Mohammad Ilati

Associate Professor

College: Faculty of Basic Sciences

Associate Professor of the Department of Applied Mathematics,

Faculty of Basic Sciences,

Sahand University of Technology,

Tabriz, Iran.

Email: ilati@sut.ac.ir

Phone: +98 4133459040

Fields of Interest:

Numerical methods for solving Partial Differential Equations (PDEs)

Meshless methods for solving PDEs

Finite Elements Method

Numerical solution of Fractional PDEs

Education

Degree	Graduated in	Major	University
BSc	2010	Applied Mathematics	University of Mohaghegh Ardabili

Degree	Graduated in	Major	University
MSc	2012	Applied Mathematics - Operations Research	Amirkabir University of Technology (Tehran Polytechnic)
Doctoral	2017	Applied Mathematics - Numerical Analysis	Amirkabir University of Technology (Tehran Polytechnic)

Papers in Conferences

1. Samira Eslami ,& Mohammad Ilati ,Numerical simulation of a nonlinear partial integro-differential equation via the RBF-HFD method ,55th Annual Iranian Mathematics Conference ,2024-08.
2. Samira Eslami ,& Mohammad Ilati ,Numerical simulation of distributed order time fractional reaction-diffusion equation by RBF-FD method ,The 10th Seminar on Numerical Analysis and its Applications ,2024-07.
3. Samira Eslami ,& Mohammad Ilati ,Application of local meshless moving kriging method for solving 2D nonlinear fractional Rayleigh—Stokes model ,The 54th Annual Iranian Mathematics Conference ,2023 08 23.
4. Samira Eslami ,& Mohammad Ilati ,Numerical simulation of 2D modified anomalous fractional sub-diffusion equation by a local meshless method ,The 53th Annual Iranian Mathematics Conference ,2022 09 05.
5. Mohammad Ilati ,Numerical solution of generalized Gross-Pitaevskii equation by a meshless local method ,The 52th Annual Iranian Mathematics Conference ,2021 08 30.
6. Mohammad Ilati ,A fast meshless method for solving coupled nonlinear advection-diffusion-reaction systems on irregular domains ,The 51th Annual Iranian Mathematics Conference ,2021 02 15.
7. Mohammad Ilati ,A low-cost MLPG technique for numerical simulation of multi-dimensional coupled damped nonlinear Schr□dinger system ,The 50th Annual Iranian Mathematics Conference ,2019 08 26.
8. Mohammad Ilati ,& Mehdi Dehghan ,A new combined shape function for solving Brusselator model ,The 48th Annual Iranian Mathematics Conference ,2017 08 22.
9. Mohammad Ilati ,& Mehdi Dehghan ,Numerical solution of Gray-Scott system by a low-cost meshless local weak form method ,The 47th Annual Iranian Mathematics Conference ,2016 08 28.
10. Mehrdad Ghaznavi ,& Mohammad Ilati ,An Interactive Method for Solving Multi-objective Optimization Problems ,5th Iranian Conference on Applied Mathematics ,2013 09 02.
11. Mohammad Ilati , Mehrdad Ghaznavi , Esmaile Khorram ,A global interactive algorithm for multi-objective decision making ,6th International Conference of Iranian Operations Research Society ,2013 05 08.

Papers in Journals

1. Mohammad Ilati،A local meshless method for numerical simulation of dendritic crystal growth،Mathematical Researches،۲۰۲۳.
2. Mohammad Ilati ,& Mostafa Abbaszadeh,Fourth-order exponential time differencing Runge–Kutta scheme and local meshless method to investigate unsteady diffusion–convection problems of anisotropic functionally graded materials,International Journal of Computer Mathematics,2024.
3. Majid Haghi , Mohammad Ilati , Mehdi Dehghan,A radial basis function-Hermite finite difference (RBF-HFD) method for the cubic-quintic complex Ginzburg–Landau equation,Computational and Applied Mathematics,Vol. 42,pp. 115,2023.
4. Majid Haghi , Mohammad Ilati , Mehdi Dehghan,A fourth order compact difference method for the nonlinear time fractional fourth order reaction–diffusion equation,Engineering with Computers,2023.
5. Samira Eslami , Mohammad Ilati , Mehdi Dehghan,A local meshless method for solving multi-

dimensional Galilei invariant fractional advection–diffusion equation,Engineering Analysis with Boundary Elements,Vol. 143,pp. 283-292,2022.
6. Mohammad Ilati,A meshless local moving Kriging method for solving Ginzburg-Landau equation on irregular domains,The European Physical Journal Plus,Vol. 135,pp. 873,2020.
7. Mohammad Ilati,DMLPG method for specifying a control function in two-dimensional parabolic inverse PDEs,Computers & Mathematics with Applications,Vol. 80,pp. 604-616,2020.
8. Mohammad Ilati,Analysis and application of the interpolating element-free Galerkin method for extended Fisher–Kolmogorov equation which arises in brain tumor dynamics modeling,Numerical Algorithms,Vol. 85,pp. 485-502,2020.
9. Mohammad Ilati ,& Mehdi Dehghan,DMLPG method for numerical simulation of soliton collisions in multi-dimensional coupled damped nonlinear Schr□dinger system which arises from Bose-Einstein condensates,Applied Mathematics and Computation,Vol. 346,pp. 244-253,2019.
10. Mohammad Ilati ,& Mehdi Dehghan,Error analysis of a meshless weak form method based on radial point interpolation technique for Sivashinsky equation arising in the alloy solidification problem,Journal of Computational and Applied Mathematics,2018.
11. Mohammad Ilati ,& Mehdi Dehghan,Direct local boundary integral equation method for numerical solution of extended Fisher–Kolmogorov equation,Engineering with Computers,2018.
12. Mohammad Ilati ,& Mehdi Dehghan,Application of direct meshless local Petrov–Galerkin (DMLPG) method for some Turing-type models,Engineering with Computers,2017.
13. Mohammad Ilati ,& Mehdi Dehghan,Remediation of contaminated groundwater by meshless local weak forms,Computers & Mathematics with Applications,2016.
14. Mehrdad Ghaznavi , Mohammad Ilati , Esmaile Khorram,An interactive algorithm for solving multiobjective optimization problems based on a general scalarization technique,Iranian journal of numerical analysis and optimization,2016.
15. Mohammad Ilati ,& Mehdi Dehghan,The use of radial basis functions (RBFs) collocation and RBF-QR methods for solving the coupled nonlinear sine-gordon equations,Engineering Analysis with Boundary Elements,2015.
16. Mohammad Ilati ,& Mehdi Dehghan,Meshless local weak form method based on a combined basis function for numerical investigation of Brusselator model and spike dynamics in the Gierer-Meinhardt system,Computer Modeling in Engineering & Sciences,2015.

Thesis

1. Local meshless methods for numerical solution of partial integro-differential equations
2. Meshless methods based on radial basis functions for solving fractional reaction-subdiffusion equations
3. Numerical solution of inverse partial differential equations by a local meshless method
4. Meshless radial point interpolation method for solving nonlinear generalized Klein-Gordon equations
5. Application of partial differential equations in mathematical biology
6. Finite Difference Methods for Parabolic Equations
7. Some Mathematical Models of Cancer Tumors
8. An inverse eigenvalue problem for the finite element model of a vibrating rod
9. Differential and integral fractional pseudospectral schemes
10. Fractional Laguerre polynomials and their applications
11. Data science and its applications