Prof. Bengisen Pekmen

Personal Information

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Biography

Bengisen PEKMEN graduated from Middle East Technical University (METU) in Ankara, Türkiye. She received her B.Sc. degree as major from Department of Mathematics and as minor from Department of Physics. She completed her M.Sc. and Ph.D. degrees in Department of Scientific Computing of Institute of Applied Mathematics at METU. Her studies are on numerical simulation of different fluid dynamics and heat transfer problems.

Certificates, Courses and Trainings

Other, Physics, Minor Program, Orta Doğu Teknik Üniversitesi, 2005

Research Areas

Numerical Analysis

Academic Titles / Tasks

Professor, TED University, Faculty Of Arts And Sciences, Mathematics, 2024 - Continues
Associate Professor, TED University, Faculty Of Arts And Sciences, Mathematics, 2019 - 2024
Assistant Professor, TED University, Faculty of Arts and Sciences, Mathematics, 2017 - 2019
Lecturer, 2014 - 2017
Research Assistant, Atilim University, Fen-Edebiyat Fakültesi, Matematik Bölümü, 2009 - 2014

Academic and Administrative Experience

Head of the Applied Data Science Program, 2021 - 2021
BAP-LAD Commission, 2021 - 2021

Courses

Postgraduate

Numerical Optimization, Postgraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020

Master's Thesis I, Postgraduate, 2021 - 2022

Pre-thesis Seminar, Postgraduate, 2021 - 2022

Graduation Project, Postgraduate, 2021 - 2022

Master's Thesis II, Postgraduate, 2021 - 2022

Undergraduate

Calculus I, Undergraduate, 2022 - 2023

Calculus I, Undergraduate, 2022 - 2023, 2021 - 2022

Numerical Methods, Undergraduate, 2023 - 2024, 2021 - 2022

Partial Differential Equations, Undergraduate, 2023 - 2024, 2022 - 2023

Lineer Algebra and Differential Equations, Undergraduate, 2023 - 2024, 2022 - 2023, 2020 - 2021, 2019 - 2020, 2017 - 2018

Senior Project, Undergraduate, 2023 - 2024, 2022 - 2023

Multivariable Calculus, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021

Differential Equations, Undergraduate, 2020 - 2021

Linear Algebra I, Undergraduate, 2020 - 2021

Calculus of One Variable, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015

Vector and Complex Calculus, Undergraduate, 2017 - 2018

Introduction to Calculus of One Variable, Undergraduate, 2017 - 2018

Calculus of One Variable, Undergraduate, 2016 - 2017

Introduction to Multivariable Calculus, Undergraduate, 2015 - 2016, 2014 - 2015

Multivariable Calculus, Undergraduate, 2015 - 2016

Jury Memberships

January, 2020

September, 2019

August, 2019

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Modeling on magnetohydrodynamic Stokes flow using machine learning and curve fitting**
Gürbüz Çaldağ M., Pekmen B.
Neural Computing and Applications, 2025 (SCI-Expanded)

II. **Magnetotactic bacteria and Fe3O4–water in a wavy walled cavity**
Geridönmez B., Oztop H.
International Journal of Numerical Methods for Heat and Fluid Flow, vol.34, no.4, pp.1609-1630, 2024 (SCI-Expanded)

III. **A machine learning approach for entropy due to natural convection flow of a nanofluid under the uniform inclined magnetic field**
Geridönmez B., Oztop H.
Numerical Heat Transfer, Part B: Fundamentals, 2024 (SCI-Expanded)

IV. **Numerical and machine learning approaches in nanofluid natural convection flow in a wavy cavity**
Geridönmez B., Atilgan M. A.
Engineering Analysis with Boundary Elements, vol.155, pp.297-306, 2023 (SCI-Expanded)

V. **Natural convection in a sinusoidally heated cavity filled with ferrofluid in the presence of partial variable magnetic field**
Geridonmez P., Oztop H.

INTERNATIONAL JOURNAL OF NUMERICAL METHODS FOR HEAT & FLUID FLOW, vol.33, no.1, pp.411-435, 2023 (SCI-Expanded)

VI. **Impact of wavy porous layer on mixed convection flow of a hybrid nanofluid in an enclosure under the effect of partial magnetic field**
Hussain S., Qureshi M. A., Geridönmez B.
Numerical Heat Transfer; Part A: Applications, 2023 (SCI-Expanded)

VII. **Conjugate natural convection flow of a nanofluid with oxytactic bacteria under the effect of a periodic magnetic field**
Pekmen Geridonmez B., Oztop H.
Journal of Magnetism and Magnetic Materials, vol.564, 2022 (SCI-Expanded)

VIII. **Entropy Generation Due to Magneto-Convection of a Hybrid Nanofluid in the Presence of a Wavy Conducting Wall**
Geridonmez B., Oztop H. F.
MATHEMATICS, vol.10, pp.4663, 2022 (SCI-Expanded)

IX. **Natural convection of hybrid nanofluid flow in the presence of multiple vertical partial magnetic fields in a trapezoidal shaped cavity**
Geridönmez B., Oztop H. F.
EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS, vol.231, no.13-14, pp.2761-2771, 2022 (SCI-Expanded)

X. **The effect of inclined periodic magnetic field on natural convection flow of Al2O3-Cu/water nanofluid inside right isosceles triangular closed spaces**
Geridönmez B., Oztop H. F.
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.141, pp.222-234, 2022 (SCI-Expanded)

XI. **Mixed bioconvection flow of Ag-MgO/water in the presence of oxytactic bacteria and inclined periodic magnetic field**
Hussain S., Geridönmez B.
International Communications in Heat and Mass Transfer, vol.134, 2022 (SCI-Expanded)

XII. **Effects of partial magnetic field in a vented square cavity with aiding and opposing of MWCNT-water nanofluid flows**
Geridönmez B., Oztop H. F.
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.133, pp.84-94, 2021 (SCI-Expanded)

XIII. **Mixed Convection Heat Transfer in a Lid-Driven Cavity under the Effect of a Partial Magnetic Field**
Geridönmez B., Oztop H. F.
HEAT TRANSFER ENGINEERING, vol.42, no.10, pp.875-887, 2021 (SCI-Expanded)

XIV. **Natural convection in an open ended nanofluid filled cavity with fins in the presence of partial magnetic field and thermal radiation**
Geridönmez B., Oztop H. F.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.44, no.8, pp.6931-6949, 2021 (SCI-Expanded)

XV. **Impact of fins and inclined magnetic field in double lid-driven cavity with Cu-water nanofluid**
Hussain S., Jamal M., Geridönmez B.
INTERNATIONAL JOURNAL OF THERMAL SCIENCES, vol.161, 2021 (SCI-Expanded)

XVI. **Impact of power law fluid and magnetic field on double diffusive mixed convection in staggered porous cavity considering Dufour and Soret effects**
Hussain S., Jamal M., Geridönmez B.
INTERNATIONAL COMMUNICATIONS IN HEAT AND MASS TRANSFER, vol.121, 2021 (SCI-Expanded)

XVII. **Effects of inlet velocity profiles of hybrid nanofluid flow on mixed convection through a backward facing step channel under partial magnetic field**
Geridönmez B., Oztop H. F.
CHEMICAL PHYSICS, vol.540, 2021 (SCI-Expanded)

XVIII. **MHD natural convection in a cavity in the presence of cross partial magnetic fields and Al2O3-water nanofluid**
Geridönmez B., Oztop H. F.

COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.80, no.12, pp.2796-2810, 2020 (SCI-Expanded)

XIX. **Natural convection in a cavity under partial magnetic field applied from different corners**
Geridönmez B., Oztop H. F.
INTERNATIONAL COMMUNICATIONS IN HEAT AND MASS TRANSFER, vol.114, 2020 (SCI-Expanded)

XX. **A New Regression-Based Approach to Estimate the Shape Parameter of MQ-RBFs in a Free Convection Problem**
Geridönmez B.
JOURNAL OF COMPUTING AND INFORMATION SCIENCE IN ENGINEERING, vol.20, no.1, 2020 (SCI-Expanded)

XXI. **Natural convection in a cavity filled with porous medium under the effect of a partial magnetic field**
Geridönmez B., Oztop H. F.
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, vol.161, 2019 (SCI-Expanded)

XXII. **Free Convection in a Wavy Walled Cavity With a Magnetic Source Using Radial Basis Functions**
Geridönmez B.
JOURNAL OF HEAT TRANSFER-TRANSACTIONS OF THE ASME, vol.141, no.4, 2019 (SCI-Expanded)

XXIII. **Numerical investigation of ferrofluid convection with Kelvin forces and non-Darcy effects**
Geridönmez B.
AIMS MATHEMATICS, vol.3, no.1, pp.195-210, 2018 (SCI-Expanded)

XXIV. **NUMERICAL INVESTIGATION OF NATURAL CONVECTION IN AN ENCLOSURE WITH A CONDUCTING SOLID BODY**
Geridönmez B.
HEAT TRANSFER RESEARCH, vol.49, no.2, pp.157-172, 2018 (SCI-Expanded)

XXV. **RBF-DQ solution of natural convection under the effect of a magnetic field in a tilted cavity**
Geridönmez B.
Journal of Applied Fluid Mechanics, vol.10, no.2, pp.499-507, 2017 (SCI-Expanded)

XXVI. **RADIAL BASIS FUNCTION PSEUDO-SPECTRAL SOLUTION OF THE NON-DARCY MODEL IN A POROUS MEDIUM**
Geridönmez B.
JOURNAL OF POROUS MEDIA, vol.20, no.6, pp.479-490, 2017 (SCI-Expanded)

XXVII. **RBF simulation of natural convection in a nanofluid-filled cavity**
Geridönmez B.
AIMS MATHEMATICS, vol.1, no.3, pp.195-207, 2016 (SCI-Expanded)

XXVIII. **DRBEM solution of natural convective heat transfer with a non-Darcy model in a porous medium**
Geridönmez B., TEZER M.
JOURNAL OF MATHEMATICAL CHEMISTRY, vol.53, no.3, pp.911-924, 2015 (SCI-Expanded)

XXIX. **DRBEM Solution of MHD flow with magnetic induction and heat transfer**
Geridönmez B., TEZER M.
CMES - Computer Modeling in Engineering and Sciences, vol.105, no.3, pp.183-207, 2015 (SCI-Expanded)

XXX. **Numerical solution of buoyancy MHD flow with magnetic potential**
Geridönmez B., TEZER M.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.71, pp.172-182, 2014 (SCI-Expanded)

XXXI. **MHD flow and heat transfer in a lid-driven porous enclosure**
Geridönmez B., TEZER M.
COMPUTERS & FLUIDS, vol.89, pp.191-199, 2014 (SCI-Expanded)

XXXII. **Drbem solution of incompressible mhd flow with magnetic potential**
Geridönmez B., TEZER M.
CMES - Computer Modeling in Engineering and Sciences, vol.96, no.4, pp.275-292, 2013 (SCI-Expanded)

XXXIII. **DRBEM solution of free convection in porous enclosures under the effect of a magnetic field**
Geridönmez B., TEZER M.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.56, no.1-2, pp.454-468, 2013 (SCI-Expanded)

XXXIV. **Differential Quadrature Solution of Hyperbolic Telegraph Equation**
Geridönmez B., TEZER M.

JOURNAL OF APPLIED MATHEMATICS, vol.2012, 2012 (SCI-Expanded)

XXXV. **Differential quadrature solution of nonlinear Klein-Gordon and sine-Gordon equations**
Geridönmez B., TEZER M.
COMPUTER PHYSICS COMMUNICATIONS, vol.183, no.8, pp.1702-1713, 2012 (SCI-Expanded)

Articles Published in Other Journals

I. **A machine learning investigation on MHD duct flow**
Gürbüz Çaldağ M., Pekmen B.
International Journal of Dynamics and Control, vol.13, no.2, 2025 (Scopus)

II. **Modeling of Average Nusselt Number by Machine Learning and Interpolation Techniques**
Geridönmez B.
ASME Journal of Heat and Mass Transfer, vol.146, no.4, 2024 (Scopus)

III. **Numerical and statistical approach on chemotaxis-haptotaxis model for cancer cell invasion of tissue**
Pekmen B., Yirmili U.
Mathematical Modelling and Control, vol.4, no.2, pp.195-207, 2024 (Scopus)

IV. **Magnetic source effect on EG-CuO nanofluid in a semi-annulus using RBFs**
Geridönmez B.
INTERNATIONAL JOURNAL FOR COMPUTATIONAL METHODS IN ENGINEERING SCIENCE & MECHANICS, vol.20, no.3, pp.201-211, 2019 (ESCI)

V. **NUMERICAL SIMULATION OF NATURAL CONVECTION IN A POROUS CAVITY FILLED WITH FERROFLUID IN PRESENCE OF MAGNETIC SOURCE**
Geridönmez B.
JOURNAL OF THERMAL ENGINEERING, vol.4, no.2, pp.1756-1769, 2018 (ESCI)

VI. **Steady mixed convection in a heated lid-driven square cavity filled with a fluid-saturated porous medium**
Geridönmez B., TEZER M.
Lecture Notes in Computational Science and Engineering, vol.103, pp.689-697, 2015 (Scopus)

VII. **Steady mixed convection in a heated lid-driven square cavity filled with a fluid-saturated porous medium**
Geridönmez B., TEZER M.
Lecture Notes in Computational Science and Engineering, vol.103, pp.689-697, 2015 (Scopus)

Papers Published in Refereed Scientific Meetings

I. **Machine Learning Modeling for Shape Parameter c in MQ-RBF Applied to Burgers' Equations**
Pekmen B., Kayabasi M.
International Conference on Intelligent and Fuzzy Systems, INFUS 2024, Çanakkale, Turkey, 16 - 18 July 2024, vol.1088 LNNS, pp.294-301

II. **Natural Convection Flow in an Inclined Wavy Porous Medium in the Presence of an Inclined Periodic Magnetic Field**
Hussain S., Pekmen B.
12th International Conference on Mathematical Modeling in Physical Sciences, ICMSQUARE 2023, Belgrade, Serbia, 28 - 31 August 2023, vol.446, pp.377-388

III. **RBF-FD Solution of Natural Convection Flow of a Nanofluid in a Right Isosceles Triangle Under the Effect of Inclined Periodic Magnetic Field**
Geridönmez B.
International Conference on Mathematics and its Applications in Science and Engineering, ICMASE 2022, Salamanca, Spain, 4 - 07 July 2022, pp.13-21

IV. **Machine learning approach to the temperature gradient in the case of discontinuous temperature boundary conditions in a triangular cavity**
Geridönmez B.
2nd International Workshop on Mathematical Modeling and Scientific Computing: Focus on Complex Processes and Systems, MMSC 2022, Virtual, Online, 4 - 07 October 2022, vol.2514

V. **Statistical treatment to temperature gradient in case of discontinuous temperature boundary conditions in a triangular cavity**
Geridönmez B.
Workshop on Mathematical Modeling and Scientific Computing (dedicated to the memory of Nikolai Botkin) October 4-7, 2022, Munich, Munich, Germany, 4 - 07 October 2022, pp.13-14

VI. **Rbf-Pum solution of magnetoconvection in a triangular cavity exposed to a uniform magnetic field**
Geridönmez B.
International Conference on Applied Analysis and Mathematical Modeling-Abstracts and Proceeding Book (ICAAMM22), İstanbul, Turkey, 1 - 03 July 2022, pp.78-83

VII. **Different Time Schemes with Differential Quadrature Method in Convection-Diffusion-Reaction Equations**
Geridönmez B.
2nd International Conference on Mathematics and its Applications in Science and Engineering, ICMASE 2021, Salamanca, Spain, 1 - 02 July 2021, vol.384, pp.103-111

VIII. **A new regression based approach to solve a heat transfer problem**
Geridönmez B.
Croatia

IX. **DRBEM Solution of Natural Convection in an Enclosure with a Conducting Solid Body**
Geridönmez B.
International Conference on Numerical Analysis and Applied Mathematics (ICNAAM), Rhodes, Greece, 23 - 29 September 2015, vol.1738

Peer Reviews in Scientific Publications

NUMERICAL HEAT TRANSFER; PART A: APPLICATIONS, Journal Indexed in SCI-E, December 2022
SN APPLIED SCIENCES, Journal Indexed in ESCI, November 2022
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, Journal Indexed in SCI-E, July 2022
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, Journal Indexed in SCI-E, January 2022
THERMAL SCIENCE, September 2021
KOREAN JOURNAL OF CHEMICAL ENGINEERING, August 2021
JOURNAL OF THERMAL SCIENCE AND ENGINEERING APPLICATIONS, August 2021
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, February 2021
JOURNAL OF THERMAL SCIENCE AND ENGINEERING APPLICATIONS, December 2020
Zeitschrift fur Naturforschung - Section A Journal of Physical Sciences, December 2020
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, July 2020
AEJ - ALEXANDRIA ENGINEERING JOURNAL, July 2020
AEJ - ALEXANDRIA ENGINEERING JOURNAL, July 2020
JOURNAL OF THERMAL SCIENCE AND ENGINEERING APPLICATIONS, June 2020
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, May 2020
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, April 2020
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, March 2020
JOURNAL OF THERMAL SCIENCE AND ENGINEERING APPLICATIONS, January 2020
Journal of Thermal Analysis and Calorimetry, January 2020
Journal of Thermal Engineering, January 2020
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, November 2019

Journal of Thermal Engineering, October 2019
AEJ - ALEXANDRIA ENGINEERING JOURNAL, September 2019
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, August 2019
INTERNATIONAL COMMUNICATIONS IN HEAT AND MASS TRANSFER, June 2019
Journal of Thermal Engineering, February 2019
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, February 2019

Metrics

Publication: 56
Citation (WoS): 250
Citation (Scopus): 493
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H-Index (Scopus): 14