### **Curriculum Vitae**

Jalil Rashidinia
Associate Professor,
Head of Department
School of Mathematics
Iran University of Science and Technology
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Date of birth: 23/3/1955

Place of birth: Kermanshah, Iran Languages: Persian, Kurdish

Nationality: Iranian Foreign Languages: English

### **Academic Qualifications:**

**Ph.D:** Applied Mathematics, AMU, India 1994,

Application of splines to numerical solution of differential equations

M. Phil: Applied Mathematics, AMU India 1991,

Numerical solution of differential equations

**M.S.C:** Mathematics Meerut University, India 1987

**B.Sc:** Poona University, 1983

#### **Research Interests:**

Applied mathematics and computational sciences Numerical solution of ODE Numerical solution of PDE Numerical solution of IE Splines approximation Numerical linear algebra

## Thesis and Dissertations Supervise:

1) MSC. Levels: 55 2) PhD Levels: 7

# **Teaching Experience:**

**Courses:** 

Calculus 1, 2 (for B.Sc., Eng., BE Students, Physics) Differential Equation (for B.Sc., BE. Eng.)



Computational Mathematics (for BE students)
Numerical Analysis 1 and 2(for B.Sc. students)
Engineering Mathematics
Advanced Engineering Mathematics
Advanced Numerical Analysis
Numerical Linear Algebra
Numerical Solutions of Ordinary Differential Equations (ODE)
Numerical Solutions of Partial Differential Equations (PDE)
Approximation Theory
Calculus of Variation

### **Current Research Projects:**

- Sinc- Galerkin method for solution of boundary value problems 2011
- Solving linear and nonlinear advection dispersion equation in groundwater contaminant 2010
- Obstacle boundary value problems 2009
- Splines and boundary value problems 2008
- Numerical solution of linear integral equations based on Sinc function 2007
- Study on mathematical modeling of Plate detections and their computer algorithm 2003
- Applications of Spline to numerical solution of singular boundary value problems 2002.
- Variable mesh method for solution of singular two point boundary value problems 2004.
- Applications of Splines in interpolation.

## **Books written (in Persian)**

Computational Mathematics , Published by The Institute of Recent Information and Technology Amirkabir University of Tafresh Iran , (2004).

## **Published Journal Papers:**

- J. Rashidinia, A. Barati and M. Nabati. Application of Sinc-Galerkin method to singularly perturbed parabolic convection-difusion problems. Numer Algor .Doi 10.1007/s11075-013-9752-5
- J. Rashidinia etall, Sinc-Galerkin method for numerical solution of the Bratu's problems. Numer. Algor. (2013) Doi 10.1007/s11075-012-9560-3
- J. Rashidinia Ali Tahmasebi Approximate solution of linear integro-differential equations by using modified Taylor expansion method. World Jour.l of Model. Simul. Vol. 9 (2013) No. 4, pp. 289-301
- J. Rashidinia and Z. Mahmoodi, Collocation method for Fredholm and Volterra integral equations. Kybernetes Vol. 42 No. 3, 2013 pp. 400-41
- J. Rashidinia and M. Nabati Sinc-Galerkin and Sinc-Collocation methods in the solution of nonlinear two-point boundary value problems. Comp. Appl. Math. (2013) 32:315–330
- J. Rashidinia and M. Nabati, Sinc-collocation solution for nonlinear two-point boundary value problems arising in chemical reactor theory. Malaya Journal of Matematik 4(1)(2013) 97–106
- J. Rashidinia, S. Jamalzadeh and F.Esfahani Numeriacl Solution of Onedimensional Telegraph Equation Using Cubic Spline Collocation Method, Journal of Interpol. and Approx.in Scientific Comput. 2013 (2013) 1-8
- J. Rashidinia, Sh. Sharifi, Survey of B-spline functions to approximate the solution of mathematical problems. Mathematical Sciences 2012, 6:48
- J. Rashidinia ,E. Najafi and A. Arzhang , An iterative scheme for numerical solutionVolterra integral equations using collocation method and Chebyshev polynomials, Mathematical Sciences 2012, 6:60
- J. Rashidinia, etal, B-Spline collocation method for linear and nonlinear Fredholm and Volterra integro-differential equations. Applicable Analysis, 2012, 1–16. IFirst
- J. Rashidinia and R. Mohammadi, Tension spline solution of nonlinear sine-Gordon equation, Numer Algor (2011) 56:129–142
- J. Rashidinia.M. Ghasemi and R. Jalilian An O(h6) numerical solution of general nonlinear fifth-order two point boundary value problems. Numer Algor (2010) 55:403–428
- J. Rashidinia M. Ghasemi B-spline collocation for solution of two-point boundary value problems. Journal of Computational and Applied Mathematics 235 (2011) 2325–2342
- **J. Rashidinia** and Ali Tahmasebi, Systems of nonlinear Volterra integro-differential equations. Numer Algor (2012) 59:197–212

- J. Rashidinia and B. Azarnavid, Regularization of backward heat conduction problem. Commun. Nonlinear Sci. Numer. Simulat. Volume 17, Issue 1, January 2012, 227-234
- J. Rashidinia and A. Parsa, Semi-Orthogonal spline scaling functions for solving Hammerstein integral equations. Inter. Journal of Wavelets, Multiresolution and Information Processing. Vol. 9, No. 3, 2011, 427–443
- J. Rashidinia M.Ghasemi, B-spline collocation for solution of two-point boundary value problems . Jour. Comput. Appl. Math., Vol. 235, Issue 8, 2011, 2325-2342
- **J. Rashidinia** R.Jalilian K. Farajeyan, Non polynomial spline solutions for special linear tenth-order boundary value Problems . World Jour. Model. Simul. V.7 No. 1 2011, pp. 40-51
- J. Rashidinia, R.Mohammadi and S.H. Moatamedoshariati, Quintic spline methods for the solution of singularly perturbed boundary value problems. Intr.Jour. Comput. Methd Engg. Sc. Mechs. Vol. 11, 2010, 247-257.
- J. Rashidinia Non-polynomial spline solution of forth-order Obstacle. International journal of mathematical and statistical
- M. Zarebnia, **J. Rashidinia**, Convergence of the sinc method applied to Voltra integral equations, Applications and applied mathematics an international journal, V.5 N.1 June 2010, page 198 216.
- M. Zarebnia, **J. Rashidinia**, approximate solution of system of Voltra integral equation with error analysis International Journal of Computer Mathematics V.87 N.13, 2010 Page 3052-3062
- **J. Rashidinia** R.Mohammadi, Tension spline approach for the numerical solution of nonlinear Klein–Gordon equation. Computer Physics Communications, Vol. 181, 2010, 78–91.
- J. Rashidinia R.Mohammadi, Tension spline solution of nonlinear sine-Gordon equation .Numerical algorithm Springer 56 2011 page 129-142
- J. Rashidinia R.Mohammadi, Non-Polynomial spline approximations for the solution of singulary-pertubred boundary value problem TWMS Journal of Pure and Applied Mathematics V.1, N.2, 2010, pp. 236-251
- J. Rashidinia R.Mohammadi. Sextic spline solution of variable coefficient fourth-order parabolic equations, International Journal of Computer Mathematics Vol. 87, No. 15, 2010, 3443–3454
- **J. Rashidinia** R.Jalilian, Spline Solution of two point boundary value problem Applied and Computational mathematics V. 9 N. 2 2010 pp.258-266

- R. Jalilian , **J. Rashidinia**, Convergence analysis of nonic-spline solutions for special nonlinear sixth-order boundary value problems. Commun. Nonlinear Sci Numer. Simulat. , Vol. 15 , 2010, 3805–3813
- J. Rashidinia R.Mohammadi S.H.Moatamedoshariati, Quintic Spline Methods for the solution of singularly Perturbed Boundary-Value Problems International Journal for computational methods in engineering Science and mechanics 11 2010 page 247-257
- J. Rashidinia M.ghasemi R.Jalilian, An O(h^6) numerical solution of general nonlinear fifth-order two point boundary value problems Numerical Algorithms 2010
- J. Rashidinia Babak Azarnavid Solving Fredholm integral equations of the first kind of convolution type using polynomials. Journal of Advanced Research in Applied Mathematics . Vol.2, issue 2, 2010 ,pp. 48-57
- J. Rashidinia, M. Ghasemi, R. Jalilian, Numerical solution of the nonlinear Klein–Gordon equation, *Journal of Computational and Applied Mathematics*, *Volume 233*, *Issue 8*, 15 February 2010, Pages 1866-1878
- R. Jalilian, J. Rashidinia, Convergence analysis of nonic-spline solutions for special nonlinear sixth-order boundary value problems, *Communications in Nonlinear Science and Numerical Simulation, In Press, Corrected Proof, Available online 25 January*2010
- J. Rashidinia, R. Mohammadi, Tension spline approach for the numerical solution of nonlinear Klein–Gordon equation, *Computer Physics Communications*, *Volume 181*, *Issue 1*, *January 2010*, *Pages 78-91*
- *M. Zarebnia*, **J. Rashidinia**, Approximate solution of systems of Volterra integral equations with error analysis International Journal of Computer Mathematics. Vol. 87, No. 13, 2010, 3052–3062
- J. Rashidinia, R. Mohammadi, Numerical Methods Based on Non-Polynomial Sextic Spline for Solution of Variable Coefficient Fourth-Order Wave Equations, *International Journal for Computational Methods in Engineering Science and Mechanics*, Volume 10, Issue 4, 2009, Pages 266 276
- J. Rashidinia, L. Mohammadnia, Earth surface modeling using natural cubic Spline. Inter. Jour. Sc. Tech. Amirkabir, Vol. 19, no. 69, 2009, 51-57
- **J. Rashidinia**, R. Jalilian, K. Farajeyan, Spline approximate solution of eighth-order boundary-value problems, International Journal of Computer Mathematics, Volume 86, Issue 8, First published 2009, Pages 1319 1333
- J. Rashidinia, R. Jalilian, R. Mohammadi, Quintic Spline Solution of Boundary Value Problems in the Plate Deflection Theory, Computer Science & Engineering and, Electrical Engineering, Vol. 16, No. 1, pp. 53-59, 2009.

- J. Rashidinia, R. Jalilian, R. Mohammadi, Convergence Analysis of Spline Solution of Certain Two-Point Boundary Value Problems, Computer Science & Engineering and, Electrical Engineering, Vol. 16, No. 2, 2009, pp. 128-136.
- J. Rashidinia, Elham R. Moghadam, Cubic spline solution of obstacle problem, Italian Journal of Pure and Applied Mathematics, No. 26, 2009, pp. 123-134.
- **J. Rashidinia**, Finite difference methods for a class of two-point boundary value problems, International journal of engineering science, No 5-2, Vol. 19, 2008, 67-72
- J. Rashidinia, M. Zarebnia, New approach for numerical solution of Voltra integral equation of the second kind, International journal of engineering science, No 5-2, Vol. 19, 2008, 59-65
- **J. Rashidinia**, R. Jalilian R. Mohammadi, Cubic spline method for two-point boundary value problems, International journal of engineering sciences, No 5-2, Vol. 19, 2008, 39-43.
- J. Rashidinia and Mohammadi, R, Non-polynomial cubic spline methods for the solution of parabolic equations . Int. J. Comput. Math. 85, No. 5, 843-850 2008.
- J. Rashidinia, R. Jalilian. Non-polynomial spline for solution of boundary-value problems in plate deflection theory. International Journal of Computer Mathematics Vol. 84, No. 10, 2007, 1483–1494
- J. Rashidinia, Mohammadi, R. and R. Jalilian, Spline solution of non-linear singular boundary value problems. Int. J. Comput. Math. 85, No. 1, 2008, 39–52.
- J. Rashidinia, Mahmoodi, z. Non-polynomial spline solution of a singularly-perturbed boundary-value problems. Int. J. Contemp. Math. Sci. 2, No.29-32, 1581-1586,2007.
- J. Rashidinia and M. Zarebniion ,Solution of a Volterra integral equation by the Sinc-collocation method, *Journal of Computational and Applied Mathematics*, 206(2), 801-813, 2007.
- J. Rashidinia and M. Zarebnia, Convergence of approximate solution of system of Fredholm integral equations, *Journal of Mathematical Analysis and Applications*, 333(2), 1216-1227, 2007.
- J. Rashidinia, R. Jalilian and K. Farajeyan, Spline approximate solution of fifth-order boundary-value problem, *Applied Mathematics and Computation*, 192(1), 107-112, 2007.
- J. Rashidinia, R. Jalilian, R. Mohammadi and M. Ghasemi, Sextic spline method for the solution of a system of obstacle problems, *Applied Mathematics and Computation*, 190(2), 1669-1674, 2007.

- J. Rashidinia, R. Mohammadi and M. Ghasemi, Cubic spline solution of singularly perturbed boundary value problems with significant first derivatives, *Applied Mathematics and Computation*, 190(2), 1762-1766, 2007.
- J. Rashidinia, R. Jalilian and V. Kazemi, Spline methods for the solutions of hyperbolic equations, *Applied Mathematics and Computation*, 190(1), 882-886, 2007.
- J. Rashidinia, M. Ghasemi and Z. Mahmoodi, Spline approach to the solution of a singularly-perturbed boundary-value problems, *Applied Mathematics and Computation*, 189(1), 72-78, 2007.
- J. Rashidinia and M. Zarebnia, The numerical solution of integro-differential equation by means of the Sinc method, *Applied Mathematics and Computation*, 188(2), 1124-1130, 2007.
- J. Rashidinia, R. Jalilian and R. Mohammadi, Non-polynomial spline methods for the solution of a system of obstacle problems, *Applied Mathematics and Computation*, 188(2), 1984-1990, 2007.
- J. Rashidinia, Z. Mahmoodi and M. Ghasemi, Parametric spline method for a class of singular two-point boundary value problems, *Applied Mathematics and Computation*, 188(1), 58-63, 2007.
- J. Rashidinia, R. Mohammadi, R. Jalilian and M. Ghasemi, Convergence of cubic-spline approach to the solution of a system of boundary-value problems, *Applied Mathematics and Computation*, article in press, doi:10.1016/j.amc.2007.03.008, 2007.
- J. Rashidinia, R. Jalilian, R. Mohammadi, Comment on the paper "A class of methods based on non-polynomial spline functions for the solution of a special fourth-order boundary-value problems with engineering applications", *Applied Mathematics and Computation*, 86(2), 1572-1580, 2007.
- J. Rashidinia, E. Jafarzadeh, Accelerated generalized successive over relaxation method for least squares problems, Applied *Mathematics and Computation*, 186(1), 175-183, 2007.
- J. Rashidinia, M. Zarebnia, New approach for numerical solution of Hammerstein integral equations, *Applied Mathematics and Computation*, 185(1), 147-154, 2007.
- J. Rashidinia, R. Mohammadi, R. Jalilian, The numerical solution of non-linear singular boundary value problems arising in physiology, *Applied Mathematics and Computation*, 185(1), 360-367, 2007.
- **J. Rashidinia**, A. Golbabaee, Convergence of numerical solution of a fourth-order boundary value problem, *Applied Mathematics and Computation*, 171(2), 1296-1305, 2005.

- **J. Rashidinia** and M. Zarebnia, Numerical solution of linear integral equations by using Sinc-collocation method, *Applied Mathematics and Computation*, 168(2), 806-822, 2005.
- Tariq Aziz, Arshad Khan, **Jalil Rashidinia**, Spline methods for the solution of fourth-order parabolic partial differential equations, *Applied Mathematics and Computation*, 167(1), 153-166, 2005.
- J. Rashidinia, High order methods for singular two point B.V.Ps. Inter. Jour. Engg. Sc. Vol. 17(2), 2006, 15-22,
- J. Rashidinia, Variable mesh method for a singular tow-point boundary value problem. Intr. J. Engg. Sc. 14(5), 2003, pp 23-33.
- **J. Rashidinia**, Direct Methods for Solution of a Linear 4th –order Two –point B.V.P., Inter .J. of Engg. Sc. 13(4), 2002, pp 37-48
- J. Rashidinia, Spline Solution of 4th –order Parabolic P.D.Es., Inter .J of Appl. Sci. & Comput, 3, 1999.
- J. Rashidinia, Quintic Spline Solution of 4th –order Two- point B.V.P., *Inter J of Appl. Sci. & Comput*, 3, 1997, pp 191-197.

## **Published Conference papers:**

- J. Rashidinia etall. Numerical solution of KleinL-Gordon Equation using non Polynomial spline. IMC44 Ferdousi Mashhad University.(2013)
- J. Rashidinia etall, Wavelet Method for Nonlinear Klein-Gordon Equation. 5th Iranian Conference on Applied MathematicsSeptember 2-4, 2013 Bu-Ali Sina University.
- J. Rashidinia etall . Numerical solution of Klein-Gordon equation using non-polynomial quintic spline . 4th Conference on Mathematical Analysis and its Applications Faculty of Khansar, Khansar, Iran, May 7-8, 2013
- J. Rashidinia and A. Barati Sinc-Galerkin method for numerical solution of time-dependent linear convection-difusion equation. The 43rd Annual Iranian Mathematics Conference, University of Tabriz August 2012, Tabriz, Iran
- J. Rashidinia etall Numerical solution of the nonlinear Fredholm integral equations of the second kind by radial basis functions. The 43rd Annual Iranian Mathematics Conference, University of Tabriz August 2012, Tabriz, Iran
- J. Rashidinia etall, Sinc-Galerkin method based on the DE transformation for solution of the nonlinear Lane-Emden type equations arising in astrophysics. The 43rd Annual Iranian Mathematics Conference, University of Tabriz August 2012, Tabriz, Iran

- J. Rashidinia and H. Sadeghi Finite volume method for solution of Elliptic differention equations The 9th Seminar on Differential Equations and Dynamical Systems, Tabriz, Iran, July 11-13, 2012
- J. Rashidinia and N. Taheri, Sinc-Galerkin method for numerical solution of the Bratu's problem. 42 nd Annual Iranian Mathematics Conference.5-8 Spt.2011, Valie-Asr Rafsanjan.
- J. Rashidinia, S.Ghasemi and S.M. Khademiyan, A criteria for comparison of classes of third order Runge-Kutta methods. 42 nd Annual Iranian Mathematics Conference.5-8 Spt.2011, Valie-Asr Rafsanjan.
- J. Rashidinia, Mohammadi. Spline solution of generalized sine-Gordon equation. The 23-rd International Conference of Jangjeon Mathematical Society. February 2010 Ahvaz Iran.
- J. Rashidinia, Spline Methods for solution of third-order boundary value problems. The 2-nd International Conference on Mathematical Sciences. November 2010 University Kebangsaan Malaysia.
- J. Rashidinia, F.Akbarifard. Finite element method and surface elliptic equations. 41st Annual Iranian Mathematics Conference. September 2010 University of Urmia. Urmia Iran.
- J. Rashidinia, M.hajisadeghi. Finite Volume method for solution of diffusion equation. 41st Annual Iranian Mathematics Conference. September 2010 University of Urmia. Urmia Iran.
- J. Rashidinia, R. Yarmohamadi. orthogonal spline collocation for Non-linear elliptic B.V.Ps. 41st Annual Iranian Mathematics Conference. September 2010 University of Urmia, Urmia Iran.
- J. Rashidinia, Jalilian and Mohammadi. Non-Polynomial spline methods for solution of nonlinear second-order Two-point B.V.P. 39th Annual Iranian Mathematics Conference. August 2008 Kerman Iran
- J. Rashidinia. Survey of splines. Invited speaker in international conference on Recent Trends in mathematics and its application ,March 30 31 2009 in department of mathematics Jamia Millia Islamia New Delhi India
- J. Rashidinia, M.Satorzan Septic C2-spline collocation for initial value problem. 40Th Annual Iranian Mathematics Conference, Sharif University of Technology August 17-20, 2009
- J. Rashidinia, S.Ezatravesh Finite-Difference Methods for Solution of Advection Dispersion Equation with Linear Adsorption, Sharif University of Technology August 17-20, 2009

- J. Rashidinia, Sextic spline approximations for the solution of singularly-perturbed boundary value problems. The second inter. Conference on Control and Optimization with Industrial Applications. Baku, Azarbaijan, June, 2-4, 2008.
- J. Rashidinia, Spline solution of two piont boundary value problems. The second inter. Conference on Control and Optimization with Industrial Applications. Baku, Azarbaijan, June,2-4,2008.
- Z.Mahmoodi, **J. Rashidinia**, Finite difference methods for a class of two-point boundary value problem. Conference on Control and Optimization with Industrial Applications. Baku, Azarbaijan, June, 2-4, 2008.
- J. Rashidinia, Jalilian and Mohammadi. Non-polynomial Spline methods for the solution third other B.V.Ps. 38nd Annual Iranian Mathematics Conference. September 2007 University of Zanjan Iran.
- J. Rashidinia, Zarebnia. Soluion of Non-Linear Volterra-Hammerstein integral equations Via Sinc Function. 38nd Annual Iranian Mathematics Conference. September 2007 University of Zanjan Iran.
- J. Rashidinia, Farajian. Quaint Spline method for B.V.Ps . 37nd Annual Iranian Mathematics Conference. September 2006 Tabriz Iran.
- J. Rashidinia, Jalilian and Mohammadi. Non-polynomial Spline methods for the solution of system of abstacle problems. 37nd Annual Iranian Mathematics Conference. September 2006 Tabriz Iran.
- J. Rashidinia, Modification of quintic spline approximation, Proceeding of ICMSAO, Sarjah, UAE, February 1-3, 2005.
- J. Rashidinia, Zarebnia Numerical Solution of Voltrra Integral equations of the second kind. 36-th Conference on Control and Optimization with Industrial Applications. Baku, Azarbaijan, September, Yazd 2005.
- **J. Rashidinia**, Sinc-Galerkin method for solution of boundary value problem in plate, deflection theory. Proceeding of ICMSAO, Sarjah, UAE February. 1-3, 2005.
- J. Rashidinia, Numerical solution of initial value problems based on sinc method, 35-th Annual Iranian Mathematics Conference, Shahid Chamran University Ahvaz, Jan. 2005.
- J. Rashidinia, Lagrange bivariate interpolation and their application in economic, 35-th Annual Iranian Mathematics Conference, Shahid Chamran University Ahvaz, Jan. 2005.
- J. Rashidinia, Jalilian, Generalized divided difference and computation of sum rational functions integrals, 35-th Annual Iranian Mathematics Conference, Shahid Chamran University Ahvaz, Jan. 2005.

- J. Rashidinia, Numerical solution of Volterra integral equations of the second kind, IMC, Yazd Unv. 2005.
- J. Rashidinia, A New Approach and Mechanical solver for linear systems of equation .34th, Shahrood 2003.
- J. Rashidinia, Spline Algorithm for class of singular Two-point B.V.Pbs, Proc. of first I.C.G.C., Amirkabir University of Technology, 2001.
- J. Rashidinia, M.Zarebnia. Convergence of Sinc method for solution of boundary value problem and their application .33-rd Annual Iranian Mathematics Conference. august 2002 Ferdowsi University Mashhad iran.
- J. Rashidinia, Numerical Solution of Conservation law based on parametric Spline. 32nd Annual Iranian Mathematics Conference. August 2001 Babolsar Iran.
- J. Rashidinia, Splines and singular boundary value problem. 32nd Annual Iranian Mathematicas Conference. August 2001 Babolsar Iran.
- J. Rashidinia, Convergence of Sinc method for solution of two point boundary value problem and their application. 32nd Annual Iranian Mathematics Conference. August 2001 Babolsar Iran.
- J. Rashidinia, Spline Algorithm for a Class of singular two-point boundary value problem. The first International Seminar on Graph, Combinatorics, Computational Algorithms and Applications. 31st January 2001.
- J. Rashidinia, Spline Approximation for Singular Two-point B.V.Ps., Proc. of 2nd ICAM, Oct 25-27 (2000), IUST.
- J. Rashidinia, Spline Solution of 4th –order Two point Non –linear B.V.P., Proc of the 26th AIMC March, 28-31 (1995).
- J. Rashidinia, Spline Methods for Solution of a 4th –order Two –point B.V.Ps., Proc. Of 25th AIMC, 1994.
- J. Rashidinia, Spline Function Approximation for I.B.V.P in Parabolic P.D.Es., Proc. Of 4th S.I.S. Poona India, 1993.