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Curriculum Vitae
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Name	Prof. Dr. Reza Mokhtari
Date and place of Birth	22/12/1970, Isfahan, Iran
Marriage status	Married, 2 daughters
Address	Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran
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ORCID	http://orcid.org/0000-0002-1420-0949
Research interests	Numerical/Theoretical analysis of PDEs Mathematical modeling (ODEs/PDEs models) Mathematical and scientific programming
Interests	Football, hiking, and swimming Backgammon traditional music
Abilities	Skilled teacher and researcher Professional computer programmer (C, Fortran, MATLAB, Mathematica, ...) Advanced English reader and writer Good at English conversation Expert in Latex, MS Office, ...

Education

- **PhD**: Applied Mathematics (Concentration: Numerical Analysis), Iran University of Science and Technology, Tehran, Iran, 2005. (Top student)
- PhD Thesis: Substructuring Preconditioner for Three Fields Domain Decomposition Method
- **M.Sc.**: Applied Mathematics (Concentration: Numerical Analysis), Iran University of Science and Technology, Tehran, Iran 1996. (Top student)
- M.sc. Thesis: Generalized Finite Element Method
  B.Sc.: Applied Mathematics, University of Isfahan, Isfahan, Iran, 1994.

Selected learned courses

- Advanced numerical Analysis, Numerical solution of ODEs, Numerical solution of PDEs, Numerical Linear Algebra, FDM, FEM, Optimal Control.
- Real Analysis, Functional Analysis, Elliptic PDEs, Parabolic PDEs.

Employment

- o Member of several local and national committees from 2010.
- o Deputy of educational affairs, Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, from 2020.
- o Executive manager in the research and technology affairs of Isfahan University of Technology, Isfahan, Iran, 2018-2020.
- o Head of the main library of Isfahan University of Technology, Isfahan, Iran, 2014-2018.
- o Associate Professor of Applied Mathematics (Numerical Analysis), Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, from 2013.
- o Assistant Professor of Applied Mathematics (Numerical Analysis), Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, from 2006-2013.
- o Lecturer at the Islamic Azad University of Khorasgan, Isfahan, Iran, for 7 years.

Teaching

- o **Undergraduate Courses from 2006**: Calculus, Numerical analysis, Numerical computation, Ordinary differential equations, Numerical linear algebra, Numerical solution of differential equations.
- o **Graduate Courses from 2006**: Advanced numerical analysis, Numerical solution of PDEs, Topics in Numerical Analysis, Meshless methods, FDM, FEM, Numerical solution of ODEs.
- o **Short course at winter school**: Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, winter 2019.
- o **Short course at summer school**: Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria, summer 2019.

Journal papers

1-S. Bertoluzza, M.R. Mokhtarzadeh, R. Mokhtary, N.G. Chegini, Comparing PCG with BiCG and BiCGStab for the linear system araising in the three fields domain decomposition method, Technical Report 31-PV, I.M.A.T.I.-C.N.R. Pavia, Italy, 2004.

2-M.R. Mokhtarzadeh, A. Golbabaee, R. Mokhtary, N.G. Chegini, Suitable iterative methods for solving the linear system arising in the three fields domain decomposition method, Appl. Math. Comput. 170 (2005), no. 2, 741-751.

3-A. Golbabaee, M.R. Mokhtarzadeh, N.G. Chegini, R. Mokhtary, Wavelet preconditioning for the three fields formulation: numerical results in conforming decomposition, Appl. Math. Comput. 174 (2006), no. 1, 545-565.

4-M.R. Mokhtarzadeh, R. Mokhtary, N.G. Chegini, Bi-CG: an effective solver for three fields domain decomposition method in parallel environments, Appl. Math. Comput. 174 (2006), no. 2, 1196-1205.

5-N.G. Chegini, A. Golbabaee, R. Mokhtari, Application of biorthogonal wavelets to preconditioning the 3-fields formulation: numerical results in nonconforming decomposition, Int. Math. Forum 1 (2006), no. 25-28, 1391-1403.

6-E. Babolian, R. Mokhtari, M. Salmani, Using direct method for solving variational problems via triangular orthogonal functions, Appl. Math. Comput. 191 (2007), no. 1, 206-217.

7-R. Mokhtari, Variational iteration method for solving nonlinear differential-difference equations, Int. J. Nonlinear Sci. Numer. 9(1) (2008) 19-23.

8-R. Mokhtari, M. Mohammadi, Some Remarks on the Variational Iteration Method, Int. J. Nonlinear Sci. Numer. 10(1) (2009) 67-74.

9-R. Mokhtari, M. Mohammadi, New exact solutions to a class of coupled nonlinear PDEs, Int. J. Nonlinear Sci. Numer. 10(6) (2009) 779-796.

10-R. Mokhtari, M. Mohammadi, Numerical solution of GRLW equation using Sinc-collocation method, Comput. Phys. Commun. 181 (2010) 1266-1274.

11-S. Borhani, S. Seirafianpour, S.A.H. Ravandi, M. Sheikhzadeh, R. Mokhtari, Computational and experimental investigation of moisture transport of spacer fabrics, J. Eng. Fibers Fabrics 5(3) (2010) 42-48.

12-R. Mokhtari, Exact solutions of Harry-Dym equation, Commun. Theor. Phys. 55(2) (2011) 204-208.

13-R. Mokhtari, A. Samadi Toodar and N.G. Chegini, Numerical simulation of coupled nonlinear Schrodinger equations using the generalized differential quadrature method, Chinese Phys. Lett. 28 (2011) 020202 doi: 10.1088/0256-307X/28/2/020202.

14-M. Mohammadi, R. Mokhtari, Solving the generalized regularized long wave equation on the basis of a reproducing kernel space, J. Comput. Appl. Math. 235(14) (2011) 4003-4014.

15-D. Hajinejad, N. Salmasi, R. Mokhtari, A fast hybrid particle swarm optimization algorithm for flow shop sequence dependent group scheduling problem, Scientia Iranica 18(3) (2011) 759-764.

16-R. Mokhtari, A.S. Toodar, N.G. Chegini, Application of the generalized differential quadrature method in solving Burgers' equations, Communications in Theoretical Physics 56(6) (2011), 1009.

17-R. Mokhtari, S.T. Ziaratgahi, Numerical solution of RLW equation using integrated radial basis functions, Applied and Computational Mathematics 10 (3) (2011) 428-448.

18-R. Mokhtari, M. Mohseni, A meshless method for solving mKdV equation, Computer Physics Communications 183(6) (2012) 1259-1268.

19-N.G. Chegini, A. Salaripanah, R. Mokhtari, D. Isvand, Numerical solution of the regularized long wave equation using nonpolynomial splines, Nonlinear Dynamics 69(1-2) (2012) 459-471.

20-R. Mokhtari, F. Toutian Isfahani, M. Mohammadi, Reproducing kernel method for solving nonlinear differential-difference equations, Abstract and Applied Analysis, 2012.

21-M. Mohammadi, R. Mokhtari, A new algorithm for solving one-dimensional Schrodinger equations in the reproducing kernel space, Iranian Journal of Science and Technology, Transaction A: Science 37(A4) (2013) 513-526.

22-R. Mokhtari, D. Isvand, N.G. Chegini, A. Salaripanah, Numerical solution of the Schrödinger equations by using Delta-shaped basis functions, Nonlinear Dynamics 74(1-2) (2013) 77-93.

23-M. Mohammadi, R. Mokhtari, H. Panahipour, A Galerkin-reproducing kernel method: Application to the 2D nonlinear coupled Burgers' equations, Engineering Analysis with Boundary Elements 37(12) (2013) 1642-1652.

24-R. Akbari, R. Mokhtari, A new compact finite difference method for solving the generalized long wave equation, Numerical Functional Analysis and Optimization 35(2) (2014) 133-152.

25-M. Mohammadi, R. Mokhtari, F. Toutian Isfahani, Solving an inverse problem for a parabolic equation with a nonlocal boundary condition in the reproducing kernel space, Iranian Journal of Numerical Analysis and Optimization 4(1) (2014) 57-76.

26-M. Mohammadi, R. Mokhtari, H. Panahipour, Solving two parabolic inverse problems with a nonlocal boundary condition in the reproducing kernel space, Applied and Computational Mathematics 13(1) (2014) 91-106.

27-M. Mohammadi, R. Mokhtari, R. Schaback, A Meshless Method for Solving the 2D Brusselator Reaction-Diffusion System, CMES: Computer Modeling in Engineering & Sciences 101(2) (2014) 113-138.

28-M. Mohammadi, R. Mokhtari, A reproducing kernel method for solving a class of nonlinear systems of PDEs, Mathematical Modelling and Analysis 19(2) (2014) 180-198.

29-M. Asadzadeh, E. Kazemi, R. Mokhtari, Discrete-Ordinates and Streamline Diffusion Methods for a Flow Described by BGK Model, SIAM Journal on Scientific Computing 36(4) (2014) B729-B748.

30-R. Ketabchi, R. Mokhtari, E. Babolian, Some error estimates for solving Volterra integral equations by using the reproducing kernel method, Journal of Computational and Applied Mathematics 273(1) (2015) 245-250.

31-S. Yeganeh, R. Mokhtari, S. Fouladi, Using a LDG method for solving an inverse source problem of the time-fractional diffusion equation, Iranian Journal of Numerical Analysis and Optimization 7 (2), 115-135.

32-S. Yeganeh, R. Mokhtari, J.S. Hesthaven, Space-dependent source determination in a time-fractional diffusion equation using a local discontinuous Galerkin method, BIT Numer. Math. (2017) 57:685–707

33-F. Toutian Isfahani, R. Mokhtari, A numerical approach based on the reproducing kernel Hilbert space for solving a slass of boundary value optimal control problems, Iranian Journal of Science and Technology, Transaction A: Science 42(4) (2018) 2309-2318.

33-F. Toutian Isfahani, R. Mokhtari, G.B. Loghmani, M. Mohammadi, Numerical solution of some initial optimal control problems using the reproducing kernel Hilbert space technique, International Journal of Control, DOI: 10.1080/00207179.2018.1506888, 2020.

35-Z. Mousavi, R. Mokhtari, M. Lakestani, Blind deconvolution using shearlet-TV regularization, TWMS J. App. Eng. Math. 9(3) (2019) 525.

36-R. Akbari, R. Mokhtari, M.T. Jahandideh, A combined compact difference scheme for option pricing in the exponential jump-diffusion models, Advances in Difference Equations 2019 (1), 495.

37-R. Mokhtari, F. Mostajeran, A high order formula to approximate the Caputo fractional derivative, Communications on Applied Mathematics and Computation 2 (1) (2010) 1-29.

38-M. Ramezani, R. Mokhtari, G. Haase, Some high order formulae for approximating Caputo fractional derivatives, Applied Numerical Mathematics 153 (2020) 300-318.

39-S. Yeganeh, R. Mokhtari, J.S. Hesthaven, A local discontinuous Galerkin method for 2D time fractional diffusion equations, Communications on Applied Mathematics and Computation, DOI: 10.1007/s42967-020-00065-7, 2020.

Conference papers

1-R. Mokhtari, A comparison between PCG and Bi-CGStab for solving the linear system arising in the three fields domain decomposition method, 41st Annual Iranian Mathematics Conference, 10-13 August 2005, Yazd University, Yazd, Iran.

2-D. Hajinejad, R. Mokhtari, A hybrid swarm optimization algorithm for flow shop group schedueling problem with sequence dependent setup time, 2nd International Conference of Iranian Operations Research Society, 20-22 May 2009, University of Mazandaran, Babolsar, Iran.

3-D. Isvand, R. Mokhtari, N.G. Chegini, Delta-shape basis functions for solving RLW equation, 41st Annual Iranian Mathematics Conference, 12-15 August 2010, Urmia University, Urmia, Iran.

4-F. Toutian Isfahani, R. Mokhtari, M. Mohammadi, Solving an inverse coefficient problem in a reproducing kernel space, 42th Annual Iranian Mathematics Conference, 5-8 August 2011, Rafsanjan University, Rafsanjan, Iran.

5-R. Mokhtari, E. Feizolahi, A semi-Lagrangian scheme based on LOD for a system of 2D Buegers' equations, The 44th Annual Iranian Mathematics Conference, 27-30 July 2013, Ferdowsi University of Mashhad, Mashhad, Iran.

6-R. Mokhtari, F. Mirzadeh, Solving a system of 2D Burgers' equations using an ADI spectral collocation method, The 44th Annual Iranian Mathematics Conference, 27-30 July 2013, Ferdowsi University of Mashhad, Mashhad, Iran.

7-F. Mostajeran, R. Mokhtari, N. Karimi, Some Non-Classical Finite Difference Schemes with Application to Image Inpainting, The 45th Annual Iranian Mathematics Conference, 26-29 July 2014, Semnan University, Semnan, Iran.

8-M. Shafiei, R. Mokhtari, M. Shams Solary, Bounds for the extremal eigenvalues of a symmetric tridiagonal Toplitz matrices with four perturbation, The 45th Annual Iranian Mathematics Conference, 26-29 July 2014, Semnan University, Semnan, Iran (In Persian).

9-S. Yeganeh, R. Mokhtari, Numerical solution of an inverse source problem of the time-fractional diffusion equation using a LDG method, The 46th Annual Iranian Mathematics Conference, 25-28 August 2015, Yazd University, Yazd, Iran.

10-R. Akbari, R. Mokhtari, A compact finite difference method without using Hopf-Cole transformation for solving 1D Burgers equation, The 46th Annual Iranian Mathematics Conference, 25-28 August 2015, Yazd University, Yazd, Iran.

11-M. Zafarian, R. Mokhtari, N. Karimi, A pkcl method for solving a fractional diffusion-wave equation with application to image denoising, 13th International Seminar on

Differential Equations Dynamical Systems and Applications, 13-15 July 2016, Isfahan University of Technology, Isfahan, Iran.

12-R. Mokhtari, F.T. Isfahani, G.B. Loghmani, A reproducing kernel method for solving a fractional optimal control problem, 13th International Seminar on Differential Equations Dynamical Systems and Applications, 13-15 July 2016, Isfahan University of Technology, Isfahan, Iran.

13- M. Zafarian, R. Mokhtari, N. Karimi, Image denoising using a high order schema, 47th Annual Iranian Mathematics Conference, 28-31 August 2016, Kharazmi University, Karaj, Iran.

14- R. Mokhtari, F.T. Isfahani, Numerical solution of a fractional variational problem using the reproducing kernel method, 47th Annual Iranian Mathematics Conference, 28-31 August 2016, Kharazmi University, Karaj, Iran.

15- Sh. Baharloui, R. Mokhtari, A hybridized discontinuous Galerkin method for solving generalized Burgers equations, 7th seminar on Numerical Analysis and its Applications, 11-12 July 2018, Shahid Bahonar University of Kerman, Kerman, Iran.

16- Sh. Baharloui, R. Mokhtari, A Hybridized Discontinuous Galerkin Method for Solving Generalized regularized Long Wave Equations, 8th INTERNATIONAL EURASIAN CONFERENCE ON MATHEMATICAL SCIENCES AND APPLICATIONS, 27-29 August 2019, Baku, Azerbaijan.

17- Sh. Baharloui, R. Mokhtari, SOLVING GENERALIZED KDV-BURGERS' EQUATIONS USING A HYBRIDIZED DISCONTINUOUS GALERKIN METHOD, 32nd Chemnitz FE Symposium, 9-11 September 2019, University of Duisburg-Essen, Germany.

Visits

- A 6-month period in IAN-IMATI-CNR (Italy), under supervision of Prof. F. Brezzi in part and Prof. Silvia Bertoluzza, 2004.
- A short visits related to a project, Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria, fall 2018.
- A short visits related to a project, Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria, spring 2019.
- Course teaching, a two-week summer school, Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria, summer 2019.

MSc & PhD Students

- **Graduated:** 30 M.Sc. students and 5 PhD students.
- **Current:** 4 M.Sc. students and 5 PhD students.

Journal Reviewer

- Abstract and Applied Analysis
- Afrika Matematika
- Advances in Difference Equations
- Ain Shams Engineering Journal
- Applications and Applied Mathematics
- Applied and Computational Mathematics
- Applied Mathematics and Computations
- Applied Mathematics Letter
- Applied Numerical Mathematics
- BIT numerical Mathematics
- Bulletin of the Belgian Mathematical Society
- Bulletin of the Iranian Mathematical Society
- Calcolo
- Communications in Numerical Analysis
- Communications in Nonlinear Sciences and Numerical Simulations

- o Computer Communication & Collaboration
- o ESAIM: Mathematical Modelling and Numerical Analysis
- o International Journal of Computational Mathematics
- o International Journal of Computer Mathematics
- o International Journal of Numerical Methods in Heat and Fluid Flow
- o Iranian Journal of Numerical Analysis and Optimization
- o Iranian Journal of Science & Technology
- o Journal of Applied Mathematics
- o Journal of Computational and Applied Mathematics
- o Journal of Computer Engineering and Informatics
- o Journal of Scientific Computing
- o Mathematical Methods in the Applied Sciences
- o Mathematical Modelling and Analysis
- o Mathematical Problems in Engineering
- o Mathematical Sciences
- o Miskolc Mathematical Notes
- o Numerical Methods for Partial Differential Equations
- o Ocean Engineering
- o ScienceAsia - Journal of the Science Society of Thailand
- o Soft Computing
- o Walailak Journal of Science and Technology
- o Zeitschrift für Naturforschung A, A Journal of Physical Sciences

Organizer

- Winter school, Department of Mathematical Sciences, Isfahan University of Technology, Isfahan, Iran, winter 2019.
- Member of scientific committee, 49th Annual Iranian Mathematics Conference, 23-26 August 2018, Iran University of Science and Technology, Tehran, Iran.
- Member of scientific committee, 13th International Seminar on Differential Equations Dynamical Systems and Applications, 13-15 July 2016, Isfahan University of Technology, Isfahan, Iran.

References

- Gundolf Haase, Professor at Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria.
- Jan S. Hesthaven, Chair of EPFL-SB-MATHICES-MCSS, École Polytechnique Fédéral de Lausanne 1015, Lausanne, Switzerland.
- Chi-Wang Shu, Theodore B. Stowell University Professor of Applied Mathematics, Division of Applied Mathematics, Brown University, USA.
- Robert Schaback, Professor at Institut für Numerische und Angewandte Mathematik (NAM), Georg-August-Universität Göttingen, Lotzestrasse 16-18, D-37083 Göttingen, Germany.
- Mikael Lindström, Professor at Department of Mathematics, Åbo Akademi University, Åbo, Finland.