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Research Areas

Differential Equations, Partial Differential Equations, Numerical Analysis, Approximations and Expansions

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Institute of Applied Mathematics, Scientific Computing, 2020 - Continues

Academic and Administrative Experience

Assistant Director of the Institute, Middle East Technical University, Institute of Applied Mathematics, 2020 - Continues

Courses

Fundamentals of Machine Learning Algorithms, Postgraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022
INTRODUCTION TO SCIENTIFIC COMPUTING I, Postgraduate, 2024 - 2025, 2023 - 2024, 2020 - 2021
Mathematical Foundations for Data Analysis, Postgraduate, 2024 - 2025
Finite Element Methods for Partial Differential Equations: Theory and Applications , Postgraduate, 2024 - 2025, 2022 - 2023
INTRODUCTION TO SCIENTIFIC COMPUTING II, Postgraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020
SPECAIL TOPICS: ITERATIVE METHODS FOR LARGE SCALE LINEAR AND NONLINEAR EQUATIONS , Postgraduate, 2020 - 2021

Advising Theses

Türk Ö., FEM approxımatıon of Maxwell equatıons: The source problem, eıgenproblem, and electromagnetıc waves, Postgraduate, T.DAĞLI(Student), 2023
Bozkaya C., Türk Ö., Finite Difference Approximations of Various Steklov Eigenvalue Problems, Postgraduate,

M.ÖZALP(Student), 2022
Türk Ö., Approximation of eigenvalue problems using finite element methods, Postgraduate, E.BAHADIR(Student), 2021
Türk Ö., Numerical analysis of spectral collocation method for magnetohydrodynamic equations, Postgraduate, A.RIDWANOU(Student), 2019

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Time dependent magnetic field effects on the MHD flow and heat transfer in a rectangular duct**
TEZER M., TÜRK Ö.
ZAMM-ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND MECHANIK, vol.104, no.5, 2024 (SCI-Expanded)

II. **Finite Element Formulations for Maxwell's Eigenvalue Problem Using Continuous Lagrangian Interpolations**
Boffi D., Codina R., TÜRK Ö.
Computational Methods in Applied Mathematics, 2024 (SCI-Expanded)

III. **Direct and inverse problems for a 2D heat equation with a Dirichlet–Neumann–Wentzell boundary condition**
Ismailov M. I., TÜRK Ö.
Communications in Nonlinear Science and Numerical Simulation, vol.127, 2023 (SCI-Expanded)

IV. **Analytical and numerical assessments of boundary variations in Steklov eigenvalue problems**
Bahadır E., TÜRK Ö.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.422, 2023 (SCI-Expanded)

V. **Modal analysis of elastic vibrations of incompressible materials using a pressure-stabilized finite element method**
Codina R., TÜRK Ö.
FINITE ELEMENTS IN ANALYSIS AND DESIGN, vol.206, 2022 (SCI-Expanded)

VI. **Chebyshev spectral collocation method for MHD duct flow under slip condition**
BOZKAYA C., TÜRK Ö.
PROGRESS IN COMPUTATIONAL FLUID DYNAMICS, vol.22, no.2, pp.118-129, 2022 (SCI-Expanded)

VII. **A DRBEM approximation of the Steklov eigenvalue problem**
TÜRK Ö.
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.122, pp.232-241, 2021 (SCI-Expanded)

VIII. **An MHD Stokes eigenvalue problem and its approximation by a spectral collocation method**
Türk Ö.
Computers and Mathematics with Applications, vol.80, pp.2045-2056, 2020 (SCI-Expanded)

IX. **Approximation of the Stokes eigenvalue problem on triangular domains using a stabilized finite element method**
Türk Ö.
MECCANICA, vol.55, pp.2021-2031, 2020 (SCI-Expanded)

X. **Chebyshev spectral collocation method approximations of the Stokes eigenvalue problem based on penalty techniques**
Turk Ö., Codina R.
APPLIED NUMERICAL MATHEMATICS, vol.145, pp.188-200, 2019 (SCI-Expanded)

XI. **FEM solution to natural convection flow of a micropolar nanofluid in the presence of a magnetic field**
Türk Ö., Tezer-Sezgin M.
MECCANICA, vol.52, pp.889-901, 2017 (SCI-Expanded)

XII. **A stabilized finite element method for the two-field and three-field Stokes eigenvalue problems**
Turk Ö., Boffi D., Codina R.
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.310, pp.886-905, 2016 (SCI-Expanded)

XIII. **A FEM approach to biomagnetic fluid flow in multiple stenosed channels**

Turk Ö., Bozkaya C., Tezer M.
COMPUTERS & FLUIDS, vol.97, pp.40-51, 2014 (SCI-Expanded)

XIV. **Finite element study of biomagnetic fluid flow in a symmetrically stenosed channel**
Turk Ö., Tezer M., Bozkaya C.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.259, pp.760-770, 2014 (SCI-Expanded)

XV. **BEM and FEM based numerical simulations for biomagnetic fluid flow**
Tezer M., Bozkaya C., Turk Ö.
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.37, no.9, pp.1127-1135, 2013 (SCI-Expanded)

XVI. **Chebyshev Spectral Collocation Method for Unsteady Mhd Flow and Heat Transfer of a Dusty Fluid Between Parallel Plates**
Turk Ö., Tezer-Sezgin M.
NUMERICAL HEAT TRANSFER PART A-APPLICATIONS, vol.64, no.7, pp.597-610, 2013 (SCI-Expanded)

XVII. **FEM solution of natural convection flow in square enclosures under magnetic field**
Turk Ö., Tezer-Sezgin M.
INTERNATIONAL JOURNAL OF NUMERICAL METHODS FOR HEAT & FLUID FLOW, vol.23, no.5, pp.844-866, 2013 (SCI-Expanded)

Articles Published in Other Journals

I. **Chebyshev Spectral Collocation Method Approximation to Thermally Coupled MHD Equations**
TÜRK Ö.
Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.22, pp.355-366, 2018 (Peer-Reviewed Journal)

II. **Natural convection flow of a nanofluid in an enclosure under an inclined uniform magnetic field**
Tezer M., Bozkaya C., Türk Ö.
EUROPEAN JOURNAL OF COMPUTATIONAL MECHANICS, vol.25, pp.2-23, 2016 (ESCI)

Refereed Congress / Symposium Publications in Proceedings

I. **Approximation of a Laplace-Steklov eigenvalue problem by finite and boundary element methods**
Türk Ö.
WONAPDE 2024, Concepcion, Chile, 15 - 19 January 2024, pp.166

II. **Approximation of Steklov Eigenvalue Problems by Finite Difference Methods**
Özalp M., Bozkaya C., Türk Ö.
11th INTERNATIONAL EURASIAN CONFERENCE ON MATHEMATICAL SCIENCES AND APPLICATIONS, İstanbul, Turkey, 29 August - 01 September 2022, pp.128

III. **A Comparison of Boundary Element and Spectral Collocation Approaches to the Thermally Coupled MHD Problem**
Bozkaya C., Türk Ö.
Numerical Mathematics and Advanced Applications ENUMATH 2019, Eindhoven, Netherlands, 30 September - 04 October 2019, pp.185-194

IV. **A CSCM Approximation of Steady MHD Flow and Heat Transfer Between Parallel Plates with Hydrodynamic Slip and Convective Boundary Conditions**
TEZER M., TÜRK Ö.
European Conference on Numerical Mathematics and Advanced Applications, ENUMATH 2019, Egmond aan Zee, Netherlands, 30 September - 04 October 2019, vol.139, pp.969-980

V. **Modal Analysis of Elastic Vibrations of Incompressible Materials Based on a Variational Multiscale Finite Element Method**
Codina R., TÜRK Ö.
European Conference on Numerical Mathematics and Advanced Applications, ENUMATH 2019, Egmond aan Zee,

Netherlands, 30 September - 04 October 2019, vol.139, pp.1021-1029

VI. **Boundary Perturbations in Laplace and Steklov Eigenproblems**
Bahadır E., TÜRK Ö.
3rd International E-Conference on Mathematical Advances and Applications, İstanbul, Turkey, 24 - 27 June 2020, pp.76

VII. **Numerical approximation of the Stokes eigenvalue problem in cubic domain based on penalty technique**
Codina R., TÜRK Ö.
The International Congress of Mathematicians, Rio de Janeiro, Brazil, 1 - 09 August 2018, pp.91-92

VIII. **Chebyshev spectral collocation method approximations of the Stokes eigenvalue problem based on penalty techniques**
TÜRK Ö., Codina R.
European Conference on Numerical Mathematics and Advanced Applications (ENUMATH) 2017, Voss, Norway, 25 - 29 September 2017, pp.322

IX. **A stabilized finite element method for the two-field and three-field Stokes eigenvalue problems**
Boffi D., Codina R., TÜRK Ö.
Computational Methods inApplied Mathematics (CMAM-7), Jyvaskyla, Finland, 31 July - 06 August 2016, pp.65

X. **A finite element formulation for Maxwell eigenvalue problem using continuous Lagrangian interpolations**
TÜRK Ö., Codina R., Boffi D.
THE MATHEMATICS OF FINITE ELEMENTS AND APPLICATIONS 2016, Londrina, Brazil, 14 - 17 July 2016, pp.266

XI. **A DRBEM Approach for the STOKES Eigenvalue Problem**
TEZER M., TÜRK Ö.
Inter. Conf. on Computational and Mathematical Methods in Science and Engineering, CMMSE 2016, Rota-Cadiz, Spain, 4 - 08 July 2016, pp.1210-1219

XII. **Chebyshev Spectral Collocation Method for Natural Convection Flow of a Micropolar Nanofluid in the Presence of a Magnetic Field**
Turk Ö.
European Conference on Numerical Mathematics and Advanced Applications (ENUMATH), Ankara, Turkey, 14 - 18 September 2015, vol.112, pp.453-461

XIII. **Natural Convection Flow of a nanofluid in an Enclosure under a uniform magnetic field**
TEZER M., BOZKAYA C., TÜRK Ö.
Advances in Boundary Element & and Meshless Techniques XVI, Valencia, Spain, 6 - 08 July 2015, vol.16, pp.138-143

XIV. **Biomagnetic fluid flow in a channel under the effect of a uniform localized magnetic field**
TÜRK Ö., BOZKAYA C., TEZER M.
Advances in Boundary Element and Meshless Techniques XV, Italy, 15 - 17 July 2014, pp.81-86

XV. **Biofluidflow in a channel with stenosis**
TÜRK Ö., TEZER M., BOZKAYA C.
International Conference on Applied and Computational Mathematics, Ankara, Turkey, 3 - 06 October 2012, pp.87-88

XVI. **FEM solution to unsteady biomagnetic fluid flow in a channel**
TEZER M., TÜRK Ö., BOZKAYA C.
Mathematical Modeling and Computational Topics in Biosciences, Vietri sul Mare, Italy, 4 - 08 June 2012, pp.163-164

XVII. **FEM Solution of Diffusion-Convection-Reaction Equations in Air Pollution**
TÜRK Ö., TEZER M.
European Conference on Numerical Mathematics and Advanced Applications, ENUMATH 2009, Uppsala, Sweden, 29 June - 03 July 2009, pp.275

Supported Projects

TÜRK Ö., BAHADIR E., Project Supported by Higher Education Institutions, Laplace-Steklov özdeğer problemlerinin sınır-sonlu elemanları yöntemleriyle analizi, 2023 - Continues
TEZER M., TÜRK Ö., Project Supported by Higher Education Institutions, İçinde Parçacıklar Bulunduran Sıvıların Zamana Bağımlı Magnetohidrodinamik Akışı Ve Isı Transferi., 2011 - 2011
TEZER M., TÜRK Ö., Project Supported by Higher Education Institutions, Numerical Solution Of Liquid Metal Magnetohydrodynamics(mhd) Flow With Heat Transfer., 2010 - 2010

Tasks In Event Organizations

Kestel A. S., Yayla O., Türk Ö., Workshop on 20th Anniversary of the Institute of Applied Mathematics, Workshop Organization, Turkey, Kasım 2022
Bozkaya C., Küçüksakallı Ö., Türk Ö., Numerical Analysis and Computational Fluid Dynamics: Workshop in Honor of MÜNEVVER TEZER-SEZGİN's 67th Birthday, Workshop Organization, Ankara, Turkey, Nisan 2019

Metrics

Publication: 37
Citation (WoS): 112
Citation (Scopus): 134
H-Index (WoS): 8
H-Index (Scopus): 8