



Gholamreza Hojjati

Curriculum Vitae

*Professor of Applied Mathematics-Numerical Analysis at
the University of Tabriz*

Personal Details

Gender Male
Date of birth 15th August, 1973
Place of birth Maragheh, Iran
Present Iranian
Citizenship

Education

2000–2004 **PhD in Applied Mathematics**, *University of Tabriz, Tabriz, GPA – 19.37.*
First rank holder among Applied Mathematics PhD students starting University of Tabriz together

1995–1997 **Masters of Applied Mathematics**, *Tarbiat Modares University (T.M.U), Tehran, GPA – 19.00.*
First rank holder in the entrance examination

1991–1995 **Bachelor of Mathematics Education**, *University of Tabriz, Tabriz, GPA – 18.14.*
First rank holder among Mathematics BSc students starting University of Tabriz together

Masters Thesis

Title *Matrix free method for the solution of stiff systems of ODEs*
Supervisor Prof. S.M. Hosseini

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PhD Thesis

Title *The modification of advanced numerical methods for stiff IVPs*
Supervisor Prof. M.Y. Rahimi

Teaching Experience

2000–Present Advanced Numerical Analysis, Numerical solution of ODEs, Differential Algebraic Equation, Numerical Computations, Numerical Linear Algebra, Math. 1, Math. 2 (Multivariable Calculus) and Differential Equations at the University of Tabriz

Present Research/Professional Speciality

- Numerical methods for ordinary differential equations
- Efficient solution of stiff differential equations
- Numerical methods for Volterra integral equations
- Numerical methods for Volterra integro–differential equations
- Oscillatory Hamiltonian problems
- Numerical methods for differential-algebraic equations (Reading)

Visiting Positions

- 2004 A 6-month period for research under the supervision of Professor John C. Butcher, The University of Auckland, Auckland, New Zealand.
- 2005 A 1-month period for research in The Abdus Salam International Center of Theoretical Physics, ICTP, Trieste, Italy.

Workshops & Conferences

- 2017 International Conference on Computational Methods and Function Theory, July 2017, Lublin, Poland
- 2016 International Conference on Mathematical Methods and Models in Biosciences, June 2016, Blagoevgrad, Bulgaria.
- 2015 International conference on scientific computation and differential equations (SciCADE 2015), Sep. 2015, University of Potsdam, Potsdam, Germany.
- 2013 International conference on scientific computation and differential equations (SciCADE 2013), Sep. 2013, University of Valladolid, Spain.
- 2011 International conference on scientific computation and differential equations (SciCADE 2011), Aug. 2011, University of Toronto, Canada.
- 2010 Conference in Numerical Analysis (NumAn 2010), Sep. 2010, Chania, Crete, Greece.
- 2009 9th International Conference on Numerical Analysis and Applied Mathematics, Sep. 2009, (ICNAAM 2009), Sep. 2009, Rethymno, Crete, Greece.

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- 2008 5th European congress of mathematics, July 2008, Amsterdam, The Netherlands.
2007 International Conference on Dynamical Methods and Mathematical Modelling, Sep. 2007, Valladolid, Spain.

Publications

Journal articles:

1. H. Mahdi, A. Abdi, **G. Hojjati**, Efficient general linear methods for a class of Volterra integro-differential equations, *Appl. Numer. Math.* 127 (2018) 95–109.
2. M. Hosseini Nasab, A. Abdi, **G. Hojjati**, Symmetric second derivative integration methods, *J. Comput. Appl. Math.*, 330 (2018) 618–629.
3. N. Barghi Oskouie, **G. Hojjati**, A. Abdi, Efficient second derivative methods with extended stability regions for non-stiff IVPs, *Comp. Appl. Math.*, to appear.
4. N. Yousefzadeh, **G. Hojjati**, A. Abdi, Construction of implicit-explicit second derivative BDF methods, *Bull. Iranian Math. Soc.*, to appear
5. A. Movahedinejad, **G. Hojjati**, A. Abdi, Construction of Nordsieck second derivative general linear methods with inherent quadratic stability, *Math. Model. Anal.* 22 (2017) 60–77.
6. M. Hosseini Nasab, **G. Hojjati**, A. Abdi, G-symplectic second derivative general linear methods for Hamiltonian problems, *J. Comput. Appl. Math.* 313 (2017) 486–498.
7. N. Barghi Oskouie, A. Abdi, **G. Hojjati**, Some efficient Nordsieck integration methods for IVPs, *Iranian J. Numer. Anal. Opt.*, 8 (2018) 111-128.
8. M. Hosseini Nasab, **G. Hojjati**, A. Abdi, A Class of Methods with Optimal Stability Properties for the Numerical Solution of IVPs: Construction and Implementation, *International Journal of Computational Methods* 14 (2017) 1–17.
9. A. Movahedinejad, A. Abdi, **G. Hojjati**, A hybrid method with optimal stability properties for the numerical solution of stiff differential systems, *Computational Methods for Differential Equations* 4 (2016) 217–229.
10. A. Movahedinejad, **G. Hojjati**, A. Abdi, Second derivative general linear methods with inherent Runge-Kutta stability, *Numer. Algor.* 73 (2016) 371–389.
11. A. Abdi, F. Fazeli, **G. Hojjati**, Construction of efficient general linear methods for stiff Volterra integral equations, *J. Comput. Appl. Math.* 292 (2016) 417–429.
12. A. Abdi, **G. Hojjati**, Implementation of Nordsieck second derivative methods for stiff ODEs, *Appl. Numer. Math.* 94 (2015) 241–253.
13. **G. Hojjati**, A class of parallel methods with superfuture points technique for the numerical solution of stiff systems, *J. Modern Meth. Numer. Math.* 6 (2015) 57–63.
14. S. Fazeli, **G. Hojjati**, Numerical solution of Volterra integro-differential equations by superimplicit multistep collocation methods, *Numer. Algor.* 68 (2015) 741–768.
15. S. Fazeli, **G. Hojjati**, S. Shahmorad, Multistep collocation and iterated multistep collocation methods for solving two-dimensional Volterra integral equations, *J. Modern Meth. Numer. Math.* 6 (2015) 1–21.

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16. A. Abdi, **G. Hojjati**, High order second derivative methods with Runge–Kutta stability for the numerical solution of stiff ODEs, *Iranian J. Numer. Anal. Opt.* 5 (2015) 1–10.
17. A. K. Ezzeddine, **G. Hojjati**, A. Abdi, Perturbed second derivative multistep methods, *J. Numer. Math.* 23 (2015) 235–245.
18. S. Ashrafi, M. Alineia, H. Kheiri, **G. Hojjati**, Spectral Collocation Method for the Numerical Solution of the Gardner and Huxley Equations, *Int. J. Nonlinear Science* 18 (2014) 71–77.
19. **G. Hojjati**, A. Abdi, F. Mirzaee, S. Bimesl, Numerical solution of stiff systems of differential equations arising from chemical reactions, *Iranian J. Numer. Anal. Opt.* 4 (2014) 25–39.
20. A. Abdi, M. Braś, **G. Hojjati**, On the construction of second derivative diagonally implicit multistage integration methods for ODEs, *Appl. Numer. Math.* 76 (2014) 1–18.
21. A. K. Ezzeddine, **G. Hojjati**, A. Abdi, Sequential second derivative general linear methods for stiff systems, *Bull. Iranian Math. Soc.* 40 (2014) 83–100.
22. B. Shiri, S. Shahmorad, **G. Hojjati**, Convergence analysis of piecewise continuous collocation methods for higher index integral algebraic equations of the hessenberg type, *Int. J. Appl. Math. Comput. Sci.* 23 (2013) 341–355.
23. S. Fazeli, **G. Hojjati**, H. Kheiri, A Piecewise Approximation for Linear Two Dimensional Volterra Integral Equation by Chebyshev Polynomials, *Int. J. Nonlinear Science* 16 (2013) 255–261.
24. **G. Hojjati**, H. Kheiri, S. Irandoust, Solving painleve equation of type 1 using homotopy Pade method, *Adv. studi. Contem. Math.* 23 (2013) 253–259.
25. S. Fazeli, **G. Hojjati**, S. Shahmorad, Multistep Hermite collocation methods for solving Volterra Integral Equations, *Numer. Algor.* 60 (2012) 27–50.
26. M. Mehdizadeh, N. Nasehi, **G. Hojjati**, A class of second derivative multistep methods for stiff systems, *Acta Universitatis Apulensis* 30 (2012) 171–188.
27. S. Fazeli, **G. Hojjati**, S. Shahmorad, Super implicit multistep collocation methods for nonlinear Volterra integral equations, *Math. Comput. Model.* 55 (2012) 590–607.
28. A. K. Ezzeddine, **G. Hojjati**, Hybrid Extended Backward Differentiation Formulas for Stiff Systems, *Int. J. Nonlinear Science* 12 (2011) 196–204.
29. A. Abdi, **G. Hojjati**, Maximal order for second derivative general linear methods with Runge–Kutta stability, *Appl. Numer. Math.* 61 (2011) 1046–1058.
30. A. K. Ezzeddine, **G. Hojjati**, Third Derivative Multistep Methods for Stiff Systems, *Int. J. Nonlinear Science* 12 (2011) 196–204.
31. M. Falati, **G. Hojjati**, Integration of chemical stiff ODEs using exponential propagation method, *J. Math. Chemistry* 49 (2011) 2210–2230.
32. A. Abdi, **G. Hojjati**, An extension of general linear methods, *Numer. Algor.* 57 (2011) 149–167.
33. A. Shokri, M. Rahimi, S. Shahmorad, **G. Hojjati**, A new two-step hybrid Obrechhoff method for the numerical integration of second-order IVPs, *J. Comput. Appl. Math.* 235 (2011) 1706–1712.
34. S. Fazeli, H. Kheiri, **G. Hojjati**, Homotopy analysis and homotopy Pade methods for mixed Volterra-Fredholm integral equations, *Adv. studi. Contem. Math.* 20 (2010) 547–556.

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35. M. Mehdizadeh Khalsarayi, M. Rahimi, **G. Hojjati**, The new class of super-implicit second derivative multistep methods for stiff systems, *J. Appl. Func. Anal.* 4 (2009) 492–500.
36. **G. Hojjati**, M. Rahimi, S. M. Hosseini, New second derivative multistep methods for stiff systems, *Appl. Math. Model.* 30 (2006) 466–476.
37. J. Butcher, **G. Hojjati**, Second derivative methods with RK stability, *Numer. Algor.* 40 (2005) 415–429.
38. **G. Hojjati**, M. Rahimi, S. M. Hosseini, A-EBDF: An adaptive method for numerical solution of stiff systems of ODEs, *Math. Comput. Simul.* 66 (2004) 33–41.
39. S. M. Hosseini, **G. Hojjati**, Matrix free MEBDF method for the solution of stiff systems of ODEs, *Math. Comput. Model.* 29 (1999) 67–77.

Books:

1. G. Hojjati, H. Kheiri, A. Rahimi, S. Shahmorad, *Approximation Theory*, University of Maragheh Press, 2010 (Translation).
2. H. Kheiri, G. Hojjati, *Numerical Solution of Ordinary Differential Equations*, University of Tabriz Press, 2014 (Translation).

Visitors

2017 *Leila Ranjbari* Postdoctoral researcher, 2017-2018.

PhD Students

- 2008-2012 **Somayyeh Fazeli**, *Title of thesis*: Multistep collocation methods for numerical solution of Volterra integral equations
- 2008-2012 **Ali Abdi**, *Title of thesis*: Extention on general linear methods
- 2008-2013 **Babak Shiri**, *Title of thesis*: Numerical solution of a class of integral-algebraic
- 2010-2013 **Ali Karam Ezzeddine**, *Title of thesis*: Extension of stability region of numerical methods for solving IVPs
- 2013-2016 **Akram Movahedinejad**, *Title of thesis*: Multivalued-multistage methods with inherent stability property.
- 2013-2017 **Masoumeh Hosseini Nasab**, *Title of thesis*: Efficient numerical methods preserving geometric structure for solving ordinary differential equations.
- 2012-2017 **Nazila Yousefzadeh**, *Title of thesis*: Implicit-Explicit second derivative linear methods for the numerical solution of initial value problems.
- 2013-2018 **Nasrin Barghi Oskouie**, *Title of thesis*: Construction and Implementation of SGLMs with the maximum area of stability region.

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Computer skills

Intermediate Pascal programming, Microsoft Office, Microsoft Windows
Advanced Matlab, Maple, \LaTeX , $\text{F}\TeX$, $\text{X}\LaTeX$, $\text{X}\text{P}\text{er}\text{sian}$

Languages

Turkish **Native**
Persian **Native**
English **Advanced**

Interests

- Iranian traditional music
- Mountain Climbing
- Football
- Running

References

These persons are familiar with my professional qualifications and my character:

- **Prof. J.C. Butcher**, Emeritus professor of Mathematics, Department of Mathematics, The University of Auckland, Auckland, New Zealand.
E-mail: butcher@math.auckland.ac.nz
- **Prof. S. M. Hosseini**, Professor of Applied Mathematics, Faculty of Mathematics, University of Tarbiat Modares, Tehran, Iran.
Email: hossei_m@modares.ac.ir
- **Prof. M. Y. Rahimi**, Professor of Applied Mathematics, Faculty of Mathematical Sciences, University of Tarbriz, Tabriz, Iran.
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