type inequalities for n-times differentiable $(s;m)$ -preinvex functions using fractional integrals, Journal of Mathematical Analysis, 11 (4) (2020), 31-44. **(ESCI indexed, Q3)**
28. Sikander Mehmood, Fiza Zafar and Nusrat Yasmin, New Hermite-Hadamard-Fejer type inequalities for (η_1, η_2) -convex functions via fractional calculus, Science Asia, 46(1) (2020):102, DOI: 10.2306/scienceasia1513-1874.2020.012. **(Impact Factor: 0.615, Q4)**
29. Alicia Cordero, Juan R. Torregrosa and Fiza Zafar, Approximating the inverse and the Moore-Penrose inverse of complex matrices, Mathematical Methods in the Applied Sciences, 42 (2019), 5920–5928, DOI: 10.1002/mma.5879. **(Impact Factor: 1.533, Q1)**
30. Saima Akram, Fiza Zafar and Nusrat Yasmin, An optimal eighth order family of iterative methods for multiple roots, Mathematics 7(8) (2019), 672; DOI: 10.3390/math7080672. **(Impact Factor: 1.105, Q1)**

31. Sikander Mehmood, Fiza Zafar and Nusrat Yasmin, Hermite-Hadamard-Fejer type inequalities for preinvex functions using fractional integrals, *Mathematics*, 7(5) (2019), 467, DOI: 10.3390/math7050467 **(Impact factor: 1.105, Q1)**
32. Fiza Zafar, Alicia Cordero, Juan Ramon Torregrosa and Aneeqa Rafi, A general class of four parametric with- and without memory iterative methods for nonlinear equations, *Journal of Mathematical Chemistry*, 57(5) (2019), 1448-1451, DOI: 10.1007/s10910-018-00996-w. **(Impact factor: 1.81, Q1)**
33. Moin-Ud-Din Junjua, Fiza Zafar and Nusrat Yasmin, Optimal derivative-free root finding methods based on inverse interpolation, *Mathematics*, 7(2) (2019), 164: DOI: 10.3390/math7020164. **(Impact Factor: 1.105, Q1)**
34. Fiza Zafar, Alicia Cordero and Juan Ramon Torregrosa, Stability Analysis of a family of optimal fourth order methods for multiple roots, *Numerical Algorithms*, 81(3) (2019), DOI: 10.1007/s11075-018-0577-0. **(Impact factor: 2.417, Q1)**
35. Fiza Zafar, Alicia Cordero, Juan Ramon Torregrosa and Aneeqa Rafi, A Class of Four Parametric With- and Without Memory Root Finding Methods, *Computational and Mathematical Methods*, 1(2019), e1024, DOI: 10.1002/cmm4.1024. **(ESCI, Conference Proceedings)**
36. Fiza Zafar, Alicia Cordero and Juan Ramon Torregrosa, A family of optimal eighth order multiple root finders with multivariate weight function. In: Dimov I., Faragó I., Vulkov L. (eds) *Finite Difference Methods. Theory and Applications. FDM 2018. Lecture Notes in Computer Science*, 11386 (2019), Springer, Cham. **(Scopus Indexed, Conference Proceedings)**
37. Fiza Zafar, Alicia Cordero and Juan Ramon Torregrosa, An efficient family of optimal eighth-order multiple root finders, *Mathematics*, 6(12) (2018), 310: DOI: 10.3390/math6120310. **(Impact factor: 1.105, Q1).**
38. Fiza Zafar, Alicia Cordero and Juan R. Torregrosa, A Family of Optimal Fourth Order Methods For Multiple Roots Of Non-Linear Equations, *Proceedings of “Mathematical Modelling in Engineering & Human Behaviour 2018”*, July 16-18, 2018, Polytechnic University of Valencia, Spain. **(Conference Proceedings)**
39. Fiza Zafar, Saima Akram and Nusrat Yasmin, An optimal eighth-order family of iterative methods for multiple roots, *Proceedings of “9th International Conference on Computational Methods” (ICCM 2018)*, August 6-10, 2018. **(Conference Proceedings)**

40. Fiza Zafar, Alicia Cordero, Sana Sultana and Juan Ramon Torregrosa, Optimal iterative methods for finding multiple roots of nonlinear equations using weight functions and dynamics, *Journal of Computational and Applied Mathematics*, 342 (2018), 352-374. **(Impact factor: 1.883, Q1)**
41. Alicia Cordero, Moin-ud-Din Junjua, Juan R. Torregrosa, Nusrat Yasmin, Fiza Zafar, Efficient four-parametric with and without memory iterative methods possessing high efficiency indices, *Mathematical Problems in Engineering*, 2018 (2018), Article ID 8093673, 12 pages. **(Impact factor: 1.179, Q2)**
42. Ramandeep Behl, Fiza Zafar, Ali Saleh Alshomrani, Moin-Ud-Din Junjua, Nusrat Yasmin, An optimal eighth-order scheme for multiple zeros of univariate functions, *International Journal of Computational Methods*, 15 (03) (2018), 1843002. **(Impact factor: 1.221, Q2)**
43. Fiza Zafar, Alicia Cordero, Quratulain and Juan Ramon Torregrosa, Optimal iterative methods for finding multiple roots of nonlinear equations using free parameters, *Journal of Mathematical Chemistry*, 56 (7) (2018), 1884-1901, DOI 10.1007/s10910-017-0813-1. **(Impact factor: 1.81, Q1)**
44. M.K. Azam, F. Zafar, M.A. Rehman, F. Ahmad and S. Qaisar, Study of extended Weyl k-fractional integral via Chebyshev inequalities, *Italian Journal of Pure and Applied Mathematics*, 39(2018), 771-782. **(ESCI indexed)**
45. Moin-ud-Din Junjua, Fiza Zafar, Nusrat Yasmin and Saima Akram, A general class of derivative free with memory root solvers, *U.P.B. Sci. Bull. Series A*, 79(4) (2017), 19-28. **(Impact factor: 0.405)**
46. M.K. Azam, F. Zafar, M.A. Rehman, F. Ahmad and S. Qaisar, Study of Extended K - Hadamard Fractional Integral, *J. Appl. Environ. Biol. Sci.*, 7(7) (2017), 180-188.
47. Fiza Zafar, Alicia Cordero, Sana Sultana, and Juan R. Torregrosa, Finding multiple roots of nonlinear equations using eighth-order optimal iterative methods, *Proceedings of "Mathematical Modelling in Engineering & Human Behaviour 2017"*, July 17-19, 2017. **(Conference Proceedings)**
48. Ramandeep Behl, Fiza Zafar, Ali Saleh Alshomrani, Moin-ud-Din Junjua and Nusrat Yasmin, An optimal eighth-order scheme for multiple zeros of univariate functions, *Proceedings of "8th International Conference on Computational Methods" (ICCM 2017)*, July 25-29, 2017. **(Conference Proceedings)**
49. Fiza Zafar, Alicia Cordero, Quratulain and Juan Ramon Torregrosa, Optimal iterative methods for finding multiple roots of nonlinear equations using free parameters, *Proceedings of "17th International Conference on Computational and Mathematical Methods in Science & Engineering" (CMMSE 2017)*, July 4-8, 2017. **(Conference Proceedings)**

50. Fiza Zafar, Nawab Hussain, Nusrat Yasmin and Hina Mehboob, Hermite-Hadamard type inequalities for Logarithmically B-preinvex functions, Journal of Nonlinear Sciences and Applications, 9 (2016), 6096-6112. **(Impact factor: 1.34, Q1)**
51. Fiza Zafar, Saima Akram, Nusrat Yasmin, Moin-Ud-Din Junjua, On the construction of three step derivative free four-parametric methods with accelerated order of convergence, Journal of Nonlinear Sciences and Applications, 9 (2016), 4542-4553. **(Impact factor: 1.34, Q1)**
52. Nusrat Yasmin, Fiza Zafar and Saima Akram, Optimal derivative-free root finding methods based on the Hermite interpolation, Journal of Nonlinear Sciences and Applications, 9 (6) (2016), 4427-4435. **(Impact factor: 1.34, Q1)**
53. Fiza Zafar, Nusrat Yasmin, M. A. Kutbi and M. Zeshan, Construction of Tri-parametric derivative free fourth order with and without memory iterative method, Journal of Nonlinear Sciences and Applications, 9(1)(2016), 1410-1423. **(Impact factor: 1.34, Q1)**
54. Fiza Zafar, Humaira Kalsoom and Nawab Hussain, Some Inequalities of Hermite-Hadamard type for n-times Differentiable (ρ, m) -Geometrically Convex Functions, Journal of Nonlinear Sciences and Applications, 8(3)(2015), 201-217. **(Impact factor: 1.179, Q1)**
55. Moin-ud-din Junjua, Saima Akram, Nusrat Yasmin and Fiza Zafar, A New Jarratt Type Fourth Order Method For Solving System of Nonlinear Equations and Applications, Journal of Applied Mathematics, Volume 2015 (2015), Article ID 805278, 14 pages. **(Impact factor: 0.72)**
56. Fiza Zafar, Nusrat Yasmin, Saima Akram and Moin-ud-din Junjua, A General Class of Derivative Free Optimal Root Finding Methods Based on Rational Interpolation, The Scientific World Journal, Volume 2015 (2015), Article ID 934260, 16 pages. **(Impact factor: 1.219)**
57. Fiza Zafar, Nawab Hussain, Zirwah Fatimah and Athar Kharal, Optimal Sixteenth Order Convergent Method Based on Quasi-Hermite Interpolation for Computing Roots, The Scientific World Journal, Volume 2014 (2014), Article ID 410410, 18 pages. **(Impact factor: 1.219)**
58. Fiza Zafar, Saira Saleem and Clarence O. E. Burg, New Derivative Based Open Newton-Cotes Quadrature Rules, Abstract and Applied Analysis, Volume 2014 (2014), Article ID 109138, 16 pages. **(Impact factor: 1.274)**
59. Saima Akram, Moin-ud-Din Junjua, Nusrat Yasmin and Fiza Zafar, A Family of Weighted Mean Based Optimal Fourth Order Methods for Solving System of Nonlinear Equations, Life Science Journal, 11(7s) (2014), 21-30. **(Impact factor: 0.165)**
60. Fiza Zafar and Gulshan Bibi, A Family of Fourteenth-Order Convergent Iterative Methods for Solving Nonlinear Equations, Chinese Journal of Mathematics, Volume 2014 (2014), Article ID 313691, 7 pages.
61. Fiza Zafar and Nazir Ahmad Mir, A generalization of Ostrowski type inequality for (l, L) Lipschitzian mappings in Inequal. Theory Appl., Yeol Je Cho, Jong Kyu Kim and S.S. Dragomir,

Eds., Volume 6, pp. 159-167, Nova Science Publishers, USA, 2012. (Monograph Series, ISBN: 978-1-62100-849-1). **(Monograph)**

62. Fiza Zafar and Nazir Ahmad Mir, A note on the generalization of some new Cebysev type inequalities, Tamsui Oxford Journal of Information and Mathematical Sciences, 27(2) (2011), 149-157. **(Scopus Indexed)**

63. Fiza Zafar and Nazir Ahmad Mir, Some new Cebysev type inequalities, Bulletin of Korean Mathematical Society, 47 (2) (2010), 221-229. **(Impact factor: 0.376)**

64. Fiza Zafar and Nazir Ahmad Mir, A generalization of Ostrowski-Grüss type inequality for first differentiable mappings, Tamsui Oxford Journal of Mathematical Sciences, 26 (2010), 61-76. **(Scopus Indexed)**

65. Fiza Zafar and Nazir Ahmad Mir, A generalized family of quadrature based iterative methods, General Mathematics, 18(4) (2010), 43-51.

66. Fiza Zafar and Nazir Ahmad Mir, An integral inequality involving product of monotonic functions, International J. Mathematical Analysis, 3 (14) (2009), 673-680. **(Scopus Indexed)**

67. Fiza Zafar and Nazir Ahmad Mir, A generalized integral inequality for twice differentiable mappings, Kragujevac J. of Mathematics 32 (2009), 13-26. **(Scopus Indexed)**

68. Fiza Zafar and Nazir Ahmad Mir, Some generalized error inequalities and applications, Journal of Inequalities and Applications, Volume 2008 (2008), Article ID 845934, 15 pages. **(Impact factor: 0.764)**

69. Arif Rafiq, Nazir Ahmad Mir and Fiza Zafar, A Generalized Ostrowski type inequality for a random variable whose probability density function belongs to $L_p[a,b]$, $p>1$, Applied Mathematics E. Notes, 8 (2008), 246-253. **(Scopus Indexed)**

70. Arif Rafiq, Nazir Ahmad Mir and Fiza Zafar, A Generalized Ostrowski type inequality for a random variable whose probability density function belongs to $L^\infty[a,b]$, Demonstratio Mathematica, 41 (3) (2008), 723-732. **(Scopus Indexed)**

71. Arif Rafiq, Nazir Ahmad Mir and Fiza Zafar, A generalization of Ostrowski-Grüss type inequality for twice differentiable mappings in Euclidean norm, General Mathematics, 16 (3) (2008), 51-72.

72. Arif Rafiq, Muhammad Awais and Fiza Zafar, Modified efficient variant of Super-Halley method, Applied Mathematics and Computation, 189 (2007), 2004–2010. **(Impact factor: 0.821, Q2)**

73. Arif Rafiq and Fiza Zafar, New bounds for the first inequality of Ostrowski-Grüss type and applications in Numerical integration, Nonlinear Functional Analysis and Application, 12 (1) (2007), 75-85.

74. A. Rafiq, S. Hussain, F. Ahmad, M. Awais and Fiza Zafar, An efficient three step iterative method with sixth order of convergence for solving nonlinear equations, International J. Computer Mathematics, 84 (3) (2007), 369–375. **(Impact factor: 0.423)**

75. A. Rafiq, N. A. Mir and Fiza Zafar, A generalized Ostrowski-Grüss type inequality for twice differentiable mappings and applications, J. of Inequalities in Pure and Applied Mathematics, 7 (4) (2006), Art. 124. **(Scopus Indexed)**

Research Projects

<i>Date of Award</i>	<i>Title</i>	<i>Sponsoring Agency/Organization</i>	<i>Amount</i>
09-06-2015 to 08-06-2016	Derivative free methods involving free parameters for solving nonlinear equations	Directorate of Research Bahauddin Zakariya University, Multan	Rs. 2,49,900 (\$2400)
2019-2022	Design, analysis and stability of iterative processes and applications to integral and matrix equations, and aerospace communications	In Collaboration: DAMRES, IMM, Polytechnic University of Valencia Ministerio de Ciencia Innovación y Universidades, Spain	€47,553

Research/Travel Grants

- Travel Grant of Rs. 40,000 (\$378) from National Mathematical Society of Pakistan in 2015
- Travel Grant of RMB 4000 from ICIAM 2015
- Travel Grant of Rs. 2,40,772 (\$2270) from HEC, Pakistan
- Invited/Funded Research Visit by Applied Mathematics Department, Universitat Politècnica De Valencia, Valencia, Spain from June 27 - July 27, 2017.
- Schlumberger Foundation-Faculty for Future Post-Doctoral Research Grant worth \$40,000 from October 2017-October 2018
- Travel Grant of Rs. 90,000 from National Mathematical Society of Pakistan in 2019
- Invited/Funded Research Visit by Applied Mathematics Department, Universitat Politècnica De Valencia, Valencia, Spain from July 12- July 24, 2019 worth 1626 Euros
- Travel Grant of Rs. 4,29,838 (\$1540) from PHEC, Pakistan for ICIAM 2023
- Travel Grant by from 9ECM 2024

Membership of Societies

- Organization for Women in Science for the Developing World
- National Mathematical Society of Pakistan
- Research Group of Mathematical Inequalities & Applications, Victoria University, Australia
- National Academy of Young Scientists, Pakistan

Reviewership of Journals / Conference Proceedings

- Guest Editor of Special Issue- Axioms Journal, MDPI

- Book Proposal Review-CRC Press, Taylor & Francis
- Mathematical Problems in Engineering, Wiley
- Computational and Mathematical Methods, Wiley
- Applied Numerical Mathematics, Elsevier
- Computational and Applied Mathematics, Springer
- Journal of King Saud University-Science, Elsevier
- Turkish Journal of Inequalities
- Journal of Computational and Applied Mathematics, Elsevier
- Filomat
- The Journal of Nonlinear Sciences and Applications
- British Journal of Mathematics and Computer Sciences
- The Scientific World Journal, Hindawi Publishing Corporation
- Mathematics and Computer Modelling, Elsevier.
- Computer and Mathematics with Applications, Elsevier.
- Applied Mathematics Letters, Elsevier
- Mathematica Slovaca, Springer
- International Journal of Computer Mathematics, Taylor and Francis
- Journal of Inequalities and Applications, Hindawi Publishing Corporation
- International Journal of Mathematics and Mathematical Sciences, Hindawi Publishing Corporation
- Applied Mathematics E-Notes
- ICIAM 2023 (International Congress for Industrial and Applied Mathematics)
- ICNAAM 2017 (International Conference of Numerical Analysis and Applied Mathematics 2017)
- ICNAAM 2008 (International Conference of Numerical Analysis and Applied Mathematics 2008)

Administrative Assignments at Department & University

Focal Person for Women in STEM at BZU (2020-2023)

Elected Member Senate, BZU (2016-2019)

Member, BS Project Evaluation Committee, CASPAM, BZU (28-02-2020 To date)

Coordinator, PhD Programme, CASPAM, BZU (08-09-14 to 06-10-17, 02-08-19 To date)

Member, Departmental Purchase Committee (10-10-2019 To date)

Member, Scholarship Committee, CASPAM, BZU (27-08-19 To date)

Member, Departmental Tenure Review Committee, CASPAM, BZU (26-11-18 to 26-08-19)

Member, Admission Committee, M. Phil. Programme, CASPAM, BZU (17-06-15 To date)

Member, Admission Committee, Ph.D. Programme, CASPAM, BZU (17-06-15 To date)

Member, Committee for the Revision of Curriculum of B.Sc., M.Phil., Ph.D. Degree Programs in Mathematics (31-03-14 To date)

Member, Departmental Discipline Committee (03-06-14 To date)

Member, Department Self-Assessment Team, QEC (07-08-17 To date)

Member, Visiting Scholar Programme Committee (13-01-17 To date)

Deputy Student's Advisor 2009-2017 (Female)

Secretary, Staff Meetings, CASPAM, BZU (2013-2017)

President, Hockey Team, BZU (2015-2016)

Secretary, Technical Committee, March 26, 2020 7th Mathematics Student Olympiad at CASPAM, BZU

Member, Organizing Committee, April 16, 2019 Sixth Mathematics Student Olympiad at CASPAM, BZU

Member, Organizing Committee, April 19, 2018 Fifth Mathematics Student Olympiad at CASPAM, BZU

Secretary, Technical Committee, April 13, 2017 Fourth Mathematics Student Olympiad at CASPAM, BZU

Secretary, Technical Committee, May 12, 2016 Third Mathematics Student Olympiad at CASPAM, BZU

Secretary, Organizing Committee, April 29, 2015 Second Mathematics Student Olympiad at CASPAM, BZU

Event Manager, March 12, 2014 Mathematics Student Olympiad at CASPAM, BZU

Member, Committee for 5 Year Business Plan of CASPAM, BZU (Submitted in June 2013)

External Examiner/Advisor

Member, Departmental Tenure Review Committee, Department of Mathematics, The Women University, Multan.

Punjab Public Service Commission Advisor for Lecture in Mathematics (Females) (15-16 December 2020, 1-2 September 2022), Punjab Higher Education Department

Department of Mathematics, COMSATS University, Sahiwal Campus, Sahiwal

Department of Mathematics, University of Sargodha, Sargodha

Department of Mathematics, Gomal University, Dera Ismail Khan

Department of Mathematics, University of the Punjab, Lahore

Department of Mathematics, Federal URDU University of Arts, Science & Technology, Karachi

Department of Mathematics, Institute of Southern Punjab, Multan

Professional Qualifications/Trainings/ Certificates

July 31, 2023

COURSERA: University of Minnesota

Matrix Factorization and Advanced Techniques

Recommender Systems Specialization

July 19, 2023

COURSERA: Howard University

Building Regression Regression Models with Linear Algebra

May 30, 2023

COURSERA: Deep Learning.AI

Supervised Machine Learning: Regression and Classification

September 20-21, 2021

COMSTECH (OIC Ministerial Standing Committee on Scientific and Technological Cooperation)

August 30-31, 2021	A 2-day online Training Course on Inclusive Science Technology and Innovation (STI) policy for OIC Member States <u>COMSTECH (OIC Ministerial Standing Committee on Scientific and Technological Cooperation)</u>
May 5, 2021	Advanced Certificate Course on “Technology Commercialization, Innovation and Entrepreneurship <u>COURSERA: Imperial College London</u> Mathematics for Machine Learning Specialization Linear Algebra, Multivariate Calculus, PCA
May 1, 2021	<u>COURSERA: IBM</u> Machine Learning with Python
April 21, 2021	<u>COURSERA: Project Network</u> Linear Regression with NumPy and Python
April 21, 2021	<u>COURSERA: Project Network</u> Principal Component Analysis with NumPy
Nov 21- Dec 13, 2020	<u>Global Young Academy</u> International Workshop: Science Diplomacy in South Asia
July 25, 2020	<u>The Council of the Sri Lanka National Chapter of OWSD</u> Enhanced Entrepreneurship skills for scientists in the new normal environment
May 29, 2020	<u>COURSERA: IBM</u> What is Data Science?
May 27, 2020	<u>COURSERA: IBM</u> Python for Data Science, AI and Development
May 1, 2020	<u>COURSERA: DeepLearning.AI</u> AI for Everyone
November 18-21, 2018	<u>Schlumberger Foundation-Faculty for Future</u> Fellows & Alumnae Forum (Science Advocacy) Schlumberger Middle East & Asia Learning Centre Abu Dhabi, UAE
October 24, 2018	<u>Bahauddin Zakariya University, Multan</u> Entrepreneurship A Silver Bullet for Personal Growth and Development ORIC, Bahauddin Zakariya University, Multan
June 02-13, 2014	<u>Ministry of Education & Training, Islamabad</u> Certificate for Attending Summer Leadership Institute 2014 Bahauddin Zakariya University, Multan
June-August, 2005	<u>Bahauddin Zakariya University, Multan</u> Certificate of Merit in English Language from Department of English, B.Z.U.
2005 – 2006	<u>Allama Iqbal Open University</u> Bachelor of Education Teachings of Mathematics and Physics
July–August, 2003	<u>Internship State Bank of Pakistan, Karachi</u> Attended 8-week internship program and submitted project report on “Statistical Analysis of Workers’ Remittances”.
2003-2004	<u>Bahauddin Zakariya University, Multan</u> Post Graduate Diploma in Computer Science with Business and Industrial Mathematics

Conferences & Workshops

- July 15-19, 2024 **9th European Congress of Mathematics (9ECM 2024), Sevilla, Spain**
Oral Presentation: A Hybrid Genetic Algorithm for Multiple Zeros of a Nonlinear Function and Applications
- July 10-12, 2024 **XXVI Mathematical Modelling in Engineering & Human Behaviour (MME&HB 2024), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation: A Hybrid Jarratt-Particle Swarm Optimization for Nonlinear Problems and Applications
- August 20-25, 2023 **10th International Congress for Industrial and Applied Mathematics (ICIAM 2023), Tokyo, Japan**
Oral Presentation: A Hybrid Genetic Algorithm for Solving Nonlinear Systems and Applications in Recent Advances in Numerical Methods for Nonlinear Equations and Applications
- July 11-14, 2023 **XXV Mathematical Modelling in Engineering & Human Behaviour (MME&HB 2023), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation: A Multiple Zero Finding Hybrid Genetic Algorithm for Discontinuous and Non-Differentiable Functions
- December 12-14, 2022 **1st International Conference on Mathematics for a Sustainable Future, The Women University, Multan. Pakistan**
Invited Speaker: Mathematics for Sustainable Development in Pakistan
- July 13-15, 2022 **XXIV Mathematical Modelling in Engineering & Human Behaviour (MME&HB 2022), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation: A Seventh Order Jarratt type Iterative Method for Solving Systems of Nonlinear Equations and Applications
- Dec 17, 2021 **Mathematical Learning using Modern Techniques: One Day Symposium, The Women University, Multan. Pakistan**
Invited Speaker: Learning Circles for the Undergraduate Mathematics Students
- September 24-27, 2021 **International Conference on Recent Advances in Pure & Applied Mathematics (ICRAPAM 2021), Turkey**
Special Session Organizer: Numerical solution of nonlinear equations and applications
- September 6-10, 2021 **International Mathematics Masters and Women in Mathematics Orientation Week, ICTP, Italy, UTM, Malaysia and UE, Lahore**
Invited Speaker: Enhancing Visibility of Women in Mathematics: Challenges, Strategies and Opportunities
Judge: Problem Solving and Mathematical Thinking Competition
- August 9-13, 2021 **1st Summer School: New Trends in Mathematical Sciences, Shangla Campus, University of Swat**
Keynote Speaker: Mathematics for Sustainable Development in Pakistan
Data Science and Machine Learning Practices for Mathematics Students

- July 22-27, 2021 **21th International Conference on Computational and Mathematical Methods in Science & Engineering (CMMSE 2021), Cadiz, Spain.**
Oral Presentation: An Optimal Eighth Order Derivative-Free Family of Methods for Multiple Roots of Non-linear Equations
- July 14-16, 2021 **XXIII Mathematical Modelling in Engineering & Human Behaviour (MME&HB 2021), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation: An Optimal Eighth Order Derivative-Free Scheme for Multiple Roots of Non-linear Equations
- June 30, 2021 **Future Ready Education Week (FREE) 2021, Universiti Teknologi Malaysia, Malaysia**
Invited Speaker: The Best Practices of Teaching STEM Online
- June 21, 2021 **Challenges, Innovations and Opportunities in Mathematics: One Day International Seminar, The Women University, Multan, Pakistan**
Invited Speaker: Mathematics for Sustainable Development in Pakistan
- December 10, 2020 **Online Global Classroom: Fundamental Science, Bedrock of innovation December 7-10, 2020, Universiti Teknologi Malaysia, Malaysia**
Invited Speaker: Iterative methods for solving nonlinear equations: Applications and dynamical analysis
- July 2, 2020 **Online Workshop by ORIC and CASPAM BZU**
Teaching and Research During Covid-19 Pandemic
Speaker: Dr. Norma Alias, Universiti Teknologi Malaysia, Johor, Malaysia
Moderator: As Focal Person for Women in STEM of BZU
- July 15-19, 2019 **International Congress on Industrial & Applied Mathematics (ICIAM 2019), Valencia, Spain**
Oral Presentation
Optimal fourth order methods with variable step for multiple roots of nonlinear equations
Minisymposia: Iterative methods for solving nonlinear problems: Convergence and Stability
- July 16-18, 2018 **Mathematical Modelling in Engineering & Human Behaviour (MME&HB 2018), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation
A General Class of Optimal Fourth Order Methods for Multiple Roots of Non-linear Equations
- July 9-13, 2018 **18th International Conference on Computational and Mathematical Methods in Science & Engineering (CMMSE 2018), Cadiz, Spain.**
Oral Presentation
A Class of Four Parametric With- and Without Memory Root Finding Methods

- June 11-16, 2018 **Seventh Conference on Finite Difference Methods: Theory & Applications, Lozenetz, Bulgaria**
Oral Presentation
A family of optimal eighth order multiple root finders with multivariate weight function
- August 28, 2017 **Workshop on Teaching Undergraduate Mathematics, Centre for Advanced Studies in Pure & Applied Mathematics, Bahauddin Zakariya University, Multan, Pakistan**
Instructor's Notes, An important document to be carried in the classroom
- July 17-19, 2017 **Mathematical Modelling in Engineering & Human Behaviour (MME&HB), Institute of Multidisciplinary Mathematics, Polytechnic University of Valencia, Valencia, Spain.**
Oral Presentation
Optimal Iterative Methods for Finding Multiple Roots of Nonlinear Equations using Weight Functions
- July 4-8, 2017 **17th International Conference on Computational and Mathematical Methods in Science & Engineering (CMMSE 2017), Cadiz, Spain.**
Oral Presentation
Optimal Iterative Methods for Finding Multiple Roots of Nonlinear Equations using Free Parameters
- Dec 19-24, 2016 **CASM Workshop on Mathematical Finance: Teaching the Teachers LUMS**
Conducted by Dr. Riaz Ahmad (Overseas Visiting Faculty)
University College London Senior Teaching Fellow
- August 5-7, 2016 **17th International Pure Mathematics Conference, Islamabad by Pakistan Mathematical Society & Islamia University of Bahawalpur**
Oral Presentation
Gauss-Lobatto and Radau type Quadrature Rules for Weighted Integrals
- May 26-28, 2016 **International Conference on Differential Equations & Applications, CASM, Lahore University of Management Sciences, Lahore**
Oral Presentation
On Elk-Wolf Population Dynamic Models of Yellowstone National Park
- August 10-14, 2015 **International Congress on Industrial & Applied Mathematics (ICIAM 2015), Beijing, China**
Oral Presentation
On With and Without Memory Root Finding Iterative Methods Based on Inverse Interpolation
- June 3-6, 2015 **International Conference on Recent Advances in Pure & Applied Mathematics (ICRAPAM 2015), Istanbul, Turkey**
Oral Presentation
Hermite-Hadamard type inequalities for logarithmically B-preinvex functions

- Dec 12-13, 2014 **National Workshop on Applied Nonlinear Analysis, LUMS Lahore & Punjab Mathematical Society**
Poster Presentation
Dynamical Behaviour of Root Finding Iterative Methods
- Oct 20-25, 2013 **2nd Annual Computational Science Conference, International Islamic University, Islamabad**
Pakistan Society of Computational Science
Oral Presentation
Derivative Based Semi Open Newton-Cotes Quadrature Rules
- July 07-09, 2007 **CASPAM, Bahauddin Zakariya University, Multan**
First Mathematics Conference at CASPAM

References

Prof. Dr. Juan Ramón Torregrosa (Post-Doctoral Advisor)

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Polytechnic University of Valencia,
Camino de Vera, s / n 46022 Valencia, Spain
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Polytechnic University of Valencia,
Camino de Vera, s / n 46022 Valencia, Spain
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