

Iqbal M. Batiha



- ◇  i.batiha@zuj.edu.jo
- ◇  iqbalbatiha@gmail.com
- ◇  iqbalbatiha22@yahoo.com
- ◇  +962-786-500389
- ◇  <https://www.scopus.com/authid/detail.uri?authorId=57144653500>
- ◇  <https://orcid.org/0000-0002-8443-8848>
- ◇  <https://scholar.google.com/citations?user=91p7nUsAAAAJ&hl=en>
- ◇  <https://www.researchgate.net/profile/Iqbal-Batiha>

Personal Information

- ◇ **Full Name:** Iqbal Mohammad Radwan Batiha
- ◇ **Gender:** Male
- ◇ **Citizenship and Place of Birth:** Jordanian, Irbid–Jordan
- ◇ **Marital Status:** Married
- ◇ **Place of Residence:** Irbid–Jordan

Research Interests

- ▶ **Fractional Calculus**
Fractional differential equations, Fractional difference equations.
- ▶ **Control Theory**
Fractional-order PID-controller, PID-controller.
- ▶ **Mathematical Modelling**
Hopfield neural network models, COVID-19 models, Stability analysis.
- ▶ **Optimization Techniques**
Particle swarm optimization algorithm, Bacterial foraging optimization algorithm.
- ▶ **Chaos Theory**
Hidden chaotic attractors, Coexisting attractors, Synchronization, Chaotic behavior analysis.
- ▶ **Numerical Methods**
Finite difference method, Adomian decomposition method, Fractional Euler method, Optimal homotopy analysis method, Optimal homotopy asymptotic method.

Education

- ▶ **Ph.D. Mathematics, Applied Mathematics**, January 2019
University: The University of Jordan, Amman, Jordan
Title of Thesis: Tuning of Fractional-order $PI^{\lambda}D^{\delta}$ Controllers using Particle Swarm Optimization Technique
Advisor: Professor Shaher Momani
Co-Advisor: Dr. Reyad El-Khazali
Accumulative Average: 3.56/4
- ▶ **M.S. Mathematics, Applied Mathematics**, June 2014
University: AL-albait University, Mafraq, Jordan
Title of Thesis: Numerical Solution for Fractional Differential Equation using Finite Difference Method
Advisor: Dr. Mohammad Zreiqat
Co-Advisor: Dr. Ramzi Al-Badarneh
Accumulative Average: (86.75)%; First Rank
- ▶ **High Diploma in Information Technology and Communication (ICT)**, 2009
University: Al-Yarmouk University, Irbid, Jordan
Accumulative Average: (87.5)%
- ▶ **B.A. Mathematics, Applied Mathematics**, 2002
University: Jordan University of Science and Technology (JUST), Irbid, Jordan

Experience

- ▶ **Assistant Professor**
Al Zaytoonah University of Jordan, Amman, Jordan (10/2022 till now).
- ▶ **Research Assistant**
Department of Mathematics, The University of Jordan, Amman, Jordan (3/09/2024 till 2/09/2025).
- ▶ **Assistant Professor**
Irbid National University, Irbid, Jordan (2/2021 till 10/2022).
- ▶ **Adjunct Research Associate Professor**
Nonlinear Dynamics Research Center, Ajman University, Ajman, UAE (2/2021 till Now).
- ▶ **Research Associate**
Deanship of Scientific Research, Al-Balqa Applied University, Irbid, Jordan (3/2022 till 2/2023).
- ▶ **Research Assistant**
Deanship of Graduate Studies and Research, Ajman University, Ajman, UAE (5/2020 till 12/2020).
- ▶ **Part-time Instructor**
Department of Mathematics, The University of Jordan, Amman, Jordan (6/2019 till 8/2019).
- ▶ **Part-time Instructor**
Department of Mathematics, Irbid National University, Irbid, Jordan (6/2014 till 8/2014).

Awards & Honors

► Awards

◆ **Ali Qirem Award:** The Distinguished Researcher at Al-Zaytoonah University of Jordan, Award theme: Basic and applied sciences. Al-Zaytoonah University of Jordan, Amman, Jordan, October 16, 2024.

◆ **Oliviu Gherman Award:** In Testimony of the High Regard of my Achievements in the Area of Fractional Calculus and its Applications. The First Online Conference on Modern Fractional Calculus and Its Applications. Biruni University, Istanbul, Turkey, December 4-6, 2020.

◆ **Riemann-Liouville Award, Best FDA Paper:** International Conference on Fractional Differentiation and its Applications (ICFDA'18), Amman, Jordan, 16-18 July, 2018.

◆ **The 5th position in Competition for Poetry:** Literature Sawaleef Competition, Amman, Jordan, 2018.

◆ **The 4th position in Competition for Poetry:** Cultural Bsaira Ceremony, Tafilah, Jordan, 2006.

► Honors

★ **Listed World's Top 2% Scientist Rankings:** Stanford University & Elsevier, USA, 2024.

★ **First class honors in Master Degree:** AL-Albayt University, Mafrqa, Jordan, 2014.

Courses Taught at University Level

• **Irbid National University:** 6/2014–8/2014 & 2/2021–10/2022

Math. 101	Calculus I	B. Sc. level
Math. 152	Discrete Mathematics	B. Sc. level
Math. 131	Statistics and Probability I	B. Sc. level
Math. 231	Statistics and Probability II	B. Sc. level
Math. 345	Number Theory	B. Sc. level
Math. 203	Ordinary Differential Equations I	B. Sc. level
Math. 321	Numerical Analysis I	B. Sc. level
Math. 115	Biostatistics	B. Sc. level
Math. 421	Numerical Analysis II	B. Sc. level

• **The University of Jordan:** 6/2019–8/2019

Math. 101	Calculus I	B. Sc. level
Math. 102	Calculus II	B. Sc. level

• **Al Zaytoonah University of Jordan:** 2/2021–till now

Math. 101	Calculus I	B. Sc. level
Math. 123	Logic and Set Theory	B. Sc. level
Math. 140	Probability and Statistics	B. Sc. level
Math. 272	Numerical Analysis (1)	B. Sc. level
Math. 273	Ordinary Differential Equations I	B. Sc. level
Math. 347	Introduction to Financial Mathematics	B. Sc. level
Math. 372	Mathematical Modeling (1)	B. Sc. level
Math. 714	Mathematical Optimization	Master level
Math. 711	Real Analysis	Master level

Involvement in Funded Research Projects

- ▶ **Scientific Research Project**, Project Name: (**Time-fractional dynamical models for agro-ecological systems with the nitrogen cycle**), funded by University of Jordan, Amman, Jordan (15 August, 2024).
- ▶ **International Partnership Project**, Project Name: (**Development of a Fractional-order Model for Cancer Biomarkers**), funded by Al-Zaytoonah University of Jordan, Amman, Jordan (15 June, 2024).
- ▶ **Research Group Agreement supported by Arab Open University**, Project Name: (**Approaches In Fractional Calculus**), funded by Arab Open University, Riyadh, Saudi Arabia (16 February, 2023).
- ▶ **International Partnership Project**, Project Name: (**Investigating dynamics of the fractional-order systems and their applications**), funded by Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia (15 June, 2022).
- ▶ **Scientific Research Project**, Project Name: (**Chaos, Control and Synchronization in Fractional Dynamical systems and Reaction-Diffusion Systems**), funded by Al-Balqa Applied University, Irbid, Jordan (15 March, 2022).
- ▶ **Microsoft Research Program Grant**, Project Name: (**Mathematical Modeling of the Pandemic Coronavirus (COVID-19) Outbreak through Fractional Derivatives**), funded by Ajman University and Microsoft Corporation, Ajman, UAE (1 May, 2020).

Academic Positions

- ▶ **Head of Mathematics Department**, Irbid National University, 9/2022 till 10/2022.
- ▶ **Member of University Council Committee**, Irbid National University, 2/2021 till 10/2022.
- ▶ **Member of Student Disciplinary Committee**, Irbid National University, 2/2021 till 10/2022.

Research Expert and Collaborator

- ▶ **Expert in the project of identifying scientific research priorities in Jordan: Basic Sciences Committee**, Amman, Jordan, 2024.
- ▶ **Member of the research group "Mathematical Modelling of Infectious Diseases"**, The University of Jordan, Amman, Jordan, 2024.

Academic Supervision Activity

- ▶ Some New Fractional and q-Fractional Modifications of the Classical n-Point Formulas with Richardson Extrapolation, Haneen Abu Ahmed, Al-Albait University, Al-Mafraq, Jordan, 2024.
- ▶ A Numerical Approach for Solving Fractional Linear Boundary Value Problems Using Shooting Method, Hamzah O. Al-Khawaldeh, Al-Albait University, Al-Mafraq, Jordan, 2024.
- ▶ Fractional Trapezoidal Method for Solving Fractional Initial Value Problems, Heba Fawwaz, Al-Zaytoonah University of Jordan, Amman, Jordan, 2024.
- ▶ Solving q-Initial Value Problems Using Trapezoidal Method, Feda Ahmed, Al-Zaytoonah University of Jordan, Amman, Jordan, 2024.
- ▶ Solving 2×2 -System of Linear Homogeneous Incommensurate Fractional-order Differential Equations, Nashat Alamarat, Irbid National University, Irbid, Jordan, 2022.
- ▶ Solving Fractional Higher-order Linear Time Invariant Systems Using Adomian Decomposition Method, Omar Talafha, Irbid National University, Irbid, Jordan, 2022.
- ▶ A Numerical Modification of Fractional Euler Method, Hamzeh Kana'an, Irbid National University, Irbid, Jordan, 2022.
- ▶ A Numerical Scheme for Solving Fractional-order Differential Equations, Ahmad Jarrah, Irbid National University, Irbid, Jordan, 2022.
- ▶ A Mathematical Study on a Fractional-order COVID-19 Model, Ahamad Obeidat, Irbid National University, Irbid, Jordan, 2021.
- ▶ Tuning Fractional-order PID Controller for Single-Joint Arm Dynamics, Suhaib Njadat, Irbid National University, Irbid, Jordan, 2021.

Thesis Examination Committee

▶ **Master's Thesis Examination Committee**

◇ **External Examiner**

- Applications of Higher-order Single-Step Methods in Engineering Numerical Analysis, Qasim Tayeh, Mutah University, Karak, Jordan, November, 2022.
- Qualitative Analysis and Conservation Laws for a KdV-Like Equation, Mohamed M. M. Atta, Al Al-Bait University, Mafraq, Jordan, November, 2024.

◇ **Internal Examiner**

- Optimizing Exponential Functions in the Simplicial Taylor-Bernstein Form with Applications on Fixed-points Approximation, Osama Ibrahim Alrajodi, Al Zaytoonah University of Jordan, Amman, Jordan, January, 2024.
- Study of Young and Heinz Inequalities for Matrices, Wafa Gharaibeh, Irbid National University, Irbid, Jordan, January, 2022.
- On Pairwise Nearly Metacompact Spaces, Ansam Alsmadi, Irbid National University, Irbid, Jordan, June, 2022.
- Some Biunivalent Rows with Series Pascal Distributions, Ahmad Manna', Irbid National University, Irbid, Jordan, August, 2022.

Publications

► Accepted Papers

1. **Iqbal M. Batiha**, Hamzah O. Al-khawaldeh, Manal Almuzini, Waseem G. Alshanti, Nidal Anakira, Ala Amourah, A fractional mathematical examination on breast cancer progression for the healthcare system of Jordan, Boletim da Sociedade Paranaense de Matemática. [Scopus: Q3].
2. Ahmed Bouchenak, **Iqbal M. Batiha**, Raed Hatamleh, Mazin Aljazzazi, Iqbal H. Jebril, Mohammed Al-Horani, Study and analysis of the second order constant coefficients and Cauchy-Euler equations via modified conformable operator, International Journal of Robotics and Control Systems. [Scopus: Q2].
3. **Iqbal M. Batiha**, Zainouba Chebana, Taki-Eddine Oussaeif, Sana Abu-Ghurra, Abeer Al-Nana, Anwar Bataihah, Global existence for heat equation with nonlinear and damping piecewise Neumann boundary condition, International Journal of Robotics and Control Systems. [Scopus: Q2].
4. **Iqbal M. Batiha**, Issam Bendib, Adel Ouannas, Praveen Agarwal, Nidal Anakira, Iqbal H. Jebril, Shaher Momani, Finite-time synchronization in a novel discrete fractional SIR model for COVID-19, Boletim da Sociedade Paranaense de Matemática. [Scopus: Q2].
5. **Iqbal M. Batiha**, Necib Abdelhalim, Adel Ouannas, Shaher Momani, Resolvability of boundary value problems with integral conditions and solution's approximation by homotopy perturbation method, Nonlinear Dynamics and Systems Theory. [Scopus: Q3].
6. Mohammad W. Alomari, **Iqbal M. Batiha**, Nidal Anakira, Irianto Irianto, Iqbal H. Jebril, Shaher Momani, Revolutionizing numerical approximations: a novel higher-order implicit method vs. Runge-Kutta for initial value problems, Journal of Robotics and Control. [Scopus: Q2].
7. Mohammad W. Alomari, **Iqbal M. Batiha**, Nidal Anakira, Irianto Irianto, Iqbal H. Jebril, Shaher Momani, A comparative analysis of numerical techniques: Euler-Maclaurin vs. Runge-Kutta methods, Journal of Robotics and Control. [Scopus: Q2].
8. Shaher Momani, **Iqbal M. Batiha**, Issam Bendib, Adel Ouannas, Amel Hioual, Dalah Mohamed, Examining finite-time behaviors in the fractional Gray-Scott model: stability, synchronization, and simulation analysis, International Journal of Cognitive Computing in Engineering. [Scopus: Q1].

9. Jamal Oudetallah, Issam Bendib, Wasim Audeh, Adel Ouannas, Chaouki Aouiti, **Iqbal M. Batiha**, Shaher Momani, Ghassan Abufoudeh, Iqbal H. Jebril, Synchronization in finite time of discrete reaction-diffusion models, The 1st International Conference on Computational Intelligence Approaches and Applications (ICCIAA 2025), University of Petra, Amman, Jordan, 28-30 April 2025. [Scopus: Q4].
10. Jamal Oudetallah, Imane Zouak, Wasim Audeh, Adel Ouannas, Amina-Aicha Khennaoui, **Iqbal M. Batiha**, Shaher Momani, Synchronization of computer virus system using fractional calculus, The 1st International Conference on Computational Intelligence Approaches and Applications (ICCIAA 2025), University of Petra, Amman, Jordan, 28-30 April 2025. [Scopus: Q4].
11. Jamal Oudetallah, Imane Zouak, Wasim Audeh, Adel Ouannas, Amina-Aicha Khennaoui, **Iqbal M. Batiha**, Shaher Momani, Control of chaos in fractional computer virus model, The 1st International Conference on Computational Intelligence Approaches and Applications (ICCIAA 2025), University of Petra, Amman, Jordan, 28-30 April 2025. [Scopus: Q4].
12. Shaher Momani, **Iqbal M. Batiha**, Mohammad S. Hijazi, Issam Bendib, Adel Ouannas, Nidal Anakira, Fractional-order SEIR model for COVID-19: Finite-time stability analysis and numerical validation, International Journal of Neutrosophic Science. [Scopus: Q1].
13. Jamal Oudetallah, **Iqbal M. Batiha**, Ansam A. Al-Smadi, Nearly Lindelöfness in bitopological spaces, South East Asian Journal of Mathematics and Mathematical Sciences. [Scopus: Q4].
14. Ahmed Bouchenak, **Iqbal M. Batiha**, Iqbal H. Jebril, Mazin Aljazzazi, Hamzeh Alkasasbeh, Lahcen Rabhi, Generalization of the nonlinear Bernoulli conformable fractional differential equations with applications, WSEAS Transactions on Mathematics. [Scopus: Q2].
15. Nadir Djeddi, **Iqbal M. Batiha**, Nesrine Harrouche, Mohammed Al-Smadi, Shaher Momani, Advanced solutions for nonlinear fractional equations: a Laplace-Caputo-RKDM approach, Gulf Journal of Mathematics. [Scopus: Q3].
16. Rasha Ibrahim Hajaj, **Iqbal M. Batiha**, Mazin Aljazzazi, Iqbal H. Jebril, Ahmed Bouchenak, Belal Batiha, On stability analysis of nonlinear systems, IAENG International Journal of Applied Mathematics. [Scopus: Q3].
17. **Iqbal M. Batiha**, Sharaf Aldeen O. Albateiha, Shaher Momani, On q-fractional calculus: foundations and theoretical insights. In: Lakhveer Kaur, Pushpendra Kumar (eds). Recent Developments in Fractional Calculus: Theory, Applications, and Numerical Simulations. Springer, Berlin, Heidelberg, Dordrecht, and New York City, [Accepted]. (Chapter in the Book).
18. Rania Saadeh, **Iqbal M. Batiha**, Ahmad Qazza, Iqbal H. Jebril, Controlling DC motor speed with FoPID-controllers, 25th International Arab Conference on Information Technology (ACIT2024), Zarqa University, Jordan, 10-12 May 2022. [Scopus: Q4].
19. Nidal Anakira, **Iqbal M. Batiha**, Sofiane Dehilis, Irianto Irianto, Taki-Eddine Oussaeif, Zainouba Chebana, Shaher Momani, Adel Ouannas, Solvability and blow-up of nonlinear singular and degenerate problem with nonlocal condition, International Review on Modelling and Simulations. [Scopus: Q1].
20. Abeer Al-Nana, Mohammad W. Alomari, **Iqbal M. Batiha**, The modified Taylor method for approximating solutions of initial value problems, International Review on Modelling and Simulations. [Scopus: Q1].

21. Anwar Bataihah, Mutaz Shatnawi, **Iqbal M. Batiha**, Iqbal H. Jebril, Thabet Abdeljawad, Some results on fixed points in b-metric spaces through an auxiliary function, *Nonlinear Functional Analysis and Applications*. [Scopus: Q2].
22. **Iqbal M. Batiha**, Amira Abdelnebi, Iqbal H. Jebril, Rania Saadeh, Shaher Momani, A novel numerical scheme for dealing with sequential fractional linear boundary value problems, *22nd International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2024)*, Heraklion, Crete, Greece, September 11-17, 2024. [Scopus: Q4].
23. Koichi Unami, Dia Zeidan, Rania Saadeh, **Iqbal M. Batiha**, Ahmad Qazza, Osama Mohawesh, Roll waves revisited from a contemporary perspective, *22nd International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2024)*, Heraklion, Crete, Greece, September 11-17, 2024. [Scopus: Q4].
24. **Iqbal M. Batiha**, Issam Bendib, Adel Ouannas, Salah Boulaaras, Iqbal H. Jebril, Shaher Momani, The fractional-order Selkov-Schnakenberg reaction-diffusion model: stability and numerical simulations, *International Conference on Fractional Calculus and Applications (ICFCA 2024)*, Sousse, Tunisie, December 26-30, 2024. [Scopus: Q4].
25. Iqbal H. Jebril, Issam Bendib, Adel Ouannas, Salah Boulaaras, **Iqbal M. Batiha**, Shaher Momani, Global stability analysis of fractional Selkov-Schnakenberg reaction-diffusion systems, *International Conference on Fractional Calculus and Applications (ICFCA 2024)*, Sousse, Tunisie, December 26-30, 2024. [Scopus: Q4].
26. **Iqbal M. Batiha**, Bourobta Ahmed, Oussaeif Taki-Eddine, Jamal Oudetallah, Suhaila Saidat, Iqbal H. Jebril, Examining the possibility of finding solutions for singular and degenerate fractional nonlinear parabolic Dirichlet problems, *2nd Joint International Conference on Mathematics, Statistics and Engineering (J-CoMSE 2024)*, Kuala Terengganu, Malaysia, September 17-18, 2024. [Scopus: Q4].
27. **Iqbal M. Batiha**, Issam Bendib, Adel Ouannas, Iqbal H. Jebril, Jamal Oudetallah, Suhaila Saidat, Dynamics in finite-time of the fractional-order epidemic model: synchronization and simulations, *2nd Joint International Conference on Mathematics, Statistics and Engineering (J-CoMSE 2024)*, Kuala Terengganu, Malaysia, September 17-18, 2024. [Scopus: Q4].
28. Iqbal H. Jebril, Benoua Leila, Oussaeif Taki-Eddine, Jamal Oudetallah, **Iqbal M. Batiha**, Suhaila Saidat, Some new results of common fixed point theorem in non-Archimedean intuitionistic Menger spaces, *2nd Joint International Conference on Mathematics, Statistics and Engineering (J-CoMSE 2024)*, Kuala Terengganu, Malaysia, September 17-18, 2024. [Scopus: Q4].
29. **Iqbal M. Batiha**, Issam Bendib, Adel Ouannas, Jamal Oudetallah, Suhaila Saidat, Iqbal H. Jebril, Synchronization Control in Finite Time of Time Span: Applied to Degn-Harrison Reaction-Diffusion Systems, *2nd Joint International Conference on Mathematics, Statistics and Engineering (J-CoMSE 2024)*, Kuala Terengganu, Malaysia, September 17-18, 2024. [Scopus: Q4].
30. Iqbal H. Jebril, Issam Bendib, Adel Ouannas, **Iqbal M. Batiha**, Jamal Oudetallah, Suhaila Saidat, Finite-Time Synchronization of the Discrete Reaction-Diffusion FitzHugh–Nagumo Model, *2nd Joint International Conference on Mathematics, Statistics and Engineering (J-CoMSE 2024)*, Kuala Terengganu, Malaysia, September 17-18, 2024. [Scopus: Q4].

31. **Iqbal M. Batiha**, Iqbal Jebril, Shameseddin Alshorm, Modified some n-point fractional formulae with Richardson extrapolation. In: Mohamed Kharrat (eds) Modeling discrete and continuous systems governed by ordinary, partial and fractional derivatives. Springer, Berlin, Heidelberg, Dordrecht, and New York City, [Accepted]. (Chapter in the Book).

► **Published Papers**

1. **Iqbal M. Batiha**, Mohammad W Alomari, Iqbal H Jebril, Thabet Abdeljawad, Nidal Anakira, Shaher Momani, New higher-order implicit method for approximating solutions of boundary-value problems, International Journal of Neutrosophic Science, Vol. 25, No. 4, 389-398, (2025). [Scopus: Q1].
2. **Iqbal M. Batiha**, Mohammad S. Hijazi, Amel Hioual, Adel Ouannas, Mohammad Odeh, Shaher Momani, Stability analysis and numerical simulations of a discrete-time epidemic model, Partial Differential Equations in Applied Mathematics, Vol. 13, 101118, (2025). [Scopus: Q1].
3. Iqbal H. Jebril, Hakima Bouhadjera, **Iqbal M. Batiha**, Belal Batiha, Common fixed point theorems in metric domains, Advances in Fixed Point Theory, Vol. 15, 4, (2025). [Scopus: Q4].
4. Iqbal H Jebril, Amira Abdelnebi, **Iqbal M. Batiha**, Adel Ouannas, Applications of Ujlayan and Dixit fractional uniform probability distribution, Pan-American Journal of Mathematics, Vol. 4, 6, (2025). [Scopus: Q4].
5. Allaoua Boudjedour, **Iqbal M. Batiha**, Selma Boucetta, Mohamed Dalah, Khaled Zennir, Adel Ouannas, A finite difference method on uniform meshes for solving the time-space fractional advection-diffusion equation, Gulf Journal of Mathematics, Vol. 19, No. 1, 156-168, (2025). [Scopus: Q3].
6. **Iqbal M. Batiha**, Nadia Allouch, Mohammed Shqair, Iqbal H. Jebril, Shawkat Alkhazaleh, Shaher Momani, Fractional approach to two-group neutron diffusion in slab reactors, International Journal of Robotics and Control Systems, Vol. 5, No. 1, 611-624, (2025). [Scopus: Q2].
7. Mohammad W. Alomari, **Iqbal M. Batiha**, Wala'a Ahmad Alkasasbeh, Nidal Anakira, Iqbal H. Jebril, Shaher Momani, Euler-Maclaurin method for approximating solutions of initial value problems, International Journal of Robotics and Control Systems, Vol. 5, No. 1, 366-380, (2025). [Scopus: Q2].
8. **Iqbal M. Batiha**, Mohammad W. Alomari, Nidal Anakira, Saad Meqdad, Iqbal H. Jebril, Shaher Momani, Numerical advancements: a duel between Euler-Maclaurin and Runge-Kutta for initial value problem, International Journal of Neutrosophic Science, Vol. 25, No. 03, 76-91, (2025). [Scopus: Q1].
9. Shaher Momani, **Iqbal M. Batiha**, Zainouba Chebana, Taki-Eddine Oussaeif, Adel Ouannas, Sofiane Dehilis, Weak solution, blow-up and numerical study of a nonlinear reaction diffusion problem with an integral condition, Progress in Fractional Differentiation & Applications, Vol. 11, No. 1, 45-61, (2025). [Scopus: Q2].

10. Shaher Momani, **Iqbal M. Batiha**, Nouredine Djenina, Adel Ouannas, Analyzing the stability of Caputo fractional difference equations with variable orders, *Progress in Fractional Differentiation & Applications*, Vol. 11, No. 1, 139-151, (2025). [Scopus: Q2].
11. Abeer Al-Nana, **Iqbal M. Batiha**, Iqbal H. Jebril, Shawkat Alkhazaleh, Thabet Abdeljawad, Numerical solution of conformable fractional periodic boundary value problems by shifted Jacobi method, *International Journal of Mathematical, Engineering and Management Sciences*, Vol. 10, No. 1, 189-206, (2025). (IF: 1.3), [Scopus: Q1].
12. Mazin Aljazzazi, Seddiki Fakhreddine, **Iqbal M. Batiha**, Iqbal H. Jebril, Ahmed Bouchenak, Rasha I. Hajaja, Impulsive conformable evolution equations in Banach spaces with fractional semigroup, *Filomat*, Vol. 38, No. 26, 9321–9332, (2024). (IF: 0.8), [Scopus: Q3].
13. **Iqbal M. Batiha**, Osama Ogilat, Zainouba Chebana, Taki-Eddine Oussaeif, Nidal Anakira, Ala Amourah, Shaher Momani, Finite-time blow-up and solvability for a semilinear parabolic problem with nonlinear integral conditions, *Journal of Nonlinear Functional Analysis*, Vol. 2024, No. 1, 29, (2024). (IF: 1.1), [Scopus: Q1].
14. Basma Mohamed, **Iqbal M. Batiha**, Mohammad Odeh, Mohammed El-Meligy, Computing the independent domination metric dimension problem of specific graphs, *Journal of Mechanics of Continua and Mathematical Sciences*, Vol. 19, No. 12, 256-264, (2024). [Scopus: Q4].
15. Alaa Al-Wadi, Rania Saadeh, Ahmad Qazza, **Iqbal M. Batiha**, Mittag-Leffler functions and the Sawi transform: a new approach on fractional calculus, *WSEAS Transactions on Mathematics*, Vol. 23, No. 12, 827-835, (2024). [Scopus: Q2].
16. Shaher Momani, Nouredine Djenina, Adel Ouannas, **Iqbal M. Batiha**, Stability results for nonlinear fractional differential equations with incommensurate orders, *IFAC-PapersOnLine*, Vol. 58, No. 12, 286-290, (2024). [Scopus: Q3].
17. **Iqbal M. Batiha**, Amal Benguesmia, Moataz Alosaimi, Taki-Eddine Oussaeif, Nidal Anakira, Mohammad Odeh, Superlinear problem with inverse coefficient for a time-fractional parabolic equation with integral over-determination condition, *Nonlinear Dynamics and Systems Theory*, Vol. 24, No. 6, 286-290, (561–574). [Scopus: Q3].
18. **Iqbal M. Batiha**, Shameseddin Alshorm, Manal Almuzini (2024). Solving fractional-order Monkeypox model by new numerical methods. In: Burqan, A., et al. *Mathematical Analysis and Numerical Methods. IACMC 2023. Springer Proceedings in Mathematics & Statistics*, vol 466. Springer, Singapore. https://doi.org/10.1007/978-981-97-4876-1_38
19. Iqbal H. Jebril, Shameseddin Alshorm, **Iqbal M. Batiha** (2024). Numerical solution for fractional-order glioblastoma multiforme model. In: Burqan, A., et al. *Mathematical Analysis and Numerical Methods. IACMC 2023. Springer Proceedings in Mathematics & Statistics*, vol 466. Springer, Singapore. https://doi.org/10.1007/978-981-97-4876-1_42
20. Shameseddin Alshorm, **Iqbal M. Batiha** (2024). Stochastic population growth model using three-point fractional formula. In: Burqan, A., et al. *Mathematical Analysis and Numerical Methods. IACMC 2023. Springer Proceedings in Mathematics & Statistics*, vol 466. Springer, Singapore. https://doi.org/10.1007/978-981-97-4876-1_31
21. **Iqbal M. Batiha**, Zainouba Chebana, Taki-Eddine Oussaeif, Iqbal H. Jebril, Sofiane Dehilis, Shawkat Alkhazaleh, Investigating weak solutions for a singular and degenerate semilinear

- parabolic equation with a nonlinear integral condition, *Journal of Applied Mathematics and Informatics*, Vol. 42, No. 6, 1321-1340, (2024). [Scopus: Q3].
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► Published Books

1. Adel Ouannas, **Iqbal M. Batiha**, Viet-Thanh Pham, Fractional Discrete Chaos: Theories, Methods and Applications, World Scientific, Singapore, 2023.
2. **Iqbal M. Batiha**, Square and Cube Roots (In Arabic), Al-Yazori House for Publishing and Distribution, 2013.

Conferences and Workshops' Conferences

1. The 22th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2021), September 11-17 (2024), Heraklion, Crete, Greece.
2. The 8th International Arab Conference on Mathematics and Computations (IACMC 2023), 10-12 May (2023), Zarqa University, Jordan.

3. The International Conference on Fractional Differentiation and its Applications (ICFDA 2022), 14-16 March (2023), Ajman University, Ajman, UAE.
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5. The 19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2021), September 20-26 (2021), Rhodes, Greece.
6. The 10th International Conference on Information Technology (ICIT 2021), July 14-15, (2021), AlZaytoonah University, Amman, Jordan.
7. The First Online Conference on Modern Fractional Calculus and Its Applications. December 4-6 (2020), Biruni University, Istanbul, Turkey.
8. International Conference on Fractional Differentiation and its Applications (ICFDA'18). July 16-18 (2018), Amman, Jordan.

Conferences' Activities

1. Track Chair: Mathematical Modeling and Analysis, The 12th International Conference on Information Technology (ICIT 2025), 27-30 May 2025, AlZaytoonah University, Amman, Jordan.
2. Scientific Committee, The 9th International Arab Conference on Mathematics and Computations (IACMC 2025), 7-9 May 2025, Zarqa University, Zarqa, Jordan.
3. Technical Program Committee (TPC), 2024 IFAC International Conference on Fractional Differentiation and its Applications (ICFDA 2024, Bordeaux, France, 9-12 July 2024.
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6. Session Chair, Mathematical Modeling and Analysis, The International Conference on Fractional Differentiation and its Applications (ICFDA 2022), 14-16 March (2023), Ajman University, Ajman, UAE.
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8. Technical Program Committee (TPC), The 11th International Conference on Information Technology (ICIT 2023), 14-15 July 2023, AlZaytoonah University, Amman, Jordan.
9. Technical Program Committee (TPC), The International Conference on Fractional Differentiation and its Applications (ICFDA 2022), 14-16 March 2023, Ajman University, Ajman, UAE.
10. International Scientific Committee, The International Conference on Fractional Differentiation and its Applications (ICFDA 2022), 14-16 March 2023, Ajman University, Ajman, UAE.

11. A Peer Reviewer, The Fifth International Conference on Physics, Mathematics and Statistics (ICPMS2022), 21-23 May 2022, Sanya, China.
12. National Scientific Committee, The 7th International Arab Conference on Mathematics and Computations (IACMC 2022), 11-13 May 2022, Zarqa University, Zarqa, Jordan.
13. Technical Program Committee (TPC) member, The 2021 Global Congress on Electrical Engineering (GC-ElecEng 2021), 10-11 December 2021 (Remotely), Valencia, Spain.
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15. Technical Program Committee (TPC) member, International Conference on Electrical, Computer and Energy Technologies (ICECET'21), 09-10 December 2021, Cape Town, South Africa.
16. Member of Scientific Committee, IEEE International Conference on Recent Advances in Mathematics and Informatics (ICRAMI'2021), 21-22 Sep. 2021, University of Tebessa, Algeria.
17. Session Chair, Track Mathematical Modeling and Analysis (MM&A), The 10th International Conference on Information Technology (ICIT 2021), 14-15 July 2021, AlZaytoonah University, Amman, Jordan.
18. Technical Program Committee (TPC), The 10th International Conference on Information Technology (ICIT 2021), 14-15 July 2021, AlZaytoonah University, Amman, Jordan.

Editorial and Review Activities

► Editorial Activities

- ◇ **Member in Mathematical Reviews Database:** American Mathematical Society (AMS).
- ◇ **Lead Guest Editor:** A Special Issue of International Journal of Science, Technology and Society (Recent Advances in Fractional-order Discrete/Continuous Systems), 2022, ISSN: 2330-7420.
- ◇ **Editorial Board:** International Journal of Emerging Multidisciplinaries Mathematics (IJEMDM), ISSN: 2790-3257, 2022.
- ◇ **Editorial Board:** International Journal of Open Problems in Computer Science and Mathematics (IJOPCM), ISSN: 1998-6262.

► Review Activities

- ◇ Neural Networks, [Impact Factor: 9.657], [Scopus: Q1].
- ◇ Engineering Applications of Artificial Intelligence, [Impact Factor: 7.5], [Scopus: Q1].
- ◇ International Communications in Heat and Mass Transfer, [Impact Factor: 6.4], [Scopus: Q1].
- ◇ Ain Shams Engineering Journal, [Impact Factor: 6.0], [Scopus: Q1].
- ◇ Results in Physics, [Impact Factor: 5.3], [Scopus: Q1].

- ◇ Chaos, Solitons & Fractals, [Impact Factor: 5.3], [Scopus: Q1].
- ◇ Nonlinear Dynamics, [Impact Factor: 5.022], [Scopus: Q1].
- ◇ Scientific Reports, [Impact Factor: 4.996], [Scopus: Q1].
- ◇ Journal of King Saud University - Science, [Impact Factor: 3.8], [Scopus: Q1].
- ◇ Communications in Nonlinear Science and Numerical Simulation, [Impact Factor: 3.4], [Scopus: Q1].
- ◇ Fractional Calculus and Applied Analysis, [Impact Factor: 3.0], [Scopus: Q1].
- ◇ Applied Numerical Mathematics, [Impact Factor: 2.994], [Scopus: Q1].
- ◇ Asian Journal of Control, [Impact Factor: 2.7], [Scopus: Q1].
- ◇ Symmetry, [Impact Factor: 2.7], [Scopus: Q1].
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- ◇ Optimal Control Applications and Methods, [Impact Factor: 2], [Scopus: Q1].
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- ◇ Boundary Value Problems, [Impact Factor: 1.1], [Scopus: Q1].
- ◇ Mathematical Problems in Engineering, [Impact Factor: 1.009], [Scopus: Q1].
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- ◇ Neural Processing Letters, [Impact Factor: 3.1], [Scopus: Q2].
- ◇ Optical and Quantum Electronics, [Impact Factor: 2.794], [Scopus: Q2].
- ◇ International Journal of Dynamics and Control, [Impact Factor: 2.2], [Scopus: Q2].
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- ◇ Mathematical Biosciences and Engineering, [Impact Factor: 2.080], [Scopus: Q2].
- ◇ International Journal of Biomathematics, [Impact Factor: 2.053], [Scopus: Q2].
- ◇ Mathematical Modelling and Analysis, [Impact Factor: 1.8], [Scopus: Q2].
- ◇ Mathematics and Computers in Simulation, [Impact Factor: 1.620], [Scopus: Q2].
- ◇ Journal of Pseudo-Differential Operators, [Impact Factor: 1.1], [Scopus: Q2].
- ◇ Qualitative Theory of Dynamical Systems, [Impact Factor: 0.931], [Scopus: Q2].
- ◇ International Journal of Applied and Computational Mathematics, [Scopus: Q2].

- ◇ Applied Mathematics and Information Sciences, [Scopus: Q2].
- ◇ Journal of Mathematics and Computer Science, [Scopus: Q2].
- ◇ Journal of Engineering and Technological Sciences, [Scopus: Q2].
- ◇ Int. Journal of Mathematical, Engineering and Management Sciences, [Scopus: Q2].
- ◇ Advances in Mathematical Physics, [Impact Factor: 1.128], [Scopus: Q3].
- ◇ Journal of Mathematics, [Impact Factor: 1.555], [Scopus: Q3].
- ◇ Fluid Dynamics & Materials Processing, [Scopus: Q3].
- ◇ Contemporary Mathematics, [Scopus: Q3].
- ◇ International Journal of Advances in Soft Computing and Its Applications, [Scopus: Q3].
- ◇ Jordan Journal of Mathematics and Statistics, [Scopus: Q3].
- ◇ Nonlinear functional analysis and applications, [Scopus: Q3].
- ◇ Iraqi Journal of Science, [Scopus: Q3].
- ◇ Journal of Applied Mathematics and Informatics, [Scopus: Q4].
- ◇ TWMS Journal of Applied and Engineering Mathematics, [Scopus: Q4].

Educational and Literature Activities

- Poetical Work (Kalemon Alaa Shafati (In Arabic)). Omayya Book Store, 2011.
- Poem entitled “Tabassam”, Teacher Message, Vol. 50, 2012.
- Poem entitled “Kon A’aleman”, Busra Journal, Vol. 4, 2006.
- The 2nd-Irbid Poetry Festival, Irbid Reads Initiative, Irbid Culture Directorate, 2020.
- Participation in Broadcasting Program “Irbid’s Poets”, Radio Greater Irbid, 2010.
- The Author of Islamic Song words “Elayke Kalbi”, Alsabeel Choir, 2008.

Computer Skills

- ▶ **Programming:** MATLAB & LATEX.
- ▶ **Software:** Microsoft Office (Excel, Power Point, Word) & Moodle (E-Learning).

Training Courses

- The Foundations of Integrating E-Learning, Irbid National University, Irbid, Jordan, 2022.
- Using Moodle in E-Learning, Irbid National University, Irbid, Jordan, 2021.

- Microsoft Office 365, Irbid National University, Irbid, Jordan, 2021.
- Edraak Certificate (Reflection Teaching), Ministry of Education, Amman, Jordan, 2020.
- Certified Publons Academy Peer Reviewer, Publons Academy, 2020.
- TOEFL ITB (Total Score 503), AMIDEAST, Amman, Jordan, 2011.
- Intel Teach–Advanced Online, Ministry of Education, Amman, Jordan, 2010.
- English Language, Baynonah for Technology and Information, Irbid, Jordan, 2006.
- ICDL (International Computer Driving License), Ministry of Education, Amman, Jordan, 2005.
- Oracle, Rana Future Center, Irbid, Jordan, 2003.

References

- ◇ Prof. Shaher Momani, Department of Mathematics and Sciences, College of Humanities and Sciences, Ajman University, Ajman, UAE, (S.Momani@ju.edu.jo).
- ◇ Dr. Reyad El-Khazali, ECCE Department, Khalifa University, Abu-Dhabi 127788, UAE, (reyad.elkhazali@ku.ac.ae).
- ◇ Dr. Ramzi B. Albadarneh, Department of Mathematics, Faculty of Science, The Hashemite University, Zarqa 13133, Jordan, (rbadarneh@hu.edu.jo).