



Prof. Ahmad Mohammad Ibrahim Qazza

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Applied Mathematics/ Differential Equation

Academic Rank: Professor of Applied Mathematics

Membership:

1.	American Mathematical Society(AMS). Providence, Rhode Island, US Member ID: QZAHMAA:	2020- until to date
2.	Society for Industrial and Applied Mathematics Member Number: 001050695.	2020- until to date
3.	Saudi Association for Mathematical Sciences Membership ID: 1022195623	2024- until to date

Qualifications:

1	Ph.D. in Differential Equation 2000, Faculty of Mechanics and Mathematics, Department of Differential Equation, Kazan State University (Kazan Federal University), Russia: <ul style="list-style-type: none"> • Degree Specialization: Differential equations. • Title of Ph.D., Thesis: <i>Reduction of Dirichlet problem and its generalization for elliptical equations to the boundary problems for holomorphic function.</i>
2	M.Sc. in Differential Equation 1996, Faculty of Mechanics and Mathematics, Department of Differential Equation, Kazan State University (Kazan Federal University), Russia: <ul style="list-style-type: none"> • Degree Specialization: Differential equations. • Title of M.Sc., Thesis: <i>The application of integral transformation by Mellin's Nucleus in Bessel's theory.</i>

Scholarships Received:

- Scholarship for the Ph.D. degree from Kazan State University, Russia.
- Scholarship for Bachelor degree from Ministry of Higher Education, Jordan.

Other Things Have been included among World's Top 2% Scientists List created by Scholars from Stanford University in 2023.



Qazza, Ahmad
Zarqa University, JOR

Year 2024 Rank: 1134891

Main Field: Mathematics & Statistics
H-index: 4, Hm-index: 2.75

Sub Field: General Mathematics
Rank in the SubField: 6601 out of 88622 authors

Top 2% Listed Year(s): 2024

ELSEVIER TOP 2% SCIENTISTS Stanford University

<https://TopResearchersList.com/>

Academic Links:

- <https://scholar.google.com/citations?hl=ar&user=RouKrs4AAAAJ>
- <https://www.researchgate.net/profile/Ahmad-Qazza>
- <https://www.webofscience.com/wos/author/record/AAE-4117-2021>
- <https://orcid.org/my-orcid?orcid=0000-0002-8404-3897>
- <https://www.scopus.com/authid/detail.uri?authorId=56194015400>
- <https://www.linkedin.com/in/dr-ahmad-qazza-b313a282>
- <https://www.facebook.com/aqazza>
- <https://staff.zu.edu.jo/academic/index/4880>
- https://twitter.com/a_qazza
- <https://github.com/aqazza1>



Objective(s):

- 1. Enhancing Research Capabilities:** To spearhead research initiatives that foster innovation in Applied Mathematics, particularly in the realm of Differential Equations. My intent is to publish in esteemed journals and collaborate with peers and industry experts to solve complex mathematical problems with real-world applications.
- 2. Collaborating and Sharing Knowledge:** To establish a network of interdisciplinary collaborations that facilitate the exchange of knowledge, methodologies, and resources. By doing so, I aim to stay at the forefront of emerging trends and technologies.
- 3. Enhancing Student Engagement:** To implement active learning strategies and experiential learning methods that can foster a stimulating educational environment. My goal is to create a holistic curriculum that not only imparts theoretical knowledge but also instills the skills necessary for students to excel in their future endeavors.
- 4. Improving Curriculum Design:** To work collaboratively with educational stakeholders in revamping curriculum structures that are aligned with the demands of the modern world. My focus is to integrate technological tools and innovative teaching techniques to make the learning experience more effective and engaging.
- 5. Preparing Students for the Future:** To guide students in their academic and career paths by offering mentorship and counseling services. I aspire to develop future leaders who can contribute positively to society and the scientific community at large.

Area of Interest:

Fields of interest: Boundary Value Problems for PDEs of Mathematical Physics (Laplace equation, Helmholtz equation, heat equation, etc); Boundary Integral Equation Methods; Integral Representations for Solutions; integral equations with logarithmic and Cauchy kernels; boundary value problems for analytic complex functions; applications of boundary value problems to mathematical modelling in acoustics, fluid dynamics, physics and engineering; numerical methods; Fractional Integrals and Derivatives Theory and Applications.



Membership:

Representative of the College of Science in the University Council (Zarqa University)
Representative of the College of Science and Information Technology in the University Council (Jadara University)
Representative of the College of Science and Information Technology in the University Council (Irbid University)
Member of the quality council - Zarqa University (Many times)
Member of the quality council - Jadara University (Many times)
Member of the efficiency committee – Zarqa University (Many times)
Member of the science faculty council– Zarqa University (Many times)
Member of the science and Information Technology faculty council– Jadara University (Many times)
Member of the science and Information Technology faculty council– Irbid University (Many times)
Head of, quality Committee of science faculty (Zarqa, Jadara, Irbid)
Head of, Social Committee (Jadara, Irbid)
Member of , Social Committee (Zarqa)
Head of, Qualifying exam committee (Zarqa, Jadara, Irbid)
Head of, Examinations Committee (Zarqa, Jadara, Irbid)
Head of, Development and Planning Committee (Zarqa, Jadara, Irbid)
Head of, Study Schedule Committee (Zarqa, Jadara, Irbid)
Member of postgraduate studies committee (Zarqa University)
Member of Research and Scientific committee (Zarqa, Jadara, Irbid)
Member of the Organizing Committee of The 6th International Arab Conference on Mathematics and Computations, Zarqa University, 2019.
Co-Chair of The 7th International Arab Conference on Mathematics and Computations, Zarqa University, 2022.
Co-Chair of The 8th International Arab Conference on Mathematics and Computations, Zarqa University, 2023.
Head of Mathematics department/ Jadara University Sep 2010 – 2017.
Vice Dean in Faculty of Science / Zarqa University Sep 2018- 2023.

Teaching Experience:



#	From	to	Job title Employer	
1	2004	2008	Assistant professor Irbid National University/Irbid–Jordan. Department of Mathematics	
2	2008	2016	Assistant professor Jadara University/Irbid–Jordan. Department of Mathematics	
3	2010	2017	Head of Math. Dept. Jadara University/Irbid–Jordan. Department of Mathematics	
4	2016	2017	Associate professor Jadara University/Irbid–Jordan. Department of Mathematics	
6	2017	2.23	Associate professor Zarqa University/Zarqa–Jordan. Department of Mathematics	
7	2018	2023	Vice Dean of the faculty of science Zarqa University/Zarqa–Jordan. Department of Mathematics	
8	2023	until todate	Professor Zarqa University/Zarqa–Jordan. Department of Mathematics	

Publications:

#	عنوان البحث	جهة النشر	السنة	الإصدار
1.	Prediction of Visceral Leishmaniasis Incidences Utilizing Machine Learning Techniques	EICEEAI)	2023	
2.	Ramification of Hall effects in a non-Newtonian model past an inclined microchannel with slip and convective boundary conditions	Applied Rheology	2024	34(1)
3.	An efficient approximate analytical technique for the fractional model describing the solid tumor invasion	Frontiers in Physics	2024	12
4.	Two-phase numerical simulation of thermal and solutal transport exploration of a non-Newtonian nanomaterial flow past a stretching surface with chemical reaction	Open Physics	2024	2(1)
5.	On the thermal performance of radiative stagnation-point hybrid nanofluid flow across a wedge with heat source/sink effects and sensitivity analysis	Frontiers in Materials	2024	11



51(7)	2024	IAENG International Journal of Computer Science	Innovative Approaches to Linear Volterra Partial Integro-Differential Equations: A Laplace Residual Power Series Perspective	6.
140(3)	2024	Computer Modeling in Engineering & Sciences	Composite Fractional Trapezoidal Rule with Romberg Integration	7.
10	2024	Partial Differential Equations in Applied Mathematics	Optimized technique and dynamical behaviors of fractional Lax and Caudrey–Dodd–Gibbon models modeled by the Caputo fractional derivative	8.
10(2)	2024	Progress in Fractional Differentiation and Applications	Applying Conformable Double Sumudu – Elzaki Approach to Solve Nonlinear Fractional Problems	9.
17(2)	2024	European Journal of Pure and Applied Mathematics	Analyzing the Impact of Control Strategies on VisceralLeishmaniasis: A Mathematical Modeling Perspective	10.
14(1)	2024	scientific reports	Predicting the thermal distribution in a convective wavy fin using a novel training physics-informed neural network method	11.
9(5)	2024	AIMS Mathematics	Exploring analytical results for (2+1) dimensional breaking soliton equation and stochastic fractional Broer-Kaup system	12.
9(5)	2024	AIMS Mathematics	A new approach in handling one-dimensional time-fractional Schrödinger equations	13.
9(4)	2024	AIMS Mathematics	A new analytical algorithm for uncertain fractional differential equations in the fuzzy conformable sense	14.
24	2024	Scientific African	Modeling COVID-19 spread and non-pharmaceutical interventions in South Africa: A stochastic approach	15.
32(3)	2024	Engineering Letters	Double Laplace Formable Transform Method for Solving PDEs	16.
10(5)	2024	Heliyon	Mathematical modeling and stability analysis of the novel fractional model in the Caputo derivative operator: a case study	17.
9(2)	2024	AIMS Mathematics	A quintic B-spline technique for a system of Lane-Emden equations arising in theoretical physical applications	18.
54(2)	2024	IAENG International Journal of Applied Mathematics	A Fractional Study for Solving the SIR Model and Chaotic System	19.



33(3)	2024	Journal of Mathematics and Computer Science	Analyzing convex univalent functions on semi-infinite strip domain	20.
18(1)	2024	Applied Mathematics & Information Sciences	Fractional Partial and Integral Differential Equations and Novel Conformable Double (Laplace -Sumudu) Transform	21.
21(1)	2023	Open Mathematics	An application of Hayashi's inequality in numerical integration.	22.
18(1)	2024	Applied Mathematics & Information Sciences	Numerical Simulation of an Influenza Epidemic: Prediction with Fractional SEIR and the ARIMA Model	23.
22	2023	WSEAS Transactions on Mathematics	A Generalized Hybrid Method for Handling Fractional Caputo Partial Differential Equations via Homotopy Perturbed Analysis	24.
138(2)	2023	Computer Modeling in Engineering & Sciences	Results Involving Partial Differential Equations and Their Solution by Certain Integral Transform	25.
144(1)	2024	Journal of Engineering Mathematics	Effective methods for numerical analysis of the simplest chaotic circuit model with Atangana–Baleanu Caputo fractional derivative	26.
2023	2023	Mathematical Problems in Engineering	A New Computational Technique for Analytic Treatment of Time-Fractional Nonlinear Equations Arising in Magneto-Acoustic Waves	27.
7(4)	2023	Fractal and Fractional	A Numerical Solution of Generalized Caputo Fractional Initial Value Problems	28.
41(6)	2023	Journal of Applied Mathematics and Informatics	On the fibers of the tree products of groups with amalgamation subgroups	29.
17(4)	2023	Applied Mathematics and Information Sciences	ARA-Sumudu Method for Solving Volterra Partial Integro-Differential Equations	30.
17(5)	2023	Applied Mathematics and Information Sciences	A Numerical Confirmation of a Fractional SEITR for Influenza Model Efficiency	31.
12(9)	2023	Axioms	A Perturbed Milne’s Quadrature Rule for n-Times Differentiable Functions with Lp-Error Estimates	32.
12(4)	2023	Axioms	Application of the Optimal Homotopy Asymptotic Approach for Solving Two-Point Fuzzy Ordinary Differential Equations of Fractional Order Arising in Physics	33.
16(2)	2023	European Journal of Pure and Applied Mathematics	A New Scheme for Solving a Fractional Differential Equation and a Chaotic System	34.



8(9)	2023	AIMS Mathematics	Effective transform-expansions algorithm for solving non-linear fractional multi-pantograph system	35.
17(5)	2023	Applied Mathematics and Information Sciences	ARA-Homotopy Perturbation Technique with Applications	36.
16(2)	2023	European Journal of Pure and Applied Mathematics	New Bounds For The Eigenvalues Of Matrix Polynomials	37.
12(8)	2023	Axioms	Further Accurate Numerical Radius Inequalities	38.
9(5)	2023	Heliyon	Modified conformable double Laplace–Sumudu approach with applications	39.
22	2023	WSEAS Transactions on Mathematics	A New Approach in Solving Regular and Singular Conformable Fractional Coupled Burger’s Equations	40.
12(9)	2023	Axioms	On Further Refinements of Numerical Radius Inequalities	41.
22	2023	WSEAS Transactions on Mathematics	A New Computation Approach: ARA Decomposition Method	42.
8(5)	2023	International Journal of Mathematical, Engineering and Management Sciences	A New Perspective on the Stochastic Fractional Order Materialized by the Exact Solutions of Allen-Cahn Equation	43.
11	2023	Frontiers in Physics	A modern analytic method to solve singular and non-singular linear and non-linear differential equations	44.
16(2)	2023	European Journal of Pure and Applied Mathematics	Adapting Integral Transforms to Create Solitary Solutions for Partial Differential Equations Via A New Approach	45.
12(9)	2023	Axioms	Lp-Mapping Properties of a Class of Spherical Integral Operators	46.
8(6)	2023	AIMS Mathematics	Numerical solution for the system of Lane-Emden type equations using cubic B-spline method arising in engineering	47.
9(5)	2023	International Journal of Applied and Computational Mathematics	Trustworthy Analytical Technique for Generating Multiple Solutions to Fractional Boundary Value Problems	48.
8	2023	Partial Differential Equations in Applied Mathematics	Adapting partial differential equations via the modified double ARA-Sumudu decomposition method	49.
16(2)	2023	European Journal of Pure and Applied Mathematics	Solution of Integral Equations Via Laplace ARA Transform	50.



2023	2023	International Journal of Mathematics and Mathematical Sciences	Nth Composite Iterative Scheme via Weak Contractions with Application	51.
6(12)	2022	Fractal and Fractional	Analytical Solution of Coupled Hirota–Satsuma and KdV Equations	52.
2022	2022	Journal of Applied Mathematics	A Fundamental Criteria to Establish General Formulas of Integrals	53.
136(3)	2023	CMES - Computer Modeling in Engineering and Sciences	On Time Fractional Partial Differential Equations and Their Solution by Certain Formable Transform Decomposition Method	54.
12(2)	2023	Axioms	Direct Power Series Approach for Solving Nonlinear Initial Value Problems	55.
2023	2023	Applied Computational Intelligence and Soft Computing	On the Analytical Solution of Fractional SIR Epidemic Model	56.
15(1)	2023	Symmetry	Conformable Double Laplace–Sumudu Iterative Method	57.
21	2022	WSEAS Transactions on Mathematics	Multi-Fuzzy Rings	58.
8(3)	2023	AIMS Mathematics	Solving fractional partial differential equations via a new scheme	59.
11(10)	2022	Axioms	A Novel Approach in Solving Improper Integrals	60.
6(9)	2022	Fractal and Fractional	A New Approach Using Integral Transform to Solve Cancer Models	61.
8(1)	2023	AIMS Mathematics	A hybrid analytical technique for solving multi-dimensional time-fractional Navier-Stokes system	62.
10(19)	2022	Mathematics	General Master Theorems of Integrals with Applications	63.
2022	2022	Mathematical Problems in Engineering	Application of ARA-Residual Power Series Method in Solving Systems of Fractional Differential Equations	64.
14(9)	2022	Symmetry	Applications on Double ARA–Sumudu Transform in Solving Fractional Partial Differential Equations	65.
6(8)	2022	Fractal and Fractional	Homotopy Analysis Method Analytical Scheme for Developing a Solution to Partial Differential Equations in Fuzzy Environment	66.
10(15)	2022	Mathematics	On the Double ARA-Sumudu Transform and Its Applications	67.



62	2023	Alexandria Engineering Journal	ARA-residual power series method for solving partial fractional differential equations	68.
11(6)	2022	Axioms	Exact Solutions of Nonlinear Partial Differential Equations via the New Double Integral Transform Combined with Iterative Method	69.
14(1)	2022	Symmetry	A Novel Numerical Approach in Solving Fractional Neutral Pantograph Equations via the ARA Integral Transform	70.
9(23)	2021	Mathematics	A new attractive method in solving families of fractional differential equations by a new transform	71.
12(6)	2020	Symmetry	A new integral transform: ARA transform and its properties and applications	72.
31(5)	2018	International Journal of Applied Mathematics	The existence of a solution for semi-linear abstract differential equations with infinite B-chains of the characteristic sheaf	73.
15(1)	2019	Journal of Mathematics and Statistics	Modification on PPS Sample Scheme with Replacement	74.
107(1)	2018	Far East Journal of Mathematical Sciences	A New Procedure For Selecting A Sample With Unequal Probability Without Replacement	75.
101(7)	2017	Far East Journal of Mathematical Sciences	On the choice of strategy for modified midzuno scheme	76.
100(5)	2016	Far East Journal of Mathematical Sciences	About the solution stability of volterra integral equation with random kernel	77.
17(3)	2016	Advances in Differential Equations and Control Processes	Dirichlet Problem in a Simply Connected Domain, Bounded by the Nontrivial Kind	78.
10(2)	2014	Journal of Mathematics and Statistics	Stationary connected curves in Hilbert spaces	79.
55(2)	2010	Studia Universitatis Babeş-Bolyai	An inversion of one class of integral operator by la sakhnovich's operator identity method	80.
22(4)	2009	International Journal of Applied Mathematics	Dirichlet Problem in the Simply Connected Domain, Bounded by Unicursal Curve	81.
4(29)	2009	International Mathematical Forum	Sharper inequalities for Powers of the numerical radii of Hilbert space operators	82.

Supervision of Theses:



	Year	Thesis Title	Student Name
1.	2019	B-Spline Method for Solving Boundary Value Problems of Differential Equations	Halima Abu Hatab
2.	2019	A Sinc – collocation method for solving integro – differential equations of conformable fractional derivative	Doaa al-Qutani
3.	2019	Spectral Collocation Method for Solving Fractional Integro-Differential Equations	Haya Abozour
4.	2019	Solving Fractional Differential Equations of Boundary Value Problems Using the Cubic B-Spline Method	Ehdaa Mahmoud Abdallah Fadel
5.	2019	Spectral Collocation Method for Solving Fractional Integro-Differential Equations	Haya Mohammed Abozour
6.	2020	Numerical Solutions of Nonlinear Differential Equations Using Cubic B-Spline	Baraa Mahmood Ayasrah
7.	2021	Laplace-Residual Power Series Method for Solving the Fractional Differential Equations	Areej Rizeq Abd – Alttif Hijjawi
8.	2021	Solving Initial Value Problems for Fractional Differential Equations by Cubic B- Spline Method	Bashar Hussien Rateb Rayan
9.	2021	Solving Fractional Differential Systems by Laplace-Residual Power Series Method	Emad Zeyad Abedalaziz Salah
10.	2021	Solving Fractional Differential Equations of Boundary Value Problems Using the Cubic B-Spline Method	Ehdaa Mahmoud Abdallah Fadel
11.	2023	Applications of ARA Transform in Solving Differential Equations	Areej Mohammad Anees Abuomar
12.	2023	The Solutions of Some Types of Fractional Differential Equations Using the Power Series Method	Shadi Jaber
13.	2023	Numerical Solutions of Stochastic Ordinary Differential Equations	Bashar Salem Musa Aloudat
14.	2024	A Hybrid Analytical-Numerical Approach for Solving Caputo Fractional Differential Equations with Proportional Delay	Ali Waheed Najeeb Haj Abdelrahman
15.	2024	Analytical Solutions of Caputo Fractional Pantograph-Type Equation	Mohammad Jebrel Ahmad Almashny
16.	2024	Applications of the q-Laplace Transform in Quantum Calculus	Fathi Ahmed Fathi Zalloum

Courses Taught at Undergraduate Level:

1. Calculus I
2. Calculus II
3. Calculus III
4. Intermediate Analysis



5. Ordinary Differential Equation 1 & II.
6. Mathematical Method.
7. Partial Differential Equation 1 & II.
8. Complex Analysis I
9. Applications of Mathematica.
10. Principles of Mathematics.
11. Numerical Analysis (1).
12. Linear Algebra(1).
13. Special topics.

Courses Taught at Master's:

1. Theory of ordinary differential equations
2. Partial differential equations
3. Selected topics in applied mathematics
4. Advanced numerical analysis

Personal Information:

Name	:	Ahmad Mohammad Ibrahim Qazza		
Place and Date of Birth	:	Zarqa 22/9/1971		
Nationality	:	Jordanian		
Marital Status	:	Married		
Address	:	Zarqa - Hi Shakher		
Work Tel No.	:	05-3821100	Ext phone	1527
Mobile:	:			
Postal Address	:	P.O. Box 2000 Zarqa 13110 Jordan		