



## Davod Khojasteh Salkuyeh

Professor

### Personal

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### Education

- **Ferdowsi university of Mashhad, Mashhad, Iran**  
*Ph.D in Applied Mathematics* 2004
  - Supervisor: Prof. Faezeh Toutounian
  - Thesis: Some developments on the iterative methods for solving large sparse linear system of equations
- **Ferdowsi university of Mashhad, Mashhad, Iran**  
*M.Sc in Applied Mathematics* 1997
  - Supervisor: Prof. Asghar Kerayechian
  - Dissertation: Solving the Stokes problem by the finite element method
- **Sharif university of technology, Tehran, Iran**  
*B.Sc in Applied Mathematics* 1994

### Research interests

- Iterative methods for large sparse linear system of equations and preconditioning techniques.
- Solving differential equations by the finite difference and finite element methods.
- Error analysis.

## Honors and executive profile:

1. Head of the department of mathematics of University of Mohaghegh Ardabili for two years.
2. Outstanding researcher of the Faculty of Basic Sciences, University of Mohaghegh Ardabili, 2006.
3. Outstanding researcher of the Faculty of Basic Sciences, University of Mohaghegh Ardabili, 2008.
4. Ranked number one among the MSc graduate students, Ferdowsi University of Mashhad, 1997.
5. Outstanding researcher in Basic Sciences of the Ardabil province, 2010.
6. Member of scientific committee of the fourth national mathematics conference, Payameh Noor, September 25 and 26, Ardabil.
7. Invited speaker at the 42nd Annual Iranian Mathematics Conference at Vali-e-Asr University of Rafsanjan, Iran.
8. Outstanding researcher in Faculty of Mathematical Sciences, University of Guilan, 2015.
9. Invited speaker at the 9th Seminar on Linear Algebra and its Applications, University of Tabriz, 5-6 July, 2017.
10. Member of scientific committee of the 7th International Seminar of Numerical Analysis and its Applications, Shahid Bahonar University of Kerman, Iran, July 11-12, 2018.
11. Member of scientific committee of the 49nd Annual Iranian Mathematics Conference, Iran University of Science & Technologyn, Tehran, August 23-26, 2018.
12. Winner (joint with M. Masoudi) of best paper award of the 7th International Seminar of Numerical Analysis and its Applications, Shahid Bahonar University of Kerman, Iran, July 11-12, 2018.

## Referee for international journals

1. Journal of Computational and Applied Mathematics.
2. Computers Mathematics with Applications.
3. International Journal of Computer Mathematics.
4. Journal of Applied Mathematics and Computing.
5. Applied Mathematics and Computation.
6. Applications and Applied Mathematics.
7. Journal of Advanced Research in Applied Mathematics.
8. Computer Physics Communications.
9. SDU Journal of Science (E-Journal).
10. World Applied Science Journal.
11. Mathematical and Computer Modeling.
12. Journal of Advanced Research in Scientific Computing.
13. International Journal of Nonlinear Sciences and Numerical Simulation.
14. Bulletin of Iranian Mathematical Society.
15. Soft Computing.
16. Bulletin of Iranian Mathematical Society.

17. Journal of Intelligent and Fuzzy Systems.
18. Mathematical Modelling and Analysis.
19. Mathematical Problems in Engineering.
20. Applied Mathematical Modelling.
21. Transactions of the Institute of Measurement and Control.
22. Fuzzy Sets and Systems.
23. Optimization Letters.
24. Afrika Matematika.
25. Applied Mathematics Letters.
26. Advanced Research in Dynamical & Control Systems.
27. Ain Shams Engineering Journal.
28. Linear and Multilinear Algebra.
29. Computational and Applied Mathematics,

## Editorial Boards

1. Bulletin of the Iranian Mathematical Society  
<http://bims.iranjournals.ir>, 2013-2019.
2. Journal of Hyperstructures (University of Mohaghegh Ardabili)  
<http://www.jhs-uma.com/index.php/JHSMS>
3. Iranian Journal of Numerical Analysis and Optimization  
<https://ijnao.um.ac.ir/>
4. Control and Optimization in Applied Mathematics-COAM  
<http://mathco.journals.pnu.ac.ir/>

## Editor in Chief

1. Journal of Mathematical Modeling (JMM)  
<http://jmm.guilan.ac.ir>

## Teaching experience

- Numerical Methods (BSc course)
- Numerical Analysis 1, 2 (BSc course)
- Numerical Linear Algebra (BSc course)
- Computer Foundation (BSc course)
- Operational Research 1 (BSc course)

- Advanced Operational Research (MSc course)
- Advanced Numerical Analysis (MSc course)
- Iterative methods for sparse linear system of equations (MSc course)
- Computational Matrix Analysis (PhD)

## Publications

Journal papers:

1. D.K. Salkuyeh, H. Aslani, Z.-Z. Liang, An alternating positive semidefinite splitting preconditioner for the three-by-three block saddle point problems, **Mathematical Communications**, Accepted for publication, 2021.
2. D.K. Salkuyeh, On computing sparse approximate inverse factor of SPD matrices, **Applied Mathematics E-Notes**, Accepted for publication, 2021.
3. S.-L. Wu, D.K. Salkuyeh, A shift-splitting preconditioner for asymmetric saddle point problems, **Computational and Applied Mathematics** 39 (2020) 314.
4. O. Axelsson, D.K. Salkuyeh, A new iteration and preconditioning method for elliptic PDE-constrained optimization problems, **Numerical Mathematics: Theory, Methods and Applications** 13 (2020) 1098-1122.
5. O. Axelsson, D.K. Salkuyeh, A new version of a preconditioning method for certain two-by-two block matrices with square blocks, **BIT Numerical Mathematics** 59 (2019) 321–342.
6. D.K. Salkuyeh, Shifted skew-symmetric/skew-symmetric splitting method and its application to generalized saddle point problems, **Applied Mathematics Letters** 103 (2020) 106–184.
7. M. Masoudi, D.K. Salkuyeh, An extension of the positive-definite and skew-Hermitian splitting method for preconditioning of generalized saddle point problems, **Computers and Mathematics with Applications** 79 (2020) 2304–2321
8. T.S. Siahkolaei, D.K. Salkuyeh, On the parameter selection in the transformed matrix iteration method, **Numerical Algorithms** 86 (2020) 179-189.
9. T.S. Siahkolaei, D.K. Salkuyeh, A new double-step method for solving complex Helmholtz equation, **Hacettepe Journal of Mathematics & Statistics**, 49 (2020) 1245-1260.
10. M. Jozi, S. Karimi, D.K. Salkuyeh, An iterative method to compute minimum norm solutions of ill-posed problems in Hilbert spaces, **Afrika Matematika** 30 (2019) 797–816.
11. T.S. Siahkolaei, D.K. Salkuyeh, TTSCSP-Based Iteration Methods for Complex Weakly Nonlinear Systems, **East Asian Journal on Applied Mathematics**, 10 (2020) 1-21.
12. M. Bastani, D.K. Salkuyeh, On the GSOR iteration method for image restoration, **Numerical Algebra, Control and Optimization** 11 (2020) 27-43.
13. M. Rahimian, D.K. Salkuyeh, Spectral analysis of the mgss preconditioner for singular saddle point problems, **J. Appl. Math. & Informatics**, 38 (2020) 175–187.
14. T. Salimi Siahkolaei, D.K. Salkuyeh, A preconditioned SSOR iteration method for solving complex symmetric system of linear equations, **Numerical Algebra, Control and Optimization**, 9 (2019) 483-492.
15. M. Keyanpour, D.K. Salkuyeh, H. Moosaei, S. Ketabchi, On the solution of the fully fuzzy Sylvester matrix equation, **International Journal of Modelling and Simulation**, 4 (2020) 80-85.
16. D.K. Salkuyeh and T. Salimi Siahkolaei, Two-parameter TSCSP method for solving complex symmetric system of linear equations, **Calcolo** 55 (2018) 8.

17. S.H. Azizi Chaparpordi, F. Panjeh Ali Beik, D.K. Salkuyeh, Block triangular preconditioners for stabilized saddle point problems with nonsymmetric (1,1)-block, **Computers & Mathematics with Applications**, 76 (2018) 1544–1553.
18. M. Pourbagher, D.K. Salkuyeh, On the solution of a class of complex symmetric linear systems, **Applied Mathematics Letters**, 76 (2018) 14–20.
19. D.K. Salkuyeh, M. Rahimian, A modification of the generalized shift-splitting method for singular saddle point problems, **Computers and Mathematics with Applications** 74 (2017) 2940–2949.
20. D. Hezari, V. Edalatpour, H. Feyzollahzadeh, D. K Salkuyeh, On the generalized deteriorated positive semi-definite and skew-Hermitian splitting preconditioner, **J. Comput. Math.** 37 (2019) 18–32.
21. D.K. Salkuyeh, M. Abdolmaleki, S. Karimi, On a splitting preconditioner for saddle point problems, **Journal of Applied Mathematics & informatics** 36 (2018) 459–474.
22. D.K. Salkuyeh and F. Panjeh Ali Beik, An explicit formula for the inverse of arrowhead and doubly arrow matrices, **International Journal of Applied and Computational Mathematics**, 4 (2018) 96.
23. M. Bastani, D. Khojasteh Salkuyeh, On the m-step two-parameter generalized Hermitian and skew-Hermitian splitting preconditioning method, **Afrika Matematika**, 28 (2017) 999–1010.
24. F. P. A. Beik and D. Khojasteh Salkuyeh, A cyclic iterative approach and its modified version to solve coupled Sylvester-transpose matrix equations, **Linear and Multilinear Algebra**, 65 (2017) 2406–2423.
25. V. Edalatpour, D. Hezari and D. Khojasteh Salkuyeh, *A generalization of the Gauss-Seidel iteration method for solving absolute value equations*, **Appl. Math. Comput.**, 293 (2017) 156–167.
26. D. Khojasteh Salkuyeh and M. Masoudi, *A new relaxed HSS preconditioner for saddle point problems*, **Numerical Algorithms**, 74 (2017) 781–795.
27. D. Khojasteh Salkuyeh, M. Bastani, *A new generalization of the HSS method for solving the continuous Sylvester equation*, **Transactions of the Institute of Measurement and Control**, Accepted for publication, May 26, 2016.
28. D. Khojasteh Salkuyeh, F. Panjeh Ali Beik, D. Hezari, *A sequential two-stage method for solving generalized saddle point problems*, **UPB Scientific Bulletin: Series A Applied Mathematics and Physics**, 79 (2017) 131–140.
29. D. Hezari, D. Khojasteh Salkuyeh, V. Edalatpour, *A new iterative method for solving a class of complex symmetric system of linear equations*, **Numerical Algorithms**, 73 (2016) 927–955.
30. D. Khojasteh Salkuyeh, *Stepsize Control for Cubic Spline Interpolation*, **International Journal of Applied and Computational Mathematics**, 3 (2017) 693702.
31. D. Khojasteh Salkuyeh, A. Tavakoli, *Interpolated variational iteration method for initial value problems*, **Applied Mathematical Modeling**, 40 (2016) 3979–3990.
32. Fatemeh Panjeh Ali Beik and Davod Khojasteh Salkuyeh, *An iterative algorithm for the best approximate  $(P, Q)$ -orthogonal symmetric and skew-symmetric solution pair of coupled matrix equations*, **Transactions of the Institute of Measurement and Control**, 39 (2017) 537–554.
33. Davod Hezari, Vahid Edalatpour and D.K. Salkuyeh, *Preconditioned GSOR iterative method for a class of complex symmetric system of linear equations*, **Numerical Linear Algebra with Applications**, 2015 (22) 761–776.
34. D.K. Salkuyeh, M. Masoudi, D. Hezari, *On the generalized shift-splitting preconditioner for saddle point problems*, **Applied Mathematics Letters**, 48 (2015) 55–61.
35. F.P.A. Beik and D.K. Salkuyeh, *An iterative algorithm for the least squares solutions of matrix equations over symmetric arrowhead matrices*, **Journal of Korean Mathematical Society**, 52 (2015) 349–372.
36. N. Aghazadeh, D.K. Salkuyeh, M. Bastani, *Two-parameter generalized Hermitian and skew-Hermitian splitting iteration method*, **International Journal of Computer Mathematics**, 93 (2016) 1119–1139.

37. N. Aghazadeh, M. Bastani, D. K. Salkuyeh, *The generalized Hermitian and skew-Hermitian splitting iterative method for image restoration*, **Applied Mathematical Modelling**, 39 (2015) 6126–6138.
38. A. Golbabai, S.P.A Beik, D. K. Salkuyeh, *A new approach for solving the first-order linear matrix differential equations*, **Bulletin of Iranian Mathematical Society (BIMS)**, 42 (2016) 297–314.
39. V. Edalatpour, D. Hezari and D. K. Salkuyeh, *Accelerated generalized SOR method for a class of complex systems of linear equations*, **Mathematical Communications**, 20 (2015) 37-52.
40. D.K. Salkuyeh, *On the solution of a class of fuzzy system of linear equations*, **Sadhana**, 40 (2015) 369-377 .
41. F.P.A. Beik and D.K. Salkuyeh, *Weighted versions of GI-FOM and GI-GMRES for solving general coupled linear matrix equations*, **Computational Mathematics and Mathematical Physics**, 55 (2015) 1606–1618.
42. D.K. Salkuyeh and Z. Hassanzadeh, *A Newton two-stage waveform relaxation method for solving systems of nonlinear algebraic equations*, **Mathematical Communications**, 20 (2015) 1-15.
43. D. K. Salkuyeh, F.P.A. Beik, *Minimum norm least-squares solution to general complex coupled linear matrix equations via iteration*, **FILOMAT**, 29 (2015) 1389-1407.
44. F. Toutounian, D. K. Salkuyeh and M. Mojarab, *LMSR iterative method for general coupled matrix equations*, **Journal of Applied Mathematics**, Vol 8, 2014.
45. F.P.A. Beik and D.K. Salkuyeh, *A finite iterative algorithm for Hermitian reflexive and skew-Hermitian solution groups of the general coupled linear matrix equations*, **Journal of Applied Mathematics and Computing**, 48 (2015) 129-155.
46. D. K. Salkuyeh, A. Rafiei and H. Roohani, *ILU Preconditioning Based on the FAPINV Algorithm*, **Opuscula Mathematica** 35(2) (2015) 235-250.
47. D. K. Salkuyeh, V. Edalatpour and D. Hezari, *Polynomial preconditioning for the GeneRank problem*, **Electronic Transactions on Numerical Analysis (ETNA)**, 41 (2014) 179-189.
48. D. K. Salkuyeh, D. Hezari and V. Edalatpour, *Generalized SOR iterative method for a class of complex symmetric linear system of equations*, **International Journal of Computer Mathematics**, 92 (2015) 802-815.
49. D. K. Salkuyeh, *The Picard-HSS iteration method for absolute value equations*, **Optimization Letters**, 8 (2014) 2191–2202.
50. Z. Hassanzadeh and D.K Salkuyeh, *Two-stage waveform relaxation method for the initial value problems with non-constant coefficients*, **Computational & Applied Mathematics**, 33 (2014) 641–654.
51. M. Hassani, D. K. Salkuyeh, *On a class of multi-level preconditioners for Z-matrices*, **Afrika Matematika**, 26 (2015) 201-213.
52. D. K. Salkuyeh, F.P. A. Beik, *On the gradient based algorithm for solving the general coupled matrix equations*, **Transactions of the Institute of Measurement and Control**, 36 (3) (2014) 375381.
53. S. Erfani, A. Tavakoli, D.K. Salkuyeh, *An efficient method to set up a Lanczos based preconditioner for discrete ill-posed problems*, **Applied Mathematical Modelling**, 37 (2013) 87428756.
54. M. Hasani, D.k. Salkuyeh, *Improvements of Two Preconditioned AOR Iterative Methods for Z-Matrices*, **Bulletin of the Iranian Mathematical Society (BIMS)**, 40 (2014) 357-371. .
55. F.P.A. Beik, D.K. Salkuyeh, M. Mohseni Moghadam, *Gradient based iterative algorithm for solving the generalized coupled Sylvester-transpose and conjugate matrix equations over reflexive (anti-reflexive) matrices*, **Transactions of the Institute of Measurement and Control**, 36 (2014) 99-110.
56. D.K. Salkuyeh, F.P.A. Beik, *An iterative method to solve symmetric positive definite matrix equations*, **Mathematical Reports**, 16 (2014) 271-283.
57. F. Panjeh Ali Beik and D.K. Salkuyeh, *The coupled Sylvester-transpose matrix equations over generalized centro-symmetric matrices*, **International Journal of Computer Mathematics**, 90 (2013) 1546-1566 .

58. D. K. Salkuyeh, S. Shamsi, A. Sadeghi, *An improved symmetric SOR iterative method for augmented systems*, **Tamkang J. Mathematics**, 43 (2012) 479-490.
59. D.K. Salkuyeh, M. Bastani, *Solution of the Complex Modified Korteweg-de Vries Equation by the Projected Differential Transform Method*, **Applied Mathematics and Computation**, 219 (2013) 5105-5112 .
60. D.K. Salkuyeh, *An Iterative Method for Symmetric Positive Semidefinite Linear System of Equations*, **Demonstratio Mathematica**, 47 (2014) 482-492.
61. F. Panjeh Ali Beik and D.K. Salkuyeh, *On the global Krylov subspace methods for solving general coupled matrix equations*, **Computers and Mathematics with Applications**, 62 (2011) 4605-4613 .
62. M. Bastani and D.K. Salkuyeh, *A highly accurate method to solve Fisher's equation*, **Pramana-Journal of Physics**, 78 (2011)335-346 .
63. D. K. Salkuyeh and S. Shamsi, *A Preconditioner for the SOR-like Method for the Augmented Systems*, **Chiang Mai Journal of Science**, 39 (2012) 191-199 .
64. M. Bastani and D.K. Salkuyeh, *Numerical studies of a non-local parabolic partial differential equations by spectral collocation method with preconditioning*, **Computational Mathematics and Modeling**, 24 (2013) 81-89.
65. D. K. Salkuyeh, *A short note on the paper "Convergence of the TAGE iterative method for the system arisen from the cubic spline approximation for the solution of two-point BVPs with forcing function in integral form", by Mohanty, Jain and Dhall*, **Applied Mathematical Modelling**, 36 (2012) 168-172 .
66. D. K. Salkuyeh and Y. Abdolalizadeh, *On the Preconditioning of the AOR Iterative Methods for M-matrices*, **International Journal of Applied Mathematics and Computation**, 3 (2011) 87-94.
67. F.P.A. Beik, D.K. Salkuyeh, M. Mohseni Moghadam, *Gradient based iterative algorithm for solving the generalized coupled Sylvester-transpose and conjugate matrix equations over reflexive (anti-reflexive) matrices*, **Transactions of the Institute of Measurement and Control**, 36 (2014) 99-110.
68. F. Panjeh Ali Beik and D.K. Salkuyeh, *The coupled Sylvester-transpose matrix equations over generalized centro-symmetric matrices*, **International Journal of Computer Mathematics**, 90 (2013) 1546-1566.
69. D. K. Salkuyeh, S. Shamsi, A. Sadeghi, *An improved symmetric SOR iterative method for augmented systems*, **Tamkang J. Mathematics**, 43 (2012) 479-490.
70. D.K. Salkuyeh, M. Bastani, *Solution of the Complex Modified Korteweg-de Vries Equation by the Projected Differential Transform Method*, **Applied Mathematics and Computation**, 219 (2013) 5105-5112 .
71. F. Panjeh Ali Beik and D.K. Salkuyeh, *On the global Krylov subspace methods for solving general coupled matrix equations*, **Computers and Mathematics with Applications**, 62 (2011) 4605-4613 .
72. M. Bastani and D. K. Salkuyeh, *A highly accurate method to solve Fisher's equation*, **Pramana-Journal of Physics**, 78 (2011) 335-346 .
73. D. K. Salkuyeh and S. Shamsi, *A Preconditioner for the SOR-like Method for the Augmented Systems*, **Chiang Mai Journal of Science**, 39 (2) 213-221 .
74. M. Bastani and D.K. Salkuyeh, *Numerical studies of a non-local parabolic partial differential equations by spectral collocation method with preconditioning*, **Computational Mathematics and Modeling** 24 (2013) 81-89..
75. D. K. Salkuyeh, *A short note on the paper "Convergence of the TAGE iterative method for the system arisen from the cubic spline approximation for the solution of two-point BVPs with forcing function in integral form", by Mohanty, Jain and Dhall*, **Applied Mathematical Modelling**, 36 (2012) 168-172 .
76. D. K. Salkuyeh and Y. Abdolalizadeh, *On the Preconditioning of the AOR Iterative Methods for M-matrices*, **International Journal of Applied Mathematics and Computation**, 3 (2011) 87-94.
77. D. K. Salkuyeh and M. Bastani, *Convergence of the variational iteration method for the cubic nonlinear Schrodinger equation*, **Journal of Advanced Research in Scientific Computing**, 3(2) 2011, 31-41.

78. D. K. Salkuyeh, *Generalized AOR Method for Solving System of Linear Equations*, **Australian Journal of Basic and Applied Sciences**, 5 351-358 2011 .
79. D. K. Salkuyeh and S. Behnejad, *Letter to the Editor regarding "Modified Hermitian and skew-Hermitian splitting methods for non-Hermitian positive-definite linear systems" [Numer. Linear Algebra Appl. 14 (2007) 217-235]*, **Numerical Linear Algebra with Applications**, 19 (2012) 885890 .
80. D. K. Salkuyeh and S. H. Azizi, *Gauss-Seidel iterative methods for rank deficient least squares problems*, **International Journal of Computational and Mathematical Sciences**, 5 (2011) 125-129.
81. D. K. Salkuyeh, *On the solution of the fuzzy Sylvester equation*, **Soft Computing**, 15 (2010) 953-961 .
82. D. K. Salkuyeh, H. Roohani, *Convergence of the Variational Iteration Method for the Telegraph Equation with Integral Conditions*, **Numerical Methods for Partial Differential Equations**, 27 (2011) 1442-1455 .
83. D. K. Salkuyeh, A. Fahim, *A New Iterative Refinement of the Solution of Ill-Conditioned Linear System of Equations*, **International Journal of Computer Mathematics**, 88 (5) (2011) 950 956 .
84. D. K. Salkuyeh, *Stepsize control of the finite difference method for solving ordinary differential equations*, **International Journal of Applied Mathematics and Computer Sciences** 5 (2009) 234-38.
85. D. K. Salkuyeh and H. Roohani, *On the relation between the AINV and the FAPINV algorithms*, **International Journal of Mathematics and Mathematical Sciences**, Volume 2009, Article ID 179481, 6 pages (Hindawi Publishing Corporation).
86. D. K. Salkuyeh, *A Sparse Approximate Inverse Preconditioner for Nonsymmetric Positive Definite Matrices*, **Journal of Applied Mathematics and Informatics**, 28 (2010) 1131-1141.
87. D. K. Salkuyeh, *On the semi-discretization of the Sivashinsky equation*, **International Journal of Applied Mathematics and Computation**, 2 (2009) 94-100.
88. H. Roohani and D. K. Salkuyeh, *New General Solutions for the General Elliptic and Auxiliary Equations and Application to the Coupled KdV Equation*, **International Journal of Computer Mathematics**, 87 (12) (2010) 2760 2768 .
89. D. K. Salkuyeh and F. Toutounian, *Optimal Iterate of the Power and Inverse Iteration Methods*, **Applied Numerical Mathematics**, 59 (2009) 1537-1548 .
90. D. K. Salkuyeh and F. Toutounian, *A Sparse-Sparse Iteration for Computing a Sparse Incomplete Factorization of the Inverse of an SPD Matrix*, **Applied Numerical Mathematics**, 59 (2009) 1265-1273 .
91. . D. K. Salkuyeh, *A preconditioner for the normal equations*, **Journal of Applied Mathematics and Informatics**, 28 (2010) 687-696.
92. D. K. Salkuyeh and Mohsen Hasani, *A note on the pin-pointing solution of ill-conditioned linear system of equations*, **International Journal of Computer Mathematics**, 87 (2010) 1395 1400 .
93. D. K. Salkuyeh and F. Saadati Sharafeh, *On the Numerical Solution of the Burgerss Equation*, **International Journal of Computer Mathematics**, 86(2009) 1334-1344 .
94. D. K. Salkuyeh, *The relation between the FSAI and the AIB algorithms*, **IUST International Journal of Engineering Science**, 19 (2008) 45-48 (ISC).
95. D. K. Salkuyeh, *On the Preconditioning of the Block Tridiagonal Linear System of Equations*, **Journal of Applied Mathematics and Computing**, 28 (2008) 133-146.
96. D. K. Salkuyeh, F. Toutounian and H. Shariat Yazdi, *A procedure with stepsize control control for solving n one-dimensional IVPs*, **Mathematics and Computers in Simulation**, 79 (2008) 167-176 .
97. D. K. Salkuyeh, *Convergence of the variational iteration method for solving linear systems of ODEs with constant coefficients*, **Computers and Mathematics with Applications**, 56 (2008) 2027-2033 .
98. D. K. Salkuyeh, *A family of Newton-type methods for solving nonlinear equations*, **International Journal of Computer Mathematics**, 84 (2007) 411-419 .



99. D. K. Salkuyeh, *Generalized Jacobi and the Gauss-Seidel Methods for Solving Linear System of Equations*, **Numerical Mathematics: A journal of Chinese universities English Series**, 16 (2007) 164-170 .
100. S. Karimi, D. K. Salkuyeh and F. Toutounian, *A preconditioner for the LSQR algorithm*, **Journal of Applied Mathematics and Informatics**, 26 (2008) 213 - 222.
101. . D. K. Salkuyeh, S. Karimi and F. Toutounian, *A parallel algorithm to approximate inverse factors of a matrix via sparse-sparse iterations*, **Appl. Math. Comput.**, 81 (2006) 782-79 .
102. D. K. Salkuyeh, *Positive integer powers of the tridiagonal Toeplitz matrices*, **International Mathematical Forum**, 22 (2006) 1061 - 1065.
103. D. K. Salkuyeh, *On the finite difference approximation to the convection-diffusion equation*, **Appl. Math. Comput.**, 179 (2006) 7986 .
104. D. K. Salkuyeh and F. Toutounian, *Numerical accuracy of a certain class of iterative methods for solving linear systems*, **Appl. Math. Comput.**, 176 (2006) 727-738 .
105. D. K. Salkuyeh, *on the solution of a class of elliptic problems*, **International Mathematical Forum**, 10(2006)485-494
106. D. K. Salkuyeh, *Comments on A three-term recurrence for tridiagonal systems*, **Appl. Math. Comput.**, 176 (2006) 442-444 .
107. D. K. Salkuyeh, *A new approach to compute sparse approximate inverse factors*, **Appl. Math. Comput.**, 174(2006)1110-1121 .
108. D. K. Salkuyeh and F. Toutounian, *New approaches for solving large sylvester equations*, **Appl. Math. Comput.**, 173 (2006) 9-18 .
109. D. K. Salkuyeh, *CG-type algorithms to solve symmetric matrix equations*, **Appl. Math. Comput.**, 172(2006) 985-999 .
110. D. K. Salkuyeh and F. Toutounian, *A comparison between GMRES and the global GMRES Methods for solving Matrix Equations*, **Jour. of Inst. of Math. and Comp. Sci. (Math. Ser)**, 17 (2004) 191-195.
111. F. Toutounian, D. K. Salkuyeh and B. Asadi, *Numerical implementation of the QMR algorithm by using discrete stochastic arithmetic*, **Journal of Applied Mathematics and Computing**, 17 (2005) 457-473.
112. D. K. Salkuyeh and F. Toutounian, *A new approach to compute sparse approximate inverse of an SPD*, **IUST International Journal of Engineering Science**, 15 (2004) 87-95 (ISC).
113. D. K. Salkuyeh and F. Toutounian, *A block version algorithm to approximate inverse factors*, **Applied Mathematics and Computation** 162 (2005) 1499-1509 .
114. D.K. Salkuyeh and F. Toutounian, *BILUS: A Block Version of ILUS Factorization*, **Journal of Applied Mathematics and Computing**, 15 (2004) 299-312.
115. A. Kerayechian and D. K. Salkuyeh, *On the existence, uniqueness and approximation of a class of elliptic problems*, **International Journal of Applied Mathematics**, 11 (2002) 49-60.
116. D. K. Salkuyeh, *Erratum to: A numerical solution technique for a one-dimensional inverse nonlinear parabolic problem [Appl. Math. Comput. 184 (2) (2007) 308315]*, **Appl. Math. Comput.**, Vol.189(2007)20-23 .
117. D. K. Salkuyeh, *A new implementation of the AIB algorithm for computing the inverse factors of a matrix*, **Journal of Science and Technology (University of Mohaghegh Ardabili)**, 3(2006) 33-43.

## Presentations

1. D. Khojasteh Salkuyeh, *On the parallel version of the BAIB algorithm*, 37th Annual Iranian Mathematics Conference, Azarbaijan University of Tarbiat Moallem, Tabriz, Iran.

2. D. Khojasteh Salkuyeh, A generalization of the SOR method for solving linear system of equations, The 1st national conference of mathematics and its applications, Islamic Azad university of Lahijan, 5-6 March 2008.
3. K. Shayesteh, A. Heydari, D. K. Salkuyeh, M. Abdorrahmani and N. Barahmati, Modeling of three-way catalytic converters: Study of heat transfer and chemical reactions, The 11th National Iranian Chemical Engineering Congress, 2007.
4. D. K. Salkuyeh, T. Salimi, A Preconditioner for the Normal Equations, 5 th seminar on Linear Algebra and its applications, Babolsar, Mazandaran, 2009.
5. H. Roohani and D. Khojasteh Salkuyeh, On the preconditioning based upon the FFAPINV algorithm, The 23rd International Conference of the Jangjeon Mathematical Society, February 8-10, 2010, Ahvaz-Iran.
6. D. K. Salkuyeh, S. Shamsi, Generalized SOR method for Solving System of Linear Equations, 41st Annual Iranian Conference of Mathematics, September 12-15, 2010, Urmia University, Urmia-Iran.
7. D. K. Salkuyeh and A. Azarnejad Hassankiadeh, Convergence of the Generalized AOR Method for  $\alpha$ -Strictly Diagonally Dominant Matrices, 1st Regional Seminar Mathematics Students, Azarbaijan University of Tarbiat Moallem, July 18-19, 2011.
8. D. K. Salkuyeh and A. Ramzani, Convergence of the BLAGE iterative method for the solution of perturbed 2D Poisson's equation, 1st Regional Seminar Mathematics Students, Azarbaijan University of Tarbiat Moallem, July 18-19, 2011.
9. D. Khojasteh Salkuyeh, A Review of the Preconditioning Techniques Based on the FAPINV Algorithm, The 42nd Annual Iranian Mathematics Conference, 5-8 September 2011, Vali-e-Asr University of Rafsanjan, Iran (Invited speaker).
10. . D. Khojasteh Salkuyeh and N. Babazadeh, Some results on the preconditioned AOR iterative methods, The 42nd Annual Iranian Mathematics Conference, 5-8 September 2011, Vali-e-Asr University of Rafsanjan, Iran.
11. D. Khojasteh Salkuyeh, A Generalization of the 2D-DSPM for Solving Linear System of Equations, The fourth national mathematics conference, Payameh Noor, September 25 and 26, Ardabil.
12. D. Khojasteh Salkuyeh and Y. Darabi, Hybrid methods to solve matrix equations, The fourth national mathematics conference, Payameh Noor, September 25 and 26, Ardabil.
13. D. Khojasteh Salkuyeh, Z. Hassanzadeh, Two-stage waveform relaxation method for the initial value problems, 9th Seminar on Differential Equations and Dynamical Systems, July 11-13, 2012 (Shahid Madani University of Azarbayegan).
14. F. Panjeh Ali Beik, D. K. Salkuyeh, A projection technique for reflexive (anti-reflexive) solution of the coupled linear matrix equations, The 4th Conference on Numerical Analysis and its Applications Faculty of Khansar, Khansar, Iran, May 7-8, 2013 (18-19 Ordibehesht, 1392).
15. D. Khojasteh Salkuyeh, A preconditioner for symmetric M-matrices, The 44nd Annual Iranian Mathematics Conference, Ferdowsi University of Mashhad, 27-30 August 2013 ( 5-8 Sharivar 1392)..
16. D. Khojasteh Salkuyeh, F. Panjeh Ali Beik, On the convergence of the gradient based iterative method, The 44nd Annual Iranian Mathematics Conference, Ferdowsi University of Mashhad, 27-30 August 2013 ( 5-8 Sharivar 1392).
17. D. Khojasteh Salkuyeh, D. Hezari, V. Edalatpour, An iterative method for a class of complex symmetric linear system of equations, 5th Iranian conference on applied mathematics, Buali-Sina University, Hamadan, September 2-4, 2013 (11-13 Shahrivar 1392).
18. D.K. Salkuyeh, Recent developments on iterative methods for solving complex symmetric system of linear equations, University of Tabriz, 5-6 July, 2017. (Invited speaker)
19. T. Salimi Siahkolaei, D.K. Salkuyeh, A New Double-Step method for Solving Complex Helmholtz Equation, 1th International Conference on Boundary Value Problems and Applications, University of Tabriz, Tabriz, August 4, 2017.

20. D.K. Salkuyeh, M. Masoudi, Extended positive definite and skew-Hermitian splitting method for generalized saddle point problems, 7th International Seminar of Numerical Analysis and its Applications, Shahid Bahonar University of Kerman, Iran, July 11-12, 2018 (*Best Paper Award of the Seminar*).

## Research projects

1. A new approach to compute sparse approximate inverse of a matrix.
2. On the finite difference approximation to the Convection-Diffusion equation.
3. Generalization of some stationary iterative methods for solving large sparse linear system of equations.
4. On the BAIB algorithm for computing the sparse approximate inverse factors of a matrix.
5. Approximate solution of the Sivashinsky equation by using its semi-discretization.
6. On the preconditioning of the block tridiagonal linear system of equations.
7. Optimal iterate of the power and inverse iteration methods.
8. ILU preconditioning based on the FAPINV algorithm.
9. Stepsize control for interpolating cubic spline functions.
10. On the solution of the fuzzy Sylvester equation.
11. A generalization of the AOR iterative method.
12. On the convergence of the Richardson method for matrix equations.
13. A new preconditioner for solving saddle point problems, Supported by Iran National Science Foundation (INSF).

## M.Sc students

1. Fazel Saadati Sharafeh, Weighted FOM and GMRES for solving nonsymmetric linear systems, Advisor: H. Saberi Nadjafi (Guilan university), defence date: December 14, 2007.
2. Mohammad Reza Arian, Investigation of the global FOM and GMRES for solving matrix equations, defence date: August 29, 2007.
3. Mohsen Hasani, Preconditioned accelerated overrelaxation iterative method for solving linear systems of equations, defence date: June 25, 2008.
4. Mehdi Bakhshizadeh, The incomplete orthogonalization method for solving large linear system of equations, Advisor: Dr. Faezeh Toutounian (Ferdowsi University of Mashhad), defence date: July 24, 2008.
5. Sholeh Yaghoobi Kaloorazi, Generalization of an iterative method for solving SPD linear system of equations, Second supervisor: Dr. Mohammad Zarebnia (University of Mohaghegh Ardabili). defence date: November 9, 2008.
6. Roya Tabatabaei Ebrahimi, A fast implementation for the GMRES method, Co-Advisor: Dr. Mir Kamal Mirnia (Tabriz University), defence date: November 7, 2008.
7. Mohammad Nasiri, Hermitian and skew-Hermitian splitting methods for solving non-Hermitian positive definite linear system of equations, defence date: January 18, 2009.

8. Hadi Rohani, A method for preconditioning of the linear system of equations by using the inverse factors of a matrix, defence date: January 18, 2009.
9. Amir Sadeghi Marasht, Numerical solution of integral equations by means of the Sinc collocation method based on the double exponential transformation, Supervisor: Dr. Mohammad Zarebnia, Advisor: D. Khojasteh Salkuyeh, defence date: October 17, 2008.
10. Tahereh Salimi, A new preconditioner for the normal equations, defence date: December 31, 2009.
11. Atefeh Fahim, Semiconvergence of extrapolated iterative methods for solving singular linear system of equations, Defence date: December 2, 2009.
12. Sommayeh Shamsi, Modified symmetric successive overrelaxation method for solving saddle-point problems, Defence date: December 17, 2009.
13. Shiva Behnejad, Modified Hermitian and skew-Hermitian splitting methods for non-Hermitian positive definite linear system of equations, defence date: October 12, 2010.
14. Sayyed Hasan Azizi Chaparpardi, Accelerated overrelaxation iterative method for rank deficient least squares problems, defence date: November 23, 2010.
15. Yousef Abdolizadeh, Preconditioned accelerated overrelaxation iterative methods for M-matrices, defence date: November 23, 2010.
16. Tahereh Houshangi Shafti, Double splitting methods for solving system of linear equations, October 19, 2011.
17. Ameneh Azarnejad Hassankiadeh, Convergence of generalized AOR iterative method for linear systems of equations with strictly diagonally dominant matrices, October 19, 2011.
18. Akbar Ramazani, A parallel iterative algorithm for solving 2D Poisson equation, defence date: July 30, 2011.
19. Mehdi Bastani, Compact finite difference method for solving differential and integro-differential equations, defence date: July 30, 2011.
20. Younes Darabi, An iterative method for solving linear matrix equations, defence date: September 27, 2011.
21. Fatemeh Heydari Kharaji, Non-Archimedean L-fuzzy normed spaces and stability of functional equations (Advisor: Dr. N. Egbali, Co-Advisor: D.K. Salkuyeh), defence date: September 15, 2011.
22. Hadi Feyzollahzadeh, Preconditioned MHSS iteration methods for complex symmetric linear system of equations, defence date: September 18, 2012.
23. Sayyede Khadijeh Mousavi Mohammadi, Iterative methods to compute special solutions to the system of generalized Sylvester equations, defence date: July 18, 2012.
24. Salimeh Naseri Nanekaran, Numerical algorithms for computing the Moore-Penrose inverse of a matrix, defence date: September 18, 2012.
25. Zeynab Hassanzadeh, Two-stage waveform relaxation methods for initial value problems, defence date: July 18, 2012.
26. Sara Shahnazari, The Drazin Inverse and its Applications.
27. Reza Rokhfrooz, The Hermitian and skew-Hermitian iterative method for solving system of nonlinear equations.
28. Maryam Abdolmaleki, On preconditioned iteration methods for complex linear systems.
29. Sayyadeh Elaheh Ghoreishi Amri, Preconditioned generalized AOR methods for generalized least-squares problem.
30. Meysam Jancok, An algorithm for solving shifted skew-symmetric linear system.
31. Ghazaleh Hajiahmadi, On the Iterative Methods for Solving Linear Complementarity Problem.
32. Saman Lotfi, Hermitian and skew-Hermitian splitting method for solving Sylvester equation.

33. Hamed Aslani, Semi-Convergence analysis of the Uzawa-AOR method for singular saddle point problems.
34. Mohammad Reza Habibi, Least squares solution of linear functional equation.
35. Maedeh pourbagher, Several variants of the Hermitian and skew-Hermitian splitting method for a class of complex symmetric linear systems, defense date: February 13, 2018.
36. Zahra Roshandel, On the regularization of linear discrete ill-posed problems, defense date: February 13, 2018.
37. Sayyede Elham Karimpour, The modified Newton-HSS method for solving systems of nonlinear equations, defense date: February 10, 2018.
38. Zahra Moafegh, Shift-splitting preconditioners for saddle point problems, defense date: February 5, 2018.

## PhD students

1. Mehdi Bastani, *Images restoration by solving linear system of equations based on the HSS iterative method*, Azarbaijan Shahid Madani University, Dr. Naser Aghazadeh (Supervisor), D. Khojasteh Salkuyeh (Advisor), Defense date: April, 2015.
2. Davod Hezari, *SOR iterative method and its acceleration for solving complex symmetric of linear equations*, Defense date: February 2016.
3. Vahid Edalatpour, *On the preconditioning of complex system of linear equations*, Defense date: June 5, 2016.
4. Mohsen Masoudi, *Some results on preconditioning of the saddle point problems*, Defense date: Feb 26, 2019.
5. Tahereh Salimi Siahkolaei, *New iterative methods for solving complex system of equations*, May 4, 2020.
6. Maryam Rahimian, *On the preconditioning of singular saddle point problems*, 2016, Ongoing.
7. Hamid Mirchi, *Some results in preconditioning of PDE-constrained optimization problems*, 2017, Ongoing.
8. Hamed Aslani, *?Results on the preconditioning of three-by-three saddle point problems* , 2018, Ongoing.
9. Maedeh pourbagher, 2018, Ongoing.

## Books

1. Numerical Methods in Linear Algebra (in persian), 350 pages.  
Publisher: University of Guilan <http://www.guilan.ac.ir>.
2. Numerical Linear Algebra (in persian), 245 pages.  
Publisher: Guilan Academic Center for Education <http://gilan.acecr.ir/>.
3. Iterative Methods for Solving Linear System of Equations (in persian), 213 pages. Publisher: Mowj-Chaharom.

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