

Curriculum Vitae

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Name: Zohreh Dadi
Date of Birth: Aug 23, 1983
Nationality: Iran
Office address: Department of Mathematics
Faculty of Basic Sciences
University of Bojnord
Bojnord, Iran
Room Number: 224
Phone: (+98 58) 32284610- 223
Email: dadizohreh@gmail.com; z.dadi@ub.ac.ir

Research Interests:

Differential equations, Dynamical systems, Nonlinear Dynamics, Modelling (Biomathematics, Neural Networks, Mechanic, vibrations, ...), Bifurcation, Chaos

Degrees

Ph.D. Ferdowsi University of Mashhad, Iran, 2008-2013
M.Sc. Ferdowsi University of Mashhad, Iran, 2005-2007
B.Sc. University of Sistan and Baluchestan, Iran, 2001-2005

Positions

Assistant Professor, University of Bojnord, Sept. 2013- Present
Head of Department, University of Bojnord, Dec. 2014- Dec. 2016
Advisor of student math society, University of Bojnord, Jan. 2018- Jan. 2019
Member of educational council, University of Bojnord, May 2018- Present
Member of research council, University of Bojnord, Oct. 2014- Feb. 2017

Skill Set

- Programming Languages & Miscellaneous Tools:
 - MATLAB, Maple, Mathematica, Oscill8, SPSS, ...
 - LATEX, Microsoft Office
- Operating System Environments:
 - Windows
 - Linux (beginner)
- Language Skill:
 - Persian, English

Teaching Experiences

Undergraduate Courses:

Calculus I,II, Differential Equations, Numerical Analysis, Foundations of Matrices and Linear Algebra, Linear Algebra, Theory of Ordinary Differential Equations, Foundations of Dynamical Systems, History of Mathematics, Foundation of Mathematics, General Topology

Graduate Courses:

Geometry of Manifolds – I, Theory of Ordinary Differential Equations, Dynamical Systems– I, Dynamical Systems – II, Soft Computing, Foundation of Soft Computing, Ordinary Differential Equations-I, Advanced Numerical Analysis, Numerical Solution of Ordinary Differential Equations, Differential Topology-I

Research Experiences

Books:

1. Handbook of research on data science for effective healthcare practice and administration, IGI Global
 - Chapter 6: Analyzing Interval Systems of Human T-Cell Lymphotropic Virus Type I Infection of CD4+ T-Cells, 201pp.126-147
 - Chapter 7: Global Dynamics of an Immunosuppressive Infection Model Based on a Geometric Approach, pp. 148-169

Papers in Refereed Journals:

2. Z. Dadi, F. Ravanbakhsh, Global asymptotic and exponential stability of tri-cell networks with different time delays, Journal of Control and Optimization in applied Mathematics, accepted (2019)
3. Z. Monfared, Z. Dadi, Z. Afsharnezhad, Lyapunov exponents for discontinuous dynamical systems of Filippov type, Computational Methods for Differential Equations, accepted (2019)
4. Z. Dadi, Dynamics of two-cell systems with discrete delays, Advances in Computational Mathematics, 43(3) (2017), pp. 653-676
5. Z. Afsharnezhad, Z. Dadi, Z. Monfared, Profitability and sustainability of a tourism-based social-ecological dynamical system by bifurcation analysis, Journal of the Korean Mathematical Society, 54(1)(2017), pp. 1-16
6. Z. Monfared, Z. Dadi, N. Miladi Lari, Z. Afsharnezhad, Existence and nonexistence of periodic solution and Hopf bifurcation of a tourism- based social- ecological system, Optik, 127(22)(2016), pp. 10908-10918
7. Z. Dadi, S. Alizade, Codimension-one bifurcation and stability analysis in an immunosuppressive infection model, SpringerPlus 12/2016; 5(1). DOI: 10.1186/s40064-016-1737-0
8. E. Javidmanesh, Z. Dadi, Z. Afsharnezhad, S. Effati, Global stability analysis and existence of periodic solutions in an eight-neuron BAM neural network model with delays, Journal of Intelligent and Fuzzy Systems, 27 (1) (2014),pp. 391-406
9. Z. Monfared, Z. Dadi, Analyzing panel flutter in supersonic flow by Hopf bifurcation, Iranian Journal of Numerical Analysis and Optimization, 4(2) (2014), pp. 1-14

10. Z. Dadi, Z. Afsharnezhad, N. Pariz, Stability and bifurcation analysis in the delay-coupled nonlinear oscillators, *Nonlinear Dynamics* 70 (2012), pp.155-169
11. Z. Dadi, Z. Afsharnezhad, Bifurcation conditions for stabilizing the unstable orbits of planar systems, *Journal of Advanced Research in Dynamical and Control Systems* 4 (3)(2012), pp. 23-40

Papers in Conference Proceedings:

12. Z. Dadi, F. Shojaee, T. Ghaderi, synchronization condition of an three identical neurons Hopfield neural network with different delayed bidirectional connections, *Proceeding of the 7th Iranian joint congress on Fuzzy and Intelligent Systems*, 2019, pp. 573- 575
13. Z. Dadi, F. Shojaee, Stability study of some equilibria on an immunosuppressive infection model by using neural network approach, *Proceeding of the 7th Iranian joint congress on Fuzzy and Intelligent Systems*, 2019, pp. 569-572
14. Z. Rezae, S. Karami, Z. Dadi, Comparison of the Euler and Adaptive Runge-Kutta Methods for Solving a Human T-cell Lymphotropic Virus type I Model, *Proceeding of the First Annual National Conference on Biomathematics*, 2019, pp. 1-6
15. Z. Dadi, A theoretical study on an immunosuppressive infection model with diffusion term, *Proceeding of the 49th Annual Iranian Mathematics Conference*, 2018, pp. 2150-2154
16. Z. Dadi, T. Fathi Najafi, M. Alinejadmoftad, Stability and bifurcation conditions of a discrete HTLV-I infection model with delay, *Proceeding of the 49th Annual Iranian Mathematics Conference*, 2018, pp. 2395-2401
17. Z. Dadi, S. Karami, Z. Rezae, Euler method for discretization of a human T-cell lymphotropic virus type I (HTLV-I) infection model, *Proceeding of the 49th Annual Iranian Mathematics Conference*, 2018, pp. 4193-4197
18. Z. Dadi, Analysis of a Hepatitis C virus infection model with interval drug effectiveness and target cells, *Proceeding of the 7th Conference on Bioinformatics*, 2018, page 157
19. Z. Dadi, Existence of codimension-one bifurcations in an inertial 4-neuron system with multiple delays, *Proceeding of the 1st Seminar on Control and Optimization*, 2018, pp. 124-127
20. Z. Dadi, Effective infectee number of a computer virus model, *Proceeding of the 48th Annual Iranian Mathematics Conference*, 2017, pp. 1498-1501
21. A. G. Moghadam, Z. Dadi, D. G. Moghadam, Existence of triple Hopf bifurcation in an FSI model, *Proceeding of the 48th Annual Iranian Mathematics Conference*, 2017, pp. 1521-1525
22. F. Ravanbakhsh, T.Ghaderi, Z.Dadi, Global stability of a nonlinear tri-cell ring network with exponential connection functions, *Proceeding of the 4th Seminar on Operator Theory and its Applications*, 2018, pp. 58-61
23. T.Ghaderi, F. Ravanbakhsh, Z.Dadi, Delay-independent stability study in an n neurons Hopfield neural network with two delays, *Proceeding of the 4th Seminar on Operator Theory and its Applications*, 2018, pp. 62-66

24. Z. Dadi, M. Alinejadmoftad, Normal form of strategy function between healthy cells and diseased cells, Proceeding of the 47th Annual Iranian Mathematics Conference, 2016, pp. 947-950
25. M. Alinejadmoftad, Z. Dadi, A source term estimation in an inverse problem by conjugate gradient method, Proceeding of the 47th Annual Iranian Mathematics Conference, 2016, pp. 398-402
26. Z. Dadi, Stability and bifurcation analysis of cholera model, Proceeding of the 6th seminar on numerical analysis and its applications, 2016, pp.65-68
27. Z. Dadi, S. Mohammadzadeh, F. Babaie, M. Alinejadmoftad, Stability analysis of FitzHugh-Nagumo model with interval parameters, Proceeding of the 6th seminar on numerical analysis and its applications, 2016, pp. 505 – 509
28. Z. Dadi, Existence of Bogdanov-Takens bifurcation in a four-neuron neural network with delays, Proceeding of the 4th Seminar on Functional Analysis and its Applications, FUM(Mashhad) 2016, pp.447-450
29. Z. Dadi, Triple zero singularity of a tri-cell network, Proceeding of the 4th Seminar on Functional Analysis and its Applications, FUM(Mashhad), 2016, pp 369-372
30. Z. Dadi, Analyzing of the von Karman equations by using neural network approach, Proceeding of the 4th Iranian joint congress on Fuzzy and Intelligent Systems, USB (Zahedan), 2015, pp. 164-166, DOI: [10.1109/CFIS.2015.7391637](https://doi.org/10.1109/CFIS.2015.7391637) , IEEE
31. Z. Dadi, One-Codimension Bifurcation of Hopfield Neural Networks with a General Distribution of Delays, Proceeding of the 4th Iranian joint congress on Fuzzy and Intelligent Systems, USB (Zahedan), 2015, pp.186-188, DOI:[10.1109/CFIS.2015.7391646](https://doi.org/10.1109/CFIS.2015.7391646), IEEE
32. Z. Dadi, Existence of Bogdanov-Takens bifurcation in three cells with time delay, Proceeding of the 11th Seminar on Differential Equations and Dynamical Systems, Damghan University, 2014, pp. 55-57
33. Z. Monfared, Z. Dadi, Z. Afsharnezhad, M. Karimi Amaleh, Cusp bifurcation of a tourism-based social-ecological dynamical system, Proceeding of the 11th Seminar on Differential Equations and Dynamical Systems, Damghan University, 2014, pp. 40-43
34. Z. Monfared, Z. Dadi, Z. Afsharnezhad, Bifurcation analysis of a tourism-based social-ecological dynamical system, Proceeding of the 11th Seminar on Differential Equations and Dynamical Systems, Damghan University, 2014, page 37
35. Z. Dadi, S. Alizade, Saddle-node bifurcation in antiviral immune response and immunosuppressive infection differential equations model, Proceeding of the 11th Seminar on Differential Equations and Dynamical Systems, Damghan University, 2014, page 20
36. Z. Dadi, Stability analysis of an n-coupled cell system with delay, Proceeding of the 7th seminar on Linear Algebra and its Applications, Ferdowsi University of Mashhad, 2014, pp. 80 - 82
37. Z. Dadi, Global stability of two-cell coupled networks with time delays, Proceeding of the 10th Seminar on Differential Equations and Dynamical Systems, University of Mazandaran, 2013, pp. 68 - 71

38. Z. Monfared, Z. Dadi, Z. Afsharnezhad, Hopf bifurcation of a flow-induced vibrations problem, Proceeding of the 10th Seminar on Differential Equations and Dynamical Systems, University of Mazandaran, 2013, pp. 159 - 162
39. Z. Dadi, Z. Afsharnezhad, Heart pacemakers synchronization by using Hopf bifurcation, Proceeding of the 43rd Annual Iranian Mathematics Conference, University of Tabriz, 2012, pp. 1367-1369
40. Z. Dadi, N. Pariz, Stability analysis for a neural network model with mixed delays, Proceeding of the 9th Seminar on Differential Equations and Dynamical Systems, Azarbaijan Shahid Madani University, 2012, pp. 181-184
41. Z. Dadi, Existence of periodic solutions in a ring of four neurons with delays, International Conference on Nonlinear Modeling & Optimization, Shomal University, 2012, pp.1-5, http://www.civilica.com/Paper-ICNMO01-ICNMO01_381.html
42. Existence and nonexistence of nontrivial periodic orbits and Hopf bifurcation of tourism-based social-ecological systems, Proceeding of the 5th Mathematics Conference of Payame Noor University, Shiraz, 2012, pp. 93- 97

Submitted Papers:

43. Study of a malware propagation model in computer networks
44. Dynamical behavior of a discontinuous harmonic oscillator subjected to a non-linear velocity dependent damping force
45. Periodic solutions in a symmetric coupled n-cell network with different time delays
46. Hopf-zero bifurcation in 3 cell networks with two different delays
47. Analysis of a Hepatitis C virus infection model with interval drug effectiveness and target cells

Projects:

- Stability study of interval dynamical systems (continuous, discrete)
- A survey of human T- cell lymphotropic virus from the viewpoint of dynamical system
- Study the effect of HTLV-I transmission parameters on reducing the population of infected individuals (under review)

Doctoral Students (advisor):

- Zahra Monfared: Bifurcations and chaos of continuous and discontinuous system of differential equations in Tourism economics and Wing flutter

Master Students (supervisor/advisor):

- Zahra Gholipoor: Perturbation Iteration Method for Studying Dynamics of a Mathematical Model of HIV
- Leila Rashid: Numerical study of the effect of HIV infection on CTL's, T cells and macrophages
- Fateme Mohammadi: Study of a cancer model in HIV-1 infected individuals by homotopy analysis method
- Morteza Abdollahi: Codimension one and two bifurcations and stability analysis in a nonlinear airfoil model (numerical analytical and methods).

- Elham Hoseini: Study of time-varying pharmacodynamics for HIV infection by fractional mathematical model
- Majede Fadaee: Numerical study of the dynamic of HIV during primary infection with fractional mathematical model
- Maryam Fakhrfatemi: Numerical investigation of fractional and integer HIV infection model and comparison the solutions with patients data
- Samane Rezvani: The dynamic covering location problem with uncertainty
- Hamide Kaboodi: Estimation of effective diffusion coefficients in controlled drug delivery systems
- Zeinab Rezaee Shaghan: Numerical Analysis for dynamical models of HTLV-I infection
- Aliye Ghahremanmoghadam: Dynamic of fluid (air flow)-structure (turbine blade) interaction problem
- Farzane Ravanbakhsh: Stability analysis of delayed Hopfield neural networks
- Toktam Ghaderi: Stability analysis in a Hopfield type neural network model of n- identical neurons with multiple delays
- Nasrin Jahanian: Dynamic analysis of boolean models
- Fariba Babae: Stability and bifurcation analysis by using interval polynomials theory
- Azam Mohammadi: Dynamic analysis of singular strategy function
- Samira Alizadeh: Considering existence periodic solutions for some infection models
- Sepideh Ahmadpour: The study about stability of some cholera epidemic models
- Abasali Ferydoni: Dynamical systems in categories
- Narges Beheshti: Selection topologies
- Hasan Shamsabadi: Neighborhood and interior operators in a category

Bachelor Students (supervisor):

- Zeinab Mohammadnia: Study of steady state in a boolean model
- Mahsa Jahani: A mathematical model investigation of Romeo and Juliet
- Elham Hoseini: Applications of matrix in mechanic
- Samane Rezvani: Mathematical modeling of tumor growth and treatment
- Zeinab Rezaee Shaghan: Dynamic study of HTLV-I infection models
- Maryam Najafi: Stability of HTLV-I infection model

- Mitra Ebrahimzade: Dynamics of FitzHugh-Nagumo model
- Sanaz Margan: Dynamics of cholera disease model
- Anise Nodehi: Mathematical modeling of hormone therapy in some women's cancers
- Razieh Yusefabadi: Existence of BT bifurcation in a delayed three neurons neural network
- Mina Taji: Hopf bifurcation and stability switching in a delayed neural network
- Ehsan Ahmadzade: Analysis of two layer neural networks with arbitrary dimension

Referee:

- The Journal of the Franklin Institute
- Nonlinear Dynamics
- Iranian Journal of Numerical Analysis and Optimization
- Bulletin of the Iranian Mathematical Society
- Control and Optimization in Applied Mathematics
- IGI Global
- ZbMath
- The 6th seminar on numerical analysis and its applications
- Master's thesis (11 research work)

Talks:

- Diseases outbreak modeling in a society
- Mathematical modeling of infectious diseases
- System biology in modeling of HTLV-I infection
- Applications of dynamical systems (Romeo and Juliet model)
- Modeling in population growth and cancer
- Mechanical vibrations
- Tachycardia and bradycardia in heart model
- Global periodic solutions in neural networks
- Mr. Van der Pol
- Coupled cell theory in inner ear model

Workshops:

- Artificial neural networks and their applications in numerical analysis- 2016
- Parallel computing workshop- 2016
- Dynamic modeling in systems biology- 2014
- Summer School on Analysis and PDEs, 2014
- The fourth computational neuroscience workshop - 2014
- Dynamical systems- 2009, 2010, 2014
- SPSS software workshop-2014
- Biomathematics workshop- 2012
- Dynamics and geometry-2012