Curriculum Vitae

Top 2% SCIENTISTS of WORLD 2021 (STANFORD UNIVERSITY & SCOPUS)

Personal Information

- Name: **Emad Ahmad A. Az-Zo'bi**
- Date of Birth: May/07/1980
- Nationality: **Jordan**
- Material Status: Married
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Qualifications

- Ph.D of Mathematics & Statistics 2011 - Applied Mathematics/Differential Equations (DEs) - University of Jordan – Department of Mathematics & Statistics - Thesis Title: Theory and Computations for Systems of Conservation Laws of Mixed Hyperbolic-Elliptic Type - Average: 3.4, Rating: very good.
- MSc of Mathematics & Statistics 2005 – Approximation Theory - Al al-Bayt University – Faculty of Science – Department of Mathematics - Thesis Tile: Some Exact Inequalities of Hardy-Littlewood-Polya Type - Average: 90.63, Rating: Excellent
- BSc of Mathematics & Statistics 2002 – Al al-Bayt University – Faculty of Science – Department of Mathematics - Average: 76.2, Rating: Very Good

Experience

- Mutah University (Jordan) 2020 - Now – Prof. of Applied Mathematics (PDEs).
- Mutah University (Jordan) 2015 - 2020 – Associate Prof. of Applied Mathematics.
- Mutah University (Jordan) 2011 - 2015 – Assistant Prof. of Applied Mathematics.
- Mutah University (Jordan) 2011-2024 – Supervisor and member of discussion committee for many MSc and PhD students.
- King Saud University (KSA) 2010-2011 – Instructor.
- Al-Balqa' Applied University (Jordan) 2009-2010 - Part-time Lecturer.
- University of Jordan (Jordan) 2006-2010 – Part-time Lecturer.
- Al-Balqa' Applied University (Jordan) 2005-2006 - Part-time Lecturer.
- Ministry of Education (Jordan) – 2002-2007 – Teacher of Mathematics

Courses Taught

- PDEs and Theory of ODEs (Graduate & Undergraduate).
- Numerical Analysis (Graduate & Undergraduate).
- Computational Methods.
- Principles of Applied Mathematics.
- Calculus.
- Statistics & Probability; Biostatistics.

- Linear Algebra.
- Euclidean Geometry.
- Number Theory.

Research Interests

- Differential Equations.
- Numerical Methods; Stability & Convergence.
- Modelling; Computational Mathematics.
- Soliton Theory.

Publications

1. *On the exploration of solitary wave structures to the nonlinear Landau-Ginsberg-Higgs equation under improved F-expansion method. Optical and Quantum Electronics. (2024). Accepted.*
2. *Conservation laws, exact solutions, and stability analysis for time-fractional extended quantum Zakharov-Kuznetsov equation. Optical and Quantum Electronics. (2024). Accepted.*
3. *Various Closed–Form Solitonic Wave Solutions of Fractional (4+1)–Fokas Equation in Fluids and Plasma Physics. Iraqi Journal for Computer Science and Mathematics. (2024). Accepted.*
4. *Theoretical examination of solitary waves for Sharma–Tasso–Olver Burger equation by stability and sensitivity analysis. Z. Angew. Math. Phys. 75, 96 (2024). https://doi.org/10.1007/s00033-024-02225-8*
5. *Unraveling Metachronal Wave Effects on Heat and Mass Transfer in Non-Newtonian Fluid. Case Studies in Thermal Engineering, (2024). 58 (2024) 104379.* https://doi.org/10.1016/j.csite.2024.104379
6. *Exact solutions and modulation instability analysis of a generalized Kundu-Eckhaus equation with extra-dispersion in optical fibers. Physica Scripta, 99, 055222 (2024).* https://doi.org/10.1088/1402-4896/ad3859
7. *NEARLY μ-LINDELOFNESS VIA HEREDITARY CLASS. Tatra Mountains Mathematical Publications. (2024).* https://doi.org/10.2478/tmmp-2024-0001
8. *Results Validation by Using Finite Volume Method for the Jeffery Hamel Flow with Magnetohydrodynamics and Hybrid Nanofluids. Modern Physics Letters B. (2024).* https://doi.org/10.1142/S0217984924502087
9. *Bioconvective flow analysis of non-Newtonian fluid over a porous curved stretching surface. Journal of Nanomaterials, Nanoengineering and Nanosystems. (2024).* https://doi.org/10.1177/23977914241231891
10. *Sensitivity and wave propagation analysis of the time-fractional (3+1)-dimensional shallow water waves model. Z. Angew. Math. Phys. 75, 78 (2024).* https://doi.org/10.1007/s00033-024-02216-9
11. Chemically reactive aspects of stagnation-point boundary layer flow of second grade nanofluid over an exponentially stretching surface. Numerical Heat Transfer, Part B: Fundamentals, 1-17. (2024). https://doi.org/10.1080/10407790.2024.2318456.
12. Theoretical examination and simulations of two nonlinear evolution equations along with stability analysis. Results in Physics 58 (2024) 107504. https://doi.org/10.1016/j.rinp.2024.107504

13. Computational fluid dynamics analysis on endoscopy of main left coronary artery: An application of applied mathematics. Heliyon 10(5): e26628. (2024). https://doi.org/10.1016/j.heliyon.2024.e26628
14. The study of coherent structures of combined KdV-mKdV equation through integration schemes and stability analysis. Opt Quant Electron 56, 723 (2024). https://doi.org/10.1007/s11082-024-06365-z
15. Comparative study of some non-Newtonian nanofluid models across stretching sheet: a case of linear radiation and activation energy effects. Scientific Reports 14(1), 4950 (2024). https://doi.org/10.1038/s41598-024-54398-x
16. On the feed-forward neural network for analyzing pantograph equations. AIP Advances, 14(2): 025042. (2024). https://doi.org/10.1063/5.0195270
17. Analysis of mixed soliton solutions for the nonlinear Fisher and diffusion dynamical equations under explicit approach. Opt Quant Electron 56, 647 (2024). https://doi.org/10.1007/s11082-024-06316-8
18. Dynamics of generalized time-fractional viscous-capillarity compressible fluid model. Opt Quant Electron 56, 629 (2024). https://doi.org/10.1007/s11082-023-06233-2
19. Dynamical features and traveling wave structures of the perturbed Fokas-Lenells Equation in nonlinear optical fibers. Physica Scripta, 99(3), 03520, (2024). https://dx.doi.org/10.1088/1402-4896/ad1fc7
20. Dynamical behavior of fractional nonlinear dispersive equation in Murnaghan's rod materials. Results in Physics 56, 2024, 107207. https://doi.org/10.1016/j.rinp.2023.107207
21. Novel topological, non-topological, and more solitons of the generalized cubic p-system describing isothermal flux. Opt Quant Electron 56, 84 (2024). https://doi.org/10.1007/s11082-023-05642-7
22. Insight into the dynamics of heat and mass transfer in nanofluid flow with linear/nonlinear mixed convection, thermal radiation, and activation energy effects over the rotating disk. Scientific Reports, 13(1) (2023). https://doi.org/10.1038/s41598-023-49988-0
23. Multiscale tribology analysis of MHD hybrid nanofluid flow over a curved stretching surface. Nanoscale Advances. (2023). https://doi.org/10.1039/D3NA00688C
24. Dynamics study of stability analysis, sensitivity insights and precise soliton solutions of the nonlinear (STO)-Burger equation. Optical and Quantum Electronics (2023) 55:1274. https://doi.org/10.1007/s11082-023-05588-w
25. A Solution of the Complex Fuzzy Heat Equation in Terms of Complex Dirichlet Conditions Using a Modified Crank–Nicolson Method, Advances in Mathematical Physics, vol. 2023, Article ID 6505227, 8 pages, 2023. https://doi.org/10.1155/2023/6505227
26. New insights into the dynamics of heat and mass transfer in a hybrid (Ag-TiO2) nanofluid using Modified Buongiorno model: A case of a rotating disk. Results in Physics (53), 106906 (2023). https://doi.org/10.1016/j.rinp.2023.106906.
27. Entropy optimized Ferro-copper/blood based nanofluid flow between double stretchable disks: Application to brain dynamic. Alexandria Engineering Journal (79), 296-307 (2023). https://doi.org/10.1016/j.aej.2023.08.017
28. The Sensitive Visualization and Generalized Fractional Solitons' Construction for Regularized Long-Wave Governing Model. *Fractal and Fractional*. 2023; 7(2):136. https://doi.org/10.3390/fractalfract7020136
29. Weakly and Nearly Countably Compactness in Generalized Topology. *Axioms*. 2023; 12(2):122. https://doi.org/10.3390/axioms12020122

30. A Stochastic Framework for Solving the Prey-Predator Delay Differential Model of Holling Type-III. Computers, Materials & Continua, 74(3) (2023), 5915–5930. https://doi.org/10.32604/cmc.2023.034362
31. New soliton solutions and modulation instability analysis of fractional Huxley equation. Results in Physics (44), (2023) 106163. https://doi.org/10.1016/j.rinp.2022.106163.
32. Novel liquid crystals model and its nematicons. Opt Quant Electron 54, 861 (2022). https://doi.org/10.1007/s11082-022-04279-2
33. New generalised cubic–quintic–septic NLSE and its optical solitons. Pramana - J Phys 96, 184 (2022). https://doi.org/10.1007/s12043-022-02427-7.
34. Dynamics of a new class of solitary wave structures in telecommunications systems via a (2+1)-dimensional nonlinear transmission line. Modern Physics Letters B, 36(19) (2021). https://doi.org/10.1142/s0217984921505965
35. Novel soliton solutions of four sets of generalized (2+1)-dimensional Boussinesq–Kadomtsev–Petviashvili-like equations. Modern Physics Letters B, 36(01) (2021). https://doi.org/10.1142/s0217984921505308
36. New Soliton Solutions for the Higher-Dimensional Non-Local Ito Equation. Nonlinear Engineering, 10(1) (2021), 374–384. https://doi.org/10.1515/nleng-2021-0029
37. Novel solitons through optical fibers for perturbed cubic-quintic-septic nonlinear Schrodinger-type equation. International Journal of Nonlinear Analysis and Applications (IJNAA), 13(1), 1493-1506 (2022). http://dx.doi.org/10.22075/ijnaa.2022.5766
38. Semi-analytic treatment of mixed hyperbolic–elliptic Cauchy problem modeling three-phase flow in porous media. International Journal of Modern Physics B, 35(29) (2021). https://doi.org/10.1142/s0217979221502933
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40. Construction of optical solitons for time-fractional generalized model in nonlinear media. Modern Physics Letters B. 2021, 2150409. https://doi.org/10.1142/s0217984921504091
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56. Exact Series Solutions of One-Dimensional Finite Amplitude Sound Waves, Sci. Int. (Lahore), 30 (6) (2018), 817-820.
57. Modified Adomian-Rach Decomposition Method for Solving Nonlinear Time-Dependent IVPs, Applied Mathematical Sciences, 11 (8) (2017) 387 - 395. https://doi.org/10.12988/ams.2017.714
58. Numerical Simulation of One-Dimensional Shallow Water Equations, International Journal of Sciences: Basic and Applied Research 23 (2) (2015) 196-203.
59. Analytic-Numeric Simulation of Shock Wave Equation Using Reduced Differential Transform Method, Science International (Lahore) 27 (3) (2015) 1749-1753.
60. Numeric-analytic solutions of mixed-type systems of balance laws, Applied Mathematics and Computation 265 (2015) 133–143. https://doi.org/10.1016/j.amc.2015.04.119
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62. On the Convergence of Variational Iteration Method for Solving Systems of Conservation Laws, Trends in Applied Sciences Research 10 (3) (2015) 157-165. https://scialert.net/abstract/?doi=tasr.2015.157.165
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65. The Fundamental Group of Intuitionistic Fuzzy Topological Spaces, Applied Mathematical Sciences, 8 (157) (2014) 7829-7843. http://dx.doi.org/10.12988/ams.2014.49719.

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72. A New Generalization of Bojanov Varma's Inequality, Int. Journal of Math. Analysis, 3 (14) (2009) 667 – 671. https://www.scopus.com/inward/record.uri?eid=2-s2.0-70349384609&partnerID=40&md5=5552720c06bb8f01e7083c4ca8955ce1

Submitted Papers

1. Dejdumrong Collocation Approach and Operational Matrix for a Class of Second-Order Delay IVPs: Error analysis and Applications
2. Interaction of Gardner Dust ion-acoustic Multiple Solitons in a Dusty Plasma: Insights from Cassini Observations.
3. Fuzzy Numerical Analyzing in the One-Step Implicit Scheme to Examine Uncertainty Across Diverse Real-life Models.
4. Stability analysis and solitons solutions of the (1+1)-dimensional nonlinear chiral Schrödinger equation in modern physics.
5. Almost exact fitted operator finite difference methods for solving linear quadratic optimal control problems.
6. Certain Programs of Differential Subordination to Univalent Functions Determined by the Integral Operator.
7. Optimized Higher Fuzzy Derivative Block Method for Solving Third-Order Initial-Boundary Fuzzy Differential Equations.
8. Novel Direct Numerical Simulation of Fuzzy Differential Equations via Generalized Higher Derivative Step-Length Block Methods.

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Webpages

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Metrics: Publications in Scopus 53, Total Times Cited 568, H-index 18

- ***WEB of SCIENCE:*** **https://www.webofscience.com/wos/author/record/ABA-6658-2020**

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Metrics: Publications in GS 83, Total Times Cited 930, H-index 20

- ***Research Gate: https://www.researchgate.net/profile/Emad-Az-Zobi***

Metrics: Publications in RG, Total Times Cited 634, H-index 15

- ***ORCID:*** **https://orcid.org/0000-0003-4914-0461**

Activities

- *Mathematica & Matlab*.
- Latex (Scientific WorkPlace).
- TOT (Trainer of Trainers).
- Math Zone Training Workshop, McGraw Hill Education.
- Windows (7/8/10), Microsoft Office 365 (Word, Excel, Access, Power Point), Internet (licensed from the International Computer Driven License - ICDL). Microsoft Teams. Moodle.

Languages

- Arabic mother tongue,
- English; Fluent.

References

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- Prof. Dr. Abdul-Majid Wazwaz, Saint Xavier University, USA. Email: wazwaz@sxu.edu.Tel: +1 (773) 779-9061
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