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Personal Data:

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Educational background:

Ph.D. Applied Mathematics, Weizmann Institute of Science, 2007.
M.Sc. Pure Mathematics. Yarmouk University, 1997.
B.Sc. Mathematics, Jordan University, 1993.
Diploma: Methods of teaching science and mathematics, Bethlehem University, 2000.

Research interest

Mathematics

Fractional and discrete fractional Calculus
Multiscale Methods in Statics and Dynamics,

Statistics

Monte-Carlo simulation of N-body systems.
Statistics in Data Science, Business and Health Sciences

List of Publications

Papers

1. Iyad Suwan, Ammar Qarariyah, Thabet Abdeljawad, Muayad M.A Abusaa, Monotonicity Analysis of Generalized Discrete Fractional Proportional H-Differences with Applications, Journal of Nonlinear Modeling and Analysis, accepted, DOI:10.2139/ssrn.4834449, January 2024

2. Asmat Batool, Imran Talib, Rym Bourguiba, Iyad Suwan, Thebet Abdeljawad.Muhammad Bilal Riaz**,** A new generalized approach to study the existence of solutions of nonlinear fractional boundary value problems**,** International Journal of Nonlinear Sciences and Numerical Simulation, DOI: **10.1515/ijnsns-2021-0338 ,** published on line on July 4, 2022

3. Iyad Suwan, Mohammed S. Abdo, Thabet Abdeljawad, Mohammed M. Matar, Abdellatif Boutiara and Mohammed A. Almalahi, Existence theorems for Psi-fractional hybrid systems with periodic boundary conditions, AIMS Mathematics, 7(1): 171–186 (2021).

4. Anupam Das, Iyad Suwan, Bhuban Chandra Deuri and Thabet Abdeljawad, On solution of generalized proportional fractional integral via a new fixed point theorem, Advances in Difference Equations , (2021) 2021:427

5. Gauhar Rahman, Iyad Suwan, Kottakkaran Sooppy Nisar, Thabet Abdeljawad, Muhammad Samraiz, and Asad Ali, A basic study of a fractional integral operator with extended Mittag-Leffler kernel, AIMS Mathematics, 6, 11, (2021).

6. Amjad Ali, Iyad Suwan, Thabet Abdeljawad, and Abdullah, Numerical simulation of time partial fractional diffusion model by Laplace transform, AIMS Mathematics, 7(2): 2878–2890 (2021).

7. Thabet Abdeljawwad, Iyad Suwan, Fahd Jarad, Ammar Qarariyah, More Properties of Fractional Proportional Differences, Journal of Mathematical Analysis and Modeling, 1,2, (2021).

8. Iyad Suwan , Shahd Owies, Muayad Abusaa, and Thabet Abdeljawad, Monotonicity Analysis of Fractional Proportional Differences, Discrete Dynamics in Nature and Society, Volume 2020, Article 4867927, 11 pages https: //doi.org /10.1155/2020/4867927 .

9. Iyad Suwan, Multilevel Evaluation of the General Dirichlet Series, Advances in the Theory of Non Linear Analysis and its applications, 4, 4, (2020).

10. Iyad Suwan , Shahd Owies and Thabet Abdeljawad, Fractional *h*-differences with exponential kernels and their monotonicity properties, Mathematical Methods in the Applied Sciences (MMAS), 44, 10, (2020).

11. Iyad Suwan , Thabet Abdeljawad , Fahd Jarad, Monotonicity analysis for nabla h-discrete fractional Atangana–Baleanu differences, Chaos, Solitons and Fractals, 117 (2018) 50–59.

12. Iyad Suwan , Shahd Owies and Thabet Abdeljawad, Monotonicity results for h-discrete fractional operators and application, Advances in Difference Equations, 2018:2017 (2018)

13. Iyad Suwan, Hayel Hussein, Abdel-Rahman abu Lebdeh, The optimum maximum allowed displacement in Monte-Carlo simulations of N-body systems with Lennard-Jones Potential, Journal of the Arab American University, Volume 4, Issue 1, PP: 18-32 (2018).

14. Iyad Suwan , Hayel Hussein, Anan Hussein , Methqal Daragmeh, The Optimum Cut-off Radius in Monte Carlo Simulation of Yukawa Potential point particles**,** Journal of Physics: Conf. Series 869 (2017) 012054.

15. Iyad Suwan , Hayel Hussein, Anan Hussein, Ruba Al-Saleh, The Optimum Maximum Allowed Displacement in Monte Carlo Simulation of One-Component Plasma, AAUJ Journal, Volume 2, Issue 2, (2016)

16. Abdehalim Ziqan, Sawsan Armiti, Iyad Suwan, Solving Three-Dimensional Volterra Integral Equation by the Reduced Differential Transform Method,
International Journal of Applied Mathematical Research, 2016, 5(2),pp 103-106

17. Nizar H. AbuGhannam , Iyad Suwan , Efficient Developments to Heuristic Approach of the General form of the Differential Transformation Algorithms. International Journal on Numerical and Analytical Methods in Engineering (IRENA) , Volume 3, Issue 1, PP 1-6 (2015).

18. Mahmoud Almanassra, Iyad Suwan, The Explicit Solution to an Infinite Linear Differential Equation System with constant coefficients, Mathematica Aerena, 2, 4, 827-837 (2014).

19. Iyad Suwan, Anan Hussein, Abdelhalim Ziqan, Mahmoud Almanassra, **A** General Technique for Converting $\boldsymbol{n} \times \boldsymbol{n}$ Systems of Linear Ordinary Differential Equations with Constant Coefficients to a Single High Order Equation, Nonlinear Analysis and Differential Equations, 2, 4, (2014). PP 145-154.

20. Nizar H. AbuGhannam , Iyad Suwan, Hybrid Numerical-Analytical Approach for Linear and Nonlinear Elliptic Partial Differential Equations Based on the Two-Dimensional Differential Transformation Method, International Journal on Numerical and Analytical Methods in Engineering, 1, 5, (2013).

21. Nizar H. AbuGhannam , Iyad Suwan, Semi-Numerical Analytical Solution to Linear and Nonlinear Heat Equations via the Reduced Differential Transformation Method, International Journal on Heat and Mass Transfer, 1, 4
(2013).

22. Iyad Suwan, Abdelhalim Zaiqan, A General Technique for Solving 2x2 and 3x3 Systems of High Order Linear Ordinary Differential Equations with Constant Coefficients, Global Journal of Pure and Applied Mathematics, 9, 5 (2013), PP. 519-527.

23. I. Suwan, A. Brandt, V. Ilyin, Multilevel Evaluation of Coulomb Lattice Sums of Charge Systems. Journal of Mathematics and Statistics, 8, 3,(2012) 361-372.

24. I. Suwan, R. Gerber, VSCF in internal Coordinates and the Calculations of Anharmonic Torsional Mode Transitions, Chemical Physics, 373, 3, (2010) 267-273 .

25. A. Brandt, V. Ilyin, N. Makadonska, I. Suwan, Multilevel Summation and Monte Carlo Simulation, Journal of Molecular Liquids, 127 (2006) 37-39.

26. Ibraheem Slaibi, Iyad Suwan, The Relationship Between the Creative Thinking and Achievement in Mathematics in Palestinian Universities, a Comparison Study Between Al-Quds University and the Arab American University. Ein Shams Journal of Education, Issue 38, volume 8.

27. Iyad Suwan, Analytical Solution to an Attic, Basement, and Insulated Main Floor Home Heating Systems, Advanced studies in Theoretical Physics, 8, 10, 463 - 469.

28. Iyad Suwan, Methqal Daraghmeh**,** Abdelhalim Zaiqan, Analytical Solution of the Frenet-Serret Systems of Circular Motion Bodies, Applied Mathematical Science, 7, 143, 7143-7150.

Conferences

1. Iyad Suwan, Shahd Owies, Thabet Abdeljawad, Monotonicity results of nabla h-fractional differences with discrete exponential kernels, The international Conference on Fractional Differentiation and its Applications (ICFDA), 16-18 July 2018, Amman, Jordan.

2. I. Suwan , H. Hussein , A. Hussein and M. Daragmeh, The optimum cut-off radius in Monte Carlo simulation of Yukawa potential point particles, Frontiers in Theoretical and Applied Physics/UAE 2017 (FTAPS 2017)

3. Hayel Al Shraydeh, Iyad Suwan and Abdelrahman Abu Labdeh. The optimum maximum allowed displacement in Monte Carlo simulation of the Lennard-Jones potential point particles, PCMTMP-V, 2016.

4. Hind Sweis, Abdelhalim Ziqan, and Iyad Suwan. Local fractional Fourier series method for solving local fractional Fredholm integral equation, PCMTMP-V, 2016.

5. Sawsan Armiti, Abdelhalim Ziqan and Iyad Suwan, Three-dimensional Volterra integral equation via the reduced differential transform method, PCMTMP-V, 2016

6. Iyad Suwan, *Hayel Hussein*, Anan Hussein and Methqal Daraghmeh. The optimum cut-off radius of Yukawa potential point particles. PCMTMP-V, 2016**.**

7. I. Suwan, Multilevel Evaluation of Riemann Zeta Function, Poster in the Summer School on Transport, Fluids and Mixing, Leveco Term, Trento, Italy, July 20-24. (2015)

8. N. Hafiz, I. Suwan, A Semi-Numerical Analytical Solution of Partial Differential Equations Using Reduced Differential Transformation

Method, The Third Palestinian Conference on Modern Trends in Mathematics and Physics, 16-18 July 2012, Palestinian Polytechnic University-Hebron

9. N. Hafiz, I. Suwan, Trigonometric Functions for School Students using Information and Communication Technology **(**ICT**),** Best Practices in Teaching Mathematics (Conference), The Arab American University, October 9-10, 2012.

10. E. Dabeet, I. Suwan, B. Rajabi, A Study on Using ICT in teaching Mathematics in East Jerusalem schools, Best Practices in Teaching Mathematics (Conference), The Arab American University, October 9-10, 2012.

11. I. Suwan, A. Brandt, V. Ilyin, Multilevel Evaluation of Coulomb Lattice Sums of Charge Systems, Proceedings of the CMS'2011 conference of Mathematical sciences. April 2011, Alzarqa University, Jordan.

12. I. Suwan, B. Gerber, VSCF in internal Coordinates and the Calculations of Anharmonic Torsional Mode Transitions. Conference ACU IV Berlin. 8-10 October 2009 Berlin.

13. I. Suwan, B. Gerber, VSCF in internal Coordinates and the Calculations of Anharmonic Torsional Mode Transitions. Symposium on Interfaces, Fritz Haber Center of Molecular Dynamics. 25-26 May 2009 Jerusalem.

14. A. Brandt, V. Ilyin, I. Suwan, Efficient Multilevel Algorithm for Simulating N-Body Systems. Proceedings of the 2^{nd} Intenational Conference on Computer and Information Technology. Hebron, September 1-3, 2007. PICCIT 07.

15. A. Brandt, V. Ilyin, I. Suwan, Multilevel Approach in simulations of Many-Body Systems with Inverse Power Interactions. The 3-rd International Conference and Strategic Workshop Nanoscale Liquid Systems. Kiev, May 27-31, 2005. PLM MP 2005.

Master Theses Supervision

1. Monotonicity Analysis of Fractional Proportional h differences, Eman Saadi, 2022.

2. Analysis and Simulation of Coupled Plasmonic Systems, Taqwa Ateeq, 2019.

3. Monotonicity Analysis of Fractional Proportional Differences, Shahd Oweis, 2019.

4. Multi Item Inventory Model with Shortage Limitations, Amani Muhanna, 2018.

5. Numerical Solution of General Higher dimensional Non Linear Fredhom-Voltera Integral Equations using Chebyshev approximation, Mohammad Abu Mualla, 2018.

6. Fast and Accurate Methods for Calculating Riemann Zeta Function, Esraa Abu Sharbe, 2017.

7. Multigrid Method for Solving PDEs Using Different Orders of Interpolation and Restriction Operators, Anwar Al-Khader, 2017.

8. The Explicit solution to the Countable Systems of Linear Ordinary Differential Equations with Tridiagonal Constant Coefficients Matrix, Haneen Zaghloul, 2017.

9. Stability Properties of Optically Injected Sigle-Mode Dash Lasers, Waad Eghbariyeh, 2016.

10. Square and Non-Square Fully Fuzzy Linear Systems with Trapezoidal and Hexagonal Fuzzy Numbers having Positive Solution, Aseel Qrout, 2016.

11. Local Fractional Fourier Series Method for Solving Local Fractional Fredholm Integral Equation, Hind Sweis, 2016.

12. Semi Analytic Solutions of Volterra Integral Equations by DTM and RDTM, Sawsan Armiti, 2015.

13. Lennard-Jones Molecules Using the Monte Carlo Simulations with Optimum Maximum Allowed Displacement, Hayel Al Shraydeh, 2015.

14. A Semi-Numerical Analytical Solution of Ordinary and Partial Differential Equations by Differential Transformation Method, Nizar Abu Ghannam, 2013.

Scientific Activities:

1. David Mumford, Mathematics in the Near East: Some Personal Observations, Notices of the American Mathematical Society, Volume 52, Number 5. Pages 526-530(2005). Being a case study.

2. Participation in: The Seventh Israeli Applied and Computational Math Mini-Workshop, Rehovot, June 14, 2007.

3. Participation in: The Fritz Haber Double-Day Symposium on Conduction in Molecular Systems, Jerusalem, June 10 -11, 2007.

4. Participation in the "Mathematics Pre-Service Teacher Education Development" Workshop, Institute of Education, University of London, London, June 13-17, 2011.

5. Participation in the "Mathematics Pre-Service Teacher Education Development" Workshop, Institute of Education, University of London, London, April 22-29, 2012.

6. Participation in the "Mathematics Pre-Service Teacher Education Development" Workshop in "Educational Design", Ramalla, March 8-9, 2012.

7. Participation in the "PFDP National Roundtables on Higher Education in Palestine", Ramalla, March 18-19, 2012.

8. Participation in the "Training Math Mentors on Practicum", Ramalla, May 24, 2012.

9. Participation in the “Mathematics Pre-Service Teacher Education Development” Workshop in “Assessment and Evaluation”, Ramalla, June 20-21, 2012.

10. Participation in the “Mathematics Pre-Service Teacher Education Development” Workshop in “ICT Training”, Ramalla, 2012.

11. Participation in the “Mathematics Pre-Service Teacher Education Development” Workshop in “Quality Assurance”, Ramalla, August 29-30, 2012.

12. Participation in “Summer School in “Differential Geometry and Numerical Analysis” Birzeit University , June 29 - July 4, 2013”.

13. Doing a scientific visit to the “Okinawa Institute of Science and Technology Graduate University”. Invited by the “Nanoparticles by Design” unit-Japan, 5-12 June 2014.

14. Being a member of the Mathematics Olympiad committee in the years 2014-2018.

15. Being advisor of 12 master thesis

Scientific Awards:
The Israeli Ministry of Science and Technology grant for Arabs, Druz, and Sherkas Scientists, Jerusalem (2005).

Programming languages and other software:
C and Fortran programming languages
Matlab, SPSS, latex2e, Microsoft Office programs.

Language Proficiency:
Arabic: Native
English: V. good
Hebrew: good

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