Amjad Alipanah

Curriculum Vitae

Personal Data

First Name	*Amjad*
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Date of birth:	September 23, 1974
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Address	Department of Mathematics, Faculty of Sciences, University of Kurdistan, Sanandaj, Iran
Position	Associate Professor of Applied Mathematics

Education

1996–2000 **BSc in Mathematics**, *University of Kurdistan*, Sanandaj, Iran.

2000–2002 **MSc in Applied Mathematics**, *Partial Differential Equations: Finite Difference Methods*, AmirKabir Uninversity, Tehran, Iran.

2002–2005 **Phd in Applied Mathematics**, *Optimal Control*, AmirKabir Uninversity, Tehran, Iran.

Masters Thesis

Title	*Numerical Solution of Sine-Gordon Equation*
Supervisors	Professor Mehdi Dehghan
Email	m.dehghan@aut.ac.ir

PhD Thesis

Title	*Using Cardinal Functions in Spectral Methods*
Supervisors	Professor Mohsen Razzaghi, Email: razzaghi@math.msstate.edu
Adviser	Associate Professor Mostafa Shamsi, Email: mshamsi@aut.ac.ir

Journal Publications

[1] A. Alipanah, M. Razzaghi and M. Dehghan, *Nonclassical pseudospectral method for the solution of Brachistochrone problem*, Chaos, Solitons and Fractals 34 (2007), 1622–1628.

[2] A. Alipanah and M. Dehghan, *Numerical solution of the nonlinear Fredholm integral equations by positive definite functions*, Applied Mathematics and Computation, 190 (2007), 1754–1761.

[3] A. Alipanah, *Numerical solution of Hallen's integral equation by the Chebyshev pseudospectral method*, International Journal of Electrical and Power Engineering, 2 (2008), 77–80.

[4] A. Alipanah and M. Dehghan, *Solution of population balance equations via rationalized Haar functions*, Kybernetes, 37 (2008), 1189–1196.

[5] A. Alipanah, M. Razzaghi and M. Dehghan, *The pseudospectral Legendre for a class of singular boundary value problems arising in physiology*, Journal of Vibration and Control, 16, (2010), 3-10.

[6] Amjad Alipanah, *Nonclassical pseudospectral method for a class of singular boundary value problems arising in physiology*, Applied Mathematics, 2(4) (2012), 1–4.

[7] A. Alipanah, M. Dehghan, *A pseudospectral method for the solution of second-order integro-differential equations*, Journal of Vibration and Control, 14 (2011), 2158-Ű2163.

[8] A. Alipanah and Sh. Esmaeili, *Numerical solution of the two-dimensional Fredholm integral equations using Gaussian radial basis function*, Jour. Com. Appl. Math., 235 (2011) 5342–5347.

[9] Amjad Alipanah,*Numerical solution of differential equations via Hybrid of Block-pulse and rationalized Haar functions, Mathematical Reports*, 63 (2011), 117–126.

[10] Amjad Alipanah, *Solution of Hallen's integral equation by using radial basis functions*, Mathematical Reports, 15 (2013), 211–220.

[11] Behrooz Malekolkalami and Amjad Alipanah, *The width of the solitary wave in dusty plasma*, J. Plasma Phys. 82 (2016), 1–15.

[12] Amjad Alipanah, *Multiquadratic radial basis function method for the solution of brachistochrone problem*, Romanian Journal of Mathematics and Computer Science, 6(2) (2017), 126–133.

[13] A. Alipanah, M. Pendar and K. Sadeghi, *Investigation matrices obtaining from integrals involving polynomials and Daubechies scaling functions*, Mathematics Interdisciplinary Research 7(2), (2021) 367-374.

[14] A Alipanah, M Firoozi, *Cubic spline method for highly oscillatory integrals*, Mathematical Modelling of Systems 4 (2017), 1-7

[15] A Kasnazani, A AliPanah, *Solving brachistochrone problem via scaling functions of Daubechies wavelets*, Computational Methods for Differential Equations 9 (2019), 511-522.

[16] M. Lotfi, A AliPanah, *Using Legendre spectral element method with Quasi-linearization method for solving Bratu's problem*, Computational Methods for Differential Equations 7 (2019)), 580-588.

[17] M. Lotfi, A AliPanah, *Legendre spectral element method for solving sine-Gordon equation*, Advances in Difference Equations 2019 (1), 1-15.

[18] M. Lotfi, A AliPanah, *Legendre spectral element method for solving Volterra-integro differential equations*, Results in Applied Mathematics 7 (2020), 100-116.

[19] K. Mohammadi, A. Alipanah, M. Ghasemi, *A Nonclassical Sinc-Collocation Method for the solution of Singular Boundary Value Problems Arising in Physiology*, International Journal of Computer Mathematics, doi: 10.1080/00207160.2021.2019718

[20] M Shiralizadeh, A Alipanah, M Mohammadi, *Numerical solution of one-dimensional Sine-Gordon equation using rational radial basis functions*, International Journal of Mathematical Modeling, 10(3), (2022) 387-405.

[21] M Shiralizadeh, A Alipanah, M Mohammadi, *Approximate solutions to the Allen-Cahn equation using rational radial basis functions method*, Iranian Journal of Numerical Analysis and Optimization 13 (2), (2023) 187-204

[22] Hassan Majidian, Medina Firouzi, Amjad Alipanah, *Numerical Stability in Complex Summation*, Mathematical Researches 7 (2), (2021) 367-374.

[23] H. Majidian A. Alipanah, M. Firozi, *On the stability of Filon-Clenshaw-Curtis rules*, Bulletin of the Iranian Mathematical Society 48, (2022) 2943?2964.

[24] Amjad Alipanah, Azad Kasnazani, *Solving calculus of variation problems via multiquadric radial basis function method with optimal shape parameter*, International Journal of Nonlinear Sciences and Numerical Simulation, 23(2), (2022) 273-281. doi: https://doi.org/10.1515/ijnsns-2018-0220

[25] NM Shariati, M Yaghouti, A Alipanah, *A convergent wavelet-based method for solving linear stochastic differential equations included 1D and 2D noise*, IJournal of Statistical Computation and Simulation, in press (2022). doi: 10.1080/00949655.2022.2122969

[26] A Alipanah, K Arzideh, M Firouzi, A Kasnazani, *Daubechies wavelet scaling function approach to solve Volterra's population model*, International Journal of Mathematics and Mathematical Sciences 2022, in press. doi: 10.1155/2022/5363646

[27] A Alipanah, K Mohammadi, M Ghasemi, *Numerical solution of third-Order boundary value problems using non-classical sinc-collocation method*, Computational Methods for Differential Equations, 2023, in press. DOI:10.22034/cmde.2022.52725.2218

[28] M Shiralizadeh, A Alipanah, M Mohammadi, *A numerical method for KdV equation using rational radial basis functions*, Computational Methods for Differential Equations 11 (2), (2023) 303-318.

[29] M Ghasemi, K Mohammadi, A Alipanah, *Numerical solution of system of second-order integro-differential equations using nonclassical sinc collocation method*, Boundary Value Problems 2023 (1), (2023).

[30] A Alipanah, K Mohammadi, *Numerical solution of the system of second-order integro-differential equations using non-classical double sinc method*, Results in Applied Mathematics, 19 (2023) 100381

[31] Amjad Alipanah, Mahnaz Zafari, *Collocation method using auto-correlation functions of compact supported wavelets for solving Volterra's population model*, Chaos, Solitons and Fractals, Accepted at 8/11/2023

Conferences Papers

[1] A. Alipanah and M. Dehghan, Numerical solution of one dimensional sine-Gordon equations, 34th Annual Iranian Mathematics conference, Shahrood university 2004.

[2] A. Alipanah and S. Hadidi, *Numerical solution of integral equations via hybrid of Block-pulse and rationalized Haar functions*, 23rd international conference of the Jangeon mathematical society, Shahid Chamran university, Ahvaz, Iran, 8–10 February 2010.

[3] A. Alipanah, V. Rashidi, *Solution of population balance differential equation via Chebyshev polynomials,* 4th Iranian Conference on Applied Mathematics, Zahedan, Iran, March 10-12, 2010.

[4] A. Alipanah, A. Makhfi, *Numercial integration via Daubechies wavelets,* 4th Iranian Conference on Applied Mathematics, Zahedan, Iran, March 10-12, 2010.

[5] A. Alipanah, *Triangular functions method for the solution of population balance differential equation*, 4th International Scientific Conference of Salahaddin University-Erbil, October 18 - 20, 2011.

[6] A. Alipanah, *A numerica technique for solving population balance integro-differential equation*, Sixth International Seminar On Linear Algebra and It's Applications, Iran, June 08 - 09, 2011.

[7] A. Alipanah, Taheh TaherNejad, *Numerical solution of Hammerstein integral equations via CAS-wavelet*, Iran, July 11 - 13, 2012.

[8] A. Alipanah, A. Kasnazani, *Solving calculus of variation problems via radial basis function method*, The 44th Annual Iranian Mathematics Conference, Iran, Mashhad, August 27 - 30, 2013.

[9] A. Alipanah, *Nonclassical pseudospectral method for the solving control Duffing oscillator*, 5th Iranian Conference on Applied Mathematics, Iran, Hamedan, September 08 - 10, 2013.

[10] A. Alipanah, *Optimal shape parameter of multiquadric radial basis function for solving calculus of variation problems,* 5th Iranian Conference on Applied Mathematics, Iran, Hamedan, September 08 - 10, 2013.

[11] A. Alipanah, M. Pendar and K. Sadeghi, *Investigation matrices obtaining from integrals involving polynomials and Daubechies scaling functions,* The second conference on Computational Algebra, Computational Number Theory and Application, Iran, Kashan, October 13 - 15, 2015.

Postgraduate Thesis Supervision

[1] Sajjad Hadidi, *Numerical solution of Integral equations using piecewise basis,* University of Kurdistan, Sanandaj, Iran, 2007-2008.

[2] Sajjad Yavari, *Numerical solution of Integral equations using orthogonal polynomials,* University of Kurdistan, Sanandaj, Iran, 2007-2008

[3] Azadeh Makhfi, *Solution of integral equations using Daubechies wavelets,* University of Kurdistan, Sanandaj, Iran, 2009-2010.

[4] Voria Rashidi, *Using direct method for solving variational problems via triangular orthogonal functions,* University of Kurdistan, Sanandaj, Iran, 2010-20110.

[5] Abobakr Adarbar, *Approximation of calculus of variations via pseudospectral methods,* University of Kurdistan, Sanandaj, Iran, 2010-2011.

[6] Saeid Momivand, *A wavelet-Galerkin method for solving population balance equations,* University of Kurdistan, Sanandaj, Iran, 2010-2011.

[7] Ronak Hosseini, *An analysis of the finite-difference method for Klein-Gordon and KleinŰGordonŰZakharov equations,* University of Kurdistan, Sanandaj, Iran, 2009-2010.

[8] Niloofar Dehghan, *Sinc methods for solving astrophysics and elasto-plastic equations,* University of Kurdistan, Sanandaj, Iran, 2010-2011.

[9] Tahereh Sadeghian, *A new family of eighth-order iterative methods for solving nonlinear equations,* Azad University, Hammedan, Iran, 2010-2011.

[10] Nahid Esmaeili Ofogh, *Numerical solution of the Voltera-Fredholm integral equations by positive definite functions,* Azad University, Hammedan, Iran, 2010-2011.

[11] Tahere Tahernezhad, *Numerical solution of integro-differential equation of fractional order via CAS-wavelet method,* University of Kurdistan, Sanandaj, Iran, 2011-2012.

[11] Bateme Babaei, *Numerical solution of time-varring functional differential equations via Haar wavelet,* University of Kurdistan, Sanandaj, Iran, 2011-2012.

[11] Sayede Golale Qurayshi, *Wavelet bease of Herimte cubic spline on the* $[0, 1]$*,* University of Kurdistan, Sanandaj, Iran, 2011-2012.

[12] Roonak Hosseini, *An analysis of the finite difference method for Klein-Gordon and Klein-Gordon-Zakharov equations,* University of Kurdistan, Sanandaj, Iran, 2011-2012.

[13] Maryam Ghasemian, *Approximation solution of integral equation via multiquadric function,* University of Kurdistan, Sanandaj, Iran, 2012-2013.

[14] Ali Beygi, *Finite difference methods for solving singular boundary value problems,* University of Kurdistan, Sanandaj, Iran, 2012-2013.

[15] Maryam Darvishian, *Numerical solution of KdV equation using bi-orthogonal wavelets,* University of Kurdistan, Sanandaj, Iran, 2013-2014.

[16] Shiva Tanoomand, *Quadratures for approximation integrals of highly oscillatory function,* University of Kurdistan, Sanandaj, Iran, 2013-2014.

[17] Masoud Pendar, *Quadrature methods via wavelets and study their error,* University of Kurdistan, Sanandaj, Iran, 2014-2015.

[18] Kaveh Sadeghi, *Introduction to frames and bases generation for a finite-dimensional subspace of* $H_0^1(\Omega)$ *via frames,* University of Kurdistan, Sanandaj, Iran, 2014-2015.

Honors and Awards

2000 First rank as a BSc graduate at University of Kurdistan, Sanandaj, Iran.

2002 First rank as a MSc graduate student at AmirKabir University of Iran, Tehran.

Research Interests

Spectral and Pseudospectral Methods.

Finite Difference Methods.

Calculus of Variations.

Approximation Theory.

Numerical Analysis.

Teaching

Undergraduate Courses

Foundation of Mathematics
Numerical Computations
Computer Programming
Mathematical Software
Differential Equations
Numerical Analysis
Linear Algebra
Calculus I, II, II

Graduate Courses

Numerical Solution of Partial Differential Equations
Numerical Methods in Linear Algebra
Advanced Numerical Analysis
Calculus of Variations
Approximation theory
Optimal Control
Wavelets and its Application

Computer skills

Basic Computer Hardware, Linux

Intermediate Matlab, Python, Fortran

Advanced	Maple, C++, Turbo Pascal and LaTeX

Languages

Kurdish	**Mothertongue**	
Persian	**Advanced**	
English	**Intermediate**	*Speak basic words and phrases only, Reading*

Interests

- Sport
- Listen to Music
- Reading and Movie
- Ney

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