

## Assoc. Prof. ÖNDER TÜRK

### Personal Information

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### International Researcher IDs

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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

SPECCIL TOPICS: ITERATIVE METHODS FOR LARGE SCALE LINEAR AND NONLINEAR EQUATIONS , Postgraduate, 2020 - 2021

### Advising Theses

Türk Ö., FEM approximation of Maxwell equations: The source problem, eigenproblem, and electromagnetic 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 FÜR 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**

- Türk 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**  
Türk 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., Türk 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**  
Türk 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**  
Türk 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 in Applied Mathematics (CMAM-7), Jyväskylä, 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 sınırsız 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

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