

CURRICULUM VITAE

**Kazem Ghanbari , Ph.D.
Professor of Mathematics**



Research Interests:

Differential equations (ODE-PDE-FDE), Inverse problems, Matrix Linear Operators and relevant spectral theory, Applications of Lie groups in solving differential equations

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Education and Academic Positions:

Adjunct Research Professor, The School of Mathematics and Statistics, Carleton University, Ottawa, ON, Canada, June 2023-2028.

Visiting Professor, The School of Mathematics and Statistics, Carleton University, Sep. 2022-present (Host Professor Angelo Mingarelli)

Professor of Mathematics, Sahand University of Technology, Tabriz, Iran, 2003-20022.

Postdoctoral fellow, University of Waterloo, Department of Applied Math. Ontario, Canada, 2001-2002 (Supervisor Prof. Graham Gladwell)

Ph.D. Mathematics, Carleton University, School of Mathematics, Ontario, Canada, 1997-2001 (Supervisor Prof. Angelo Mingarelli)

M.Sc. and B.Sc. Mathematics, Tabriz University, Department of Mathematics, Tabriz, Iran, 1988-1993 (Supervisor Prof. Ali Jodayree)

Professional Membership:

[Iranian Mathematical Society](#)

Areas of Interests:

ODE, PDE, FDE, Inverse problems, Inverse Matrix Eigenvalue Problems, Matrix operators and spectral Theory

Language:

Persian, Azari (mother tongue), English

Awards and Distinctions:

Winner of Professor_Mehdi Radjabalipour prize given by Iranian Mathematical Society for the best Research in Linear Algebra and Applications, Ferdowsi Mashhad University, Feb. 26, 2014

Distinguished researcher award of the Faculty of Science 5 times, SUT, Tabriz, Iran

Winner of scholarship from MCHE for Ph.D. Carleton, Canada, 1997-2001

Winner of post doctoral fellowship from University of Waterloo, Canada 2001-2002

Teaching Experience:

Linear Algebra for engineers, Carleton University, winter 2023

Calculus for Engineering of Physics, Carleton University, Fall 2023

Linear Algebra for engineers, University of Waterloo, 2002

Applied Mathematics, Carleton University, 2001

ODE and PDE Graduate courses at Sahand University of Tech.

Advanced Engineering Math. in graduate and undergraduate level

Applications of Lie Groups to ODE and PDE, Graduate courses at Sahand University of Tech. and Tabriz University

Administrative Experience

Head of Faculty of E-Learning, Sahand University of Technology, 2004-2010

Head of Public and International Relations, Sahand University of Technology, 2013-2017

Graduate Students: (Ph.D. Supervision)

1- Hossein, Kheiri, Ph.D., (Advisor) Inverse problem of the Sturm-Liouville equation in the non-classic case with one turning point of order $4m + 1$ with turning points, Tabriz University, January 2005.

2- Farshad Rezvan, Ph.D., (Advisor) Applications of Lie Symmetry Group Analysis for Some Specific Partial Differential Equations, Tabriz University, July 2010.

3- Mohammad Shahryari, P.hD., (Advisor) Inverse Sturm-Liouville problem with discontinuity conditions inside finite interval and uniqueness of potential function by using three spectra, July 2012

4- Mohammad Dehghan, P.hD., (Advisor) Reconstructing the Potential function of the indefinite Sturm-Liouville Problem using infinite product forms, 2013

5- Hanif Mirzaei, Ph.D., (Supervisor) Eigenvalue problems of second and fourth order Sturm-Liouville equations and related inverse problem in discrete and continuous cases, Agust 2013.

6- Mahsa Rahimnavasi Moghaddam, Ph.D., (Supervisor) Study on Isospectral Matrix Flows and Inverse Eigenvalue Problems fo Pentadiagonal Matrices, February 2017.

7- Yousef Gholami, Ph.D., (supervisor) Applications of Mathematical Inequalities in Fractional Differential and Difference Equations, March 2017

8- Fatemeh Ghanbari, Ph.D., (supervisor) Numerical analysis of fractional algebraic differential equations with spectral methods, February 2019.

9- Tahereh Haghi, Ph.D., (supervisor) Existence of positive solutions for fractional differential equations and difference equations, September 2020.

10- Vahid Abbasnavaz, Ph.D, (Supervisor) In Progress

11- Zahra Kavoochi, Ph.D, (Supervisor) In Progress

12- Mahmoud Emami, Ph.D, (Supervisor) In Progress

(M.Sc. Supervision)

- 1- R. Dehghani, Existence of positive solutions for nonlinear fractional differential equations 2007.**
- 2- V. Babapour, Similar properties of eigenvector and eigenvalues in continuous and discrete Sturm-Liouville problems April 2007**
- 3- B. Shekarbegi, Inequalities for eigenvalues of fixed membrane problem and clamped plate problem and generalizations May 2007**
- 4- E. Khosravi, Inverse problems for matrix Sturm-Liouville equation on a finite interval July 2007**
- 5- M. Rahimi, Inverse spectral problems for Sturm-Liouville equation with eigenparameter dependent boundary conditions, November 2007.**
- 6- M. R. Shirmohammadi, Existence of positive solutions for ODE and nonlinear fractional differential equations December 2007**
- 7- R. Bagheri, Isospectral vibrating systems Summer 2008.**
- 8- Samaneh Shahi, Centrosymmetric Isospectral Flows, 2010**
- 9- A. Faraji, Recovery of the m-function from spectral data for generalized Sturm - Liouville problems Jan. 2010**
- 10- Hamed Mansouri, Nth-order fuzzy linear differential equations and its Applications, Jan. 2010**
- 11- Khabat Menbari, Asymptotics of eigenvalues for regular Sturm-Liouville problems with eigenvalue parameter in the boundary condition, July 2010**
- 12- Zahra Rashipour, Two inverse eigenvalue problems for a special kind of matrices, September 2010**
- 13- Farzaneh Gilasi, Inner totally positive matrices, September 2010**
- 14- Farzaneh Madadjoo, Structure - preserving dynamical systems, September 2010**

- 15- Syamak Fakheri, Solutions to a quadratic inverse eigenvalue problem, January 2011**
- 16- F. Parvizpour, Constructing Jacobi matrices with prescribed mixed eigendata, January 2011**
- 17- Vali Palizban, Universal bounds for eigenvalues of the biharmonic operator, July 2011**
- 18- Mostafa Fallahi, Inverse eigenvalue problems for Sturm-Liouville equations with spectral parameter contained in one of the boundary conditions, July 2011**
- 19- Mohadeseh Najafi Emnani, Analysis of stability and bifurcation for a delayed logistic equation, August 2011**
- 20- Adel Valipour, On Sturm-Liouville operators with discontinuity conditions inside an interval, August 2011**
- 21- Yousef Gholami, Existence of multiple positive solutions for m-point fractional boundary value problem on an infinite interval, July 2012**
- 22- Tahereh Haghi, Some results for fractional boundary value problem of differential inclusions, September 2012**
- 23- Nahid Jamshidi, Positive solution of singular boundary value problem for nonlinear fractional differential equation with nonlinearity that changes sign, September 2012**
- 24- Sahar Alipour, Matrix representation of Sturm-Liouville problems with finite spectrum, August 2013.**
- 25- Amene Derakhshani, Sturm-Liouville problems with finite spectrum, August 2013**
- 26- Fahimeh Zolfi, Self-Adjoint differential equations for classical orthogonal polynomials, August 2013**

- 27- Roya Alikhah, The isospectral sixth order Sturm-Liouville equations, September 2014**
- 28- Fereshteh Mehrizad, Inverse eigenvalue problem for pentadiagonal matrices, September 2014**
- 29- Samira Saremi, Reconstruction of a Rod using one spectrum and minimal mass condition, Oct. 2014**
- 30- Mansoor Shafeeinezhad, Reconstructing the cross-sectional area of an axially vibrating non-uniform Rod from one of its mode shapes, June. 2015**
- 31- Somayeh Navidfar, On an inverse problem for two spectra of finite Jacobi matrices, September 2015**
- 32- Mojde Arodian, Explicit expression for the matrix exponential function obtained by means of an algebraic convolution formula, September 2016**
- 33- Sahar Eghlimi, Oscillation criteria for second-order nonlinear perturbed differential equation, September 2016**
- 34- Saed Taheri Beni, Monotone positive solutions for a class of second-order nonlinear differential equations, September 2017**
- 35- Maryam Gholampour, Existence of positive solutions for the cantilever beam equation with fully nonlinear terms, September 2017**
- 36- Mina Salahi, Applications of total positivity theory to 1D prescribed curvature problems, February 2018**
- 37- Fatemeh Mahmoudian, Methods for constructing distance matrices and the inverse eigenvalue problem, February 2018**
- 38- Samira Ebrahimi, Inverse Problems for the Sturm-Liouville Operator with Discontinuity, April, 2019**
- 39- Maryam Alavi, A finite difference method for an inverse Sturm-Liouville problem in impedance form, Jan. 2021**

40- Nasrin Alizadeh, A Caputo–Fabrizio fractional differential equation model for HIV/AIDS with treatment compartment, Feb. 2021

41- Saba Salmanzadeh Khosroshahi, Necessary and sufficient conditions for nonnegative and semidefinite matrices to be completely positive, Oct. 2021

42- Ali Shabouei, Optimal control analysis of a SIR epidemic model with a constant population entry rate, Oct. 2021

Projects Done:

Totally Positive Matrices with Two Spectrum in Common, Supported by Sahand University of Technology, 2005

Analysis of Discrete and Continuous Sturm-Liouville Problems, Supported by Sahand University of Technology, 2007

Isospectral Flows maintaining the Initial Structure, Supported by Sahand University of Technology, 2008

References:

Professor Angelo Mingarelli, Carleton University, Ontario, Canada, angelo@math.carleton.ca

Professor Ali Asghar Jodayree Akbarfam, University of Tabriz, akbarfam@yahoo.com

Conference Presentations:

- 1. 25th Annual Iranian Mathematics Conference, Sharif University of Technology, March 28-31 1994.**
- 2. 20th Annual Southeastern-Atlantic Regional Conference on Differential Equations, Virginia Tech, Blacksburg, Virginia, USA, 2000.**
- 3. AMS Sectional Meeting 2001, Las Vegas, NV, USA, April 21-22, 2001.**
- 4. International Conference on Dynamics of Continuous, Discrete and Impulsive Systems, London, Canada, July 27-31, 2001.**
- 5. The Tenth ILAS Conference, *challenges in matrix theory* Auburn University, USA, June 10-13, 2002.**
- 6. International Conference on Dynamics of Continuous, Discrete and Impulsive Systems, Guelph, Canada, May 15-18, 2003.**
- 7. Properties of Totally Positive matrices, 15-th *Seminar on Algebra* Guilan University, Rasht, Iran, July 19-20, 2003.**
- 8. Totally positive matrices with three spectrum in common, 16-th *Seminar on Algebra*, November 17-19, 2004, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran.**
- 9. Some classes of the Euler-Bernoulli beams having the same spectral, 6-th *Seminar on Differential equations and Dynamical systems*, October 6-9, 2004, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran.**
- 10. Isospectral beams, *International conference on differential equations and applications in mathematical biology*, Malaspina University - College, Nanaimo, BC, Canada, July 18-23, 2004.**
- 11. Fractal geometry and Affine transformations, 6-th Seminar on Topology and Geometry, July 15-17, 2004, Azerbaijan Tarbiatmoalem University, Tabriz, Iran.**
- 12. LU- Factorization of totally positive matrices and total positivity**

interval, 3-th Seminar on Linear Algebra and its Applications, December 28-29, 2004, Kerman, Iran.

13. Inverse problem of three term recurrence relation in limit circle case, 35-th *Iranian Mathematics conference*, January 26-29, 2005, Ahvaz, Iran.

14. A survey on inverse and generalized inverse eigenvalue problems for Jacobi matrices, *International conference, dedicated to commemorating of 50-th anniversary of prominent mathematician I.T.Mamedov*, May 11-13, 2005, National Academy of Sciences of Azerbaijan, Baku, Azerbaijan.

15. Analogous properties of the Green's functions for discrete and continuous Sturm-Liouville systems, *7th seminar on differential equations and dynamical systems*, 9-11 November 2005, Tabriz University, Tabriz, Iran.

16. On the total positivity, 13-th International Linear Algebra Society (ILAS) conference, Amsterdam, Netherlands, 18-21 July 2006.

17. Multi-Isospectral Totally Positive Matrices, 37th Annual Iranian Mathematics Conference- Azarbaijan Tarbiat Moallem University, 2-5 Sep. 2006.

18. Triple positive solutions for boundary value problem of nonlinear fractional differentialequation, 37th Annual Iranian Mathematics Conference-Azarbaijan Tarbiat Moallem University, 2-5 Sep. 2006, (With Reza Dehghani).

19. Isospectral Centrosymmetric Flows Preserving Staircase Structures, 40th Iranian International Conference on Mathematics 17-20 August 2009, Sharif University of Technology, Tehran, Iran (with Samaneh Shahi)

20. Centrosymmetric Matrix Flows Maintaining The Initial Structure, International Conference on Mathematical Applications in Engineering (ICMAE 10), 3-5 August 2010, Kuala Lumpur, Malaysia

21. Inequalities for eigenvalues of a general clamped plate problem,

The World Congress on Engineering 2009, London Imperial College, UK, 1-3 Jul. 2009.

22. RECONSTRUCTION OF A JACOBI MATRIX FROM MIXED EIGENDATA, 41th Iranian International Conference on Mathematics 12-15 September 2010, University of Urmia, Urmia, Iran (with Zahra Rashidpour)

23. INNER TOTALLY POSITIVE MATRICES WITH TWO SPECTRUM IN COMMON, 41th Iranian International Conference on Mathematics 12-15 September 2010, University of Urmia, (with F. Gilasi)

24. STABILITY AND HOPF BIFURCATION FOR A DELAYED LOGISTIC POPULATION MODEL, 41th Iranian International Conference on Mathematics 12-15 September 2010, University of Urmia, Urmia, Iran (with Mohadeseh Najafi)

25. Reconstruction of Jacobi matrix with three spectra, 21st Algebra Seminar of Iran, 10-11 November 2010 Faculty of Mathematical Sciences, University of Tabriz (with Fardin Parvizpour)

26. Inverse eigenvalue problem for pentadiagonal matrices, 6-th Seminar in Linear Algebra and Applications, University of Arak, Jun 2011 (with Hanif Mirzaei)

27. Generalized inverse eigenvalue problem using mixed eigendata, 6-th Seminar in Linear Algebra and Applications, University of Arak, Jun 2011 (with Fardin Parvizpour)

28. Tau method for eigenvalues of Euler-Bernoulli equation, 42-th Iranian International Conference on Mathematics, August 2011 Univwersity of Rafsanjan (with Hanif Mirzaei)

29. Existence of sulotions for fractional differential equations by operator theory, June 2012, University of Mazandaran (with Tahereh Haghi)

30. Existence results of Positive solution for nonlinear fractional eigenvalue problem, 9-th Seminar on Differential Equations, 11-13 July 2012, Shahid Madani University of Azarbaijan (with Y. Gholami)

31. Existence results of positive solution for multi-point boundary value problem of nonlinear fractional differential equation, 9-th Seminar on Differential Equations, 11-13 July 2012, Shahid Madani University of Azarbaijan (with Y. Gholami)

32. Existence, multiplicity and nonexistence results of positive solutions for m-point nonlinear fractional differential equation on half axis, 43-th Iranian International Conference on Mathematics, August 2012, University of Tabriz (with Y. Gholami)

33. Existence of positive solutions for a system of fractional boundary value problems, 43-th Iranian International Conference on Mathematics, August 2012, University of Tabriz (with T. Haghi)

34. Isospectral Matrix Flow Maintaining Total Positivity, KU Leuven, Belgium, 11-15 July, ILAS 2016 (with M. R. Moghaddam)

35. The pseudo spectral method for solving fractional differential algebraic equations, Th 6th Seminar on Numerical Analysis and its Applications, Maragheh University, 20-21 July 2016 (with F. Ghanbari and P. Mokhtari)

36. Plenary speaker of 12th Seminar on Linear Algebra and its Applications, Summer 2023, Sahand University of Technology

Publications:

K. Ghanbari and A. Mingarelli, A Generalized Inverse Eigenvalue Problem for Symmetric Matrices [*Int. J. Appl. Math.* 4, \(2\), \(2000\), 199-209](#)

K. Ghanbari, *m*-functions and inverse generalized eigenvalue problem, [*Inverse problems*](#), 17 (2001) 211-217

K. Ghanbari, Explicit solution for infinite dimensional generalized eigenvalue problem, [*Int. J. Math. and MSc.* 26 \(2001\) 9, 513-523](#)

K. Ghanbari and Graham Gladwell, Total positivity interval, [*Linear*](#)

[Algebra and its Applications](#) 393(2004) 197-202

K. Ghanbari, On the Isospectral beams, [Electronic Journal of Differential equations](#)12 (2005)57-64.

K. Ghanbari, Pentadiagonal oscillatory matrices with two spectrum in common, [Positivity](#) 10 (2006) No.4, 721-729.

K. Ghanbari, On the similarities of discrete and continuous Sturm-Liouville problems, [Electronic Journal of Differential Equations](#) (2007) No. 172, pp.1-8.

K. Ghanbari and R. Dehghani, Triple positive solutions for boundary value problem of nonlinear fractional differential equation, [Bulletin of the Iranian Mathematical Society](#), 33 (2007) No. 2, pp. 1-14

K. Ghanbari, A survey on inverse and generalized inverse eigenvalue problems for Jacobi matrices, [Applied Mathematics and Computation](#), 195 (2008) 335-3363.

K. Ghanbari and F. Rezvan, On the principal equations of Isospectral beams, [Applied Mathematics E-Notes](#), 11(2011) pp.255-260

R. Dehghani and K. Ghanbari , Positive Solution for a fractional Eigenvalue Problem, [Dynamics of Continuous, Discrete and impulsive systems series A: Mathematical Analysis](#) 18 (2012) 177-185

K. Ghanbari and B. Shekarbeigi, Inequalities for eigenvalues of a general clamped plate problem, [Canadian Mathematical Bulletin](#) 55 (2012) No.1

K. Ghanbari and Y. Gholami, Existence and multiplicity of positive solutions for m-point non-linear fractional differential equations on the half line, [Electronic Journal of Differential Equations](#), vol. 2012 (2012) No. 238, pp. 1-15.

K. Ghanbari and F. Parvizpour, Generalized inverse eigenvalue problems with mixed eigendata, [Linear Algebra and Applications](#), 437(2012) pp. 2056-2063

K. Ghanbari and Y. Gholami, Existence and nonexistence results of positive solution for nonlinear fractional eigenvalue problem, [J. Fractional Calculus and Appl.](#) (JFCA), 4(2013) No. 9, pp. 1-12

N. Nyamoradi, K. Ghanbari and T. Haghi, The existence of multiple solutions for multi-point boundary value problems, [Journal of Advanced Research in Applied Mathematics](#), (2013) pp. 1-13.

K. Ghanbari and H. Mirzaei, On the Isospectral Sixth Order Sturm-Liouville Equation, [Journal of Lie Theory](#), Heldermann Verlag, Vol. 23 (2013) 921-935.

K. Ghanbari, H. Mirzaei and GML Gladwell, Reconstruction of a Rod using one spectrum and minimal mass condition, [Inverse Problems in Science and Engineering](#), Vol. 22 Issue 2(2014) , <http://dx.doi.org/10.1080/17415977.2013.782543>

K. Ghanbari, F. Parvizpour and H. Mirzaei, Constructing Jacobi matrices using mixed eigendata, *Linear and Multilinear Algebra*, (2013) , Volume 62, Issue 6, June 2014, pages 721-734

K. Ghanbari, H. Mirzaei, Inverse eigenvalue problem for pentadiagonal matrices, [Inverse Problems in Science and Engineering](#), Vol. 22 Issue 4 (2014) , <http://dx.doi.org/10.1080/17415977.2013.797412>

K. Ghanbari, Isospectral matrix flows maintaining the initial structure, [Advanced Studies in Contemporary Mathematics](#) , Vol. 23 (2013) No.2, 315-322.

K. Ghanbari , Y. Gholami and H. Mirzaei, Existence and multiplicity results of positive solutions for boundary value problems of nonlinear fractional differential equation, [Dynamics of Continuous, Discrete and impulsive systems series A: Mathematical Analysis](#) 20 (2013) 543-558

K. Ghanbari and Y. Gholami, Existence and multiplicity of positive solutions for a coupled system of perturbed nonlinear fractional differential equations, *Computational Methods for Differential Equations*, Vol.1 (2013) No.1, 39-54

M. Moghaddam, H. Mirzaei and K. Ghanbari, On the generalized inverse eigenvalue problem of constructing symmetric pentadiagonal matrices from three mixed eigendata, [Linear and Multilinear Algebra](#), Volume 63, Issue 6, June 2015, pages 1154-1166

H. Mirzaei and K. Ghanbari, Matrix Representation of a Sixth order Sturm-Liouville Problem and related Inverse Problem with Finite Spectrum, [Bulletin of the Iranian Mathematical Society](#), Volume & Issue: Volume 41, Issue 4, August and September 2015, Page 793-1059

K. Ghanbari and Y. Gholami, Lyapunov type inequalities for fractional Sturm-Liouville problems and fractional Hamiltonian systems and Applications, [J. Fractional Calculus and Appl. \(JFCA\)](#), (JFCA), Vol. 7(1)(2016)

Y. Gholami, and K. Ghanbari, Existence and uniqueness of positive solutions for coupled systems of fractional Delta-difference boundary value problems, [J. Fractional Calculus and Appl. \(JFCA\)](#), Vol. 7(2)(2016)

Y. Gholami and K. Ghanbari , Existence of positive solutions for a coupled hybrid system of quadratic fractional integral equations, *Azerbaijan Journal of Mathematics* Vol. 6, No. 2, 2016

Y. Gholami and K. Ghanbari , On solvability of coupled hybrid system of quadratic fractional integral equations, [Tamkang Journal of Mathematics](#), Vol. 47 No. 3 (2016)

Y. Gholami and K. Ghanbari , Coupled systems of fractional nabla-difference boundary value problems, *Differential Equations & Applications*, Volume 8, Number 4 (2016), 459-470

T. Haghi and K. Ghanbari , Positive solutions for discrete fractional initial value problem [Computational Methods for Differential Equations](#), Vol.4 No.4 (2016) 285-297

Y. Gholami and K. Ghanbari , Existence of positive solutions for coupled systems of half-linear boundary value problems involving Caputo fractional derivatives, [Fractional Differential Calculus](#), Vol. 6

No.2 (2016) 249-265

K. Ghanbari and Y. Gholami, New classes of Lyapunov type inequalities of fractional Delta-difference Sturm-Liouville problems with applications, [*Bulletin of the Iranian Mathematical Society*](#), Vol.43 No.2 (2017) 385-408

Mahsa R. Moghaddam; Kazem Ghanbari; Angelo B. Mingarelli, Isospectral matrix flow maintaining staircase structure and total positivity of an initial matrix, [*Linear Algebra and Applications*](#), Vol. 517 (2017) 1345-147

Yousef Gholami and Kazem Ghanbari, Fractional Lyapunov inequalities on spherical shells, *Journal of Differential Equations & Applications* Vol.9 No.3 (2017) 353-268

Yousef Gholami and Kazem Ghanbari, Coupled systems of Caputo type fractional Δ -difference boundary value problems at resonance, *Transaction of Razmadze Mathematical Institute*, Science Direct, 171 (2017) 332-349

Yousef Gholami and Kazem Ghanbari, Comparative dynamics of fractional half-linear boundary value problems via Lyapunov inequalities, [*J. Fractional Calculus and Appl.*](#) (JFCA), Vol. 8(2) (2017)

Yousef Gholami and Kazem Ghanbari, New class of conformable derivatives and applications to differential impulsive systems, [*SeMa*](#), Springer, 75 (2018) 305-333

F. Ghanbari, K. Ghanbari and P. Mokhtayi, High-Order Legendre collocation method for fractional order linear semi explicit differential algebraic equations, [*ETNA*](#), Vol. 48 (2018) 387-406

F. Ghanbari, K. Ghanbari and P. Mokhtary, Generalized Jacobi Galerkin method for nonlinear fractional differential algebraic equations, [*Comp. Appl. Math.*](#), Vol. 37 (Issue4) (2018) pp. 5456-5475

T. Haghi, K. Ghanbari and Angelo Mingarelli, Existence of positive solutions for regular fractional Sturm-Liouville problems, [Fractional Differential Calculus](#), Vol. 9, No. 2 (2019) 279-294

F. Ghanbari, P. Mokhtary and K. Ghanbari, Numerical solution of a class of fractional order integro-differential algebraic equations using Müntz-Jacobi Tau method, [J. of Computational and Applied Mathematics](#), 362(2019), 172-184

F. Ghanbari, P. Mokhtary and K. Ghanbari, On the numerical solution of a class of linear fractional integro-differential algebraic equations with weakly singular kernels, [Appl. Numer. Math.](#), 144(2019), 1-20

K. Ghanbari and T. Haghi, Parameter interval of positive solutions for a system of fractional difference equation, [Advances in Difference Equations](#), 247 (2020)

E. Massah, F. Dastmalchi, A. Jodayree, K. Ghanbari, Eigenvalues of Fractional Sturm-Liouville problems by successive method, [Computational Methods for Differential Equations](#), Vol. 9, No. 4 (2021) 1163-1175

K. Ghanbari and Y. Gholami, Lyapunov type inequalities for fractional impulsive Hamiltonian systems, [Dynamics of Continuous, Discrete and impulsive systems series A: Mathematical Analysis](#), 28 (2021) 1-23

E. Massah, F. Dastmalchi, A. Jodayree, K. Ghanbari, Computation of eigenvalues of Fractional Sturm-Liouville problems, [Iranian Journal of Numerical Analysis and Optimization](#), Vol. 11, No. 1 (2021) 117-133

H. Mirzaei, K. Ghanbari, Construction of H-Symmetric pentadiagonal matrices by three spectra, [Inverse Problems in Science and Engineering](#) Vol.30 No. 1 (2022) 61-74

Z. Kavoochi, K. Ghanbari and H. Mirzaei, New form of Laguerre fractional differential equation and, [Turkish Journal of Mathematics](#), Vol. 46, No. 7 (2022) 2998-3010

K. Ghanbari and M. Moghaddam, Construction of Symmetric Pentadiagonal Matrix from Three Interlacing Spectrum, Journal of Algebra and Related Topics ([JART](#)), Vol.10 No. 2 (2022) pp. 89-98

Books:

1- [Differential Equations and Linear Algebra](#), (Translated from English to Persian) Sahand University of Technology Publisher, 1997

2- [Advanced Engineering Mathematics](#), Sahand University of Technology Publisher, 2006

3- [Theory and Problems in Differential Equations](#), Frouzesh Publisher Ltd. 2011, (Coauthor Hanif Mirzaei)

4- [Linear Algebra and its Applications](#), Sahand University of Technology Publisher, 2012, (Coauthor Ahmad Sadeghi Yazdankhah)

5- [Lie Groups Method in Ordinary Differential Equations](#), Jihad Daneshgahi Publisher (ISBA), 2014

