

## Prof. CANAN BOZKAYA

### Personal Information

**Office Phone:** [+90 312 210 2975](tel:+903122102975)

**Email:** [bcanan@metu.edu.tr](mailto:bcanan@metu.edu.tr)

**Web:** <https://avesis.metu.edu.tr/bcanan>

### International Researcher IDs

ScholarID: eWnKhY0AAAAJ

ORCID: 0000-0003-4589-4194

Publons / Web Of Science ResearcherID: AAZ-9592-2020

ScopusID: 23666163300

Yoksis Researcher ID: 55646

### Education Information

Doctorate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Matematik (Dr), Turkey  
2003 - 2008

Undergraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, Turkey 1998  
- 2002

### Foreign Languages

English, C1 Advanced

### Research Areas

Mathematics, Numerical Analysis, Natural Sciences

### Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, 2019 - Continues  
Associate Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, 2015 -  
2019

Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, 2011 -  
2015

Research Assistant, Middle East Technical University, Faculty of Arts and Sciences, Department of Mathematics, 2002 -  
2008

### Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics,  
2014 - 2024

## Advising Theses

- Bozkaya C., A new finite difference approach for MHD flow, Postgraduate, G.ÖĞÜTCÜ(Student), 2023
- Bozkaya C., Türk Ö., Finite Difference Approximations of Various Steklov Eigenvalue Problems, Postgraduate, M.ÖZALP(Student), 2022
- Bozkaya C., Tezer M., BEM solution of unsteady convection-diffusion type fluid flow problems, Doctorate, H.FENDOĞLU(Student), 2020
- BOZKAYA C., A numerical approach for the solutions of fluid dynamics problems in the presence of magnetic field, Doctorate, F.SİDRE(Student), 2018

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **MHD forced convection flow in an infinite channel with a rotating cylinder**  
Oğlakkaya F., Bozkaya C.  
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.156, pp.189-198, 2023 (SCI-Expanded)
- II. **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)
- III. **Semi-analytical solution of MHD flow through boundary integrals on the pipe wall**  
Tezer-Sezgin M., Bozkaya C.  
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.42, no.7, pp.2404-2416, 2019 (SCI-Expanded)
- IV. **MHD flow in a rectangular duct with a perturbed boundary**  
Fendoglu H., Bozkaya C., Tezer-Sezgin M.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.77, no.2, pp.374-388, 2019 (SCI-Expanded)
- V. **Unsteady MHD mixed convection flow in a lid-driven cavity with a heated wavy wall**  
OGLAKKAYA F. S., BOZKAYA C.  
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, vol.148, pp.231-245, 2018 (SCI-Expanded)
- VI. **MHD natural convection in a semi-annulus enclosure filled with water-based nanofluid using DRBEM**  
Oglakkaya F. S., Bozkaya C.  
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS, vol.71, pp.151-163, 2016 (SCI-Expanded)
- VII. **Streamwise oscillations of a cylinder beneath a free surface: Free surface effects on fluid forces**  
Kocabiyik S., BOZKAYA C.  
JOURNAL OF FLUIDS AND STRUCTURES, vol.59, pp.394-405, 2015 (SCI-Expanded)
- VIII. **Free surface flow simulation with application to bluff body flow control**  
Kocabiyik S., BOZKAYA C.  
EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS, vol.224, no.2, pp.341-354, 2015 (SCI-Expanded)
- IX. **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)
- X. **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)
- XI. **Free surface wave interaction with an oscillating cylinder**  
BOZKAYA C., Kocabiyik S.  
APPLIED MATHEMATICS LETTERS, vol.27, pp.79-84, 2014 (SCI-Expanded)
- XII. **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)
- XIII. **A direct BEM solution to MHD flow in electrodynamically coupled rectangular channels**  
BOZKAYA C., TEZER M.

COMPUTERS & FLUIDS, vol.66, pp.177-182, 2012 (SCI-Expanded)

- XIV. **Streamwise oscillations of a cylinder beneath a free surface: Free surface effects on vortex formation modes**  
Bozkaya C., Kocabiyik S., Mironova L. A., Gubanov O. I.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.235, no.16, pp.4780-4795, 2011 (SCI-Expanded)
- XV. **A coupled numerical scheme of dual reciprocity BEM with DQM for the transient elastodynamic problems**  
Bozkaya C.  
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, vol.76, no.7, pp.1108-1122, 2008 (SCI-Expanded)
- XVI. **Boundary element method solution of magnetohydrodynamic flow in a rectangular duct with conducting walls parallel to applied magnetic field**  
Tezer-Sezgin M., BOZKAYA C.  
COMPUTATIONAL MECHANICS, vol.41, no.6, pp.769-775, 2008 (SCI-Expanded)
- XVII. **Fundamental solution for coupled magnetohydrodynamic flow equations**  
Bozkaya C., Tezer-Sezgin M.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.203, no.1, pp.125-144, 2007 (SCI-Expanded)

## Books & Book Chapters

- I. **Boundary Element Method for Magnetohydrodynamic Flow**  
Tezer M., Bozkaya C.  
Springer Nature Switzerland Ag, Zürich, 2024
- II. **Numerical Analysis**  
Tezer M., Bozkaya C.  
ODTÜ Basım İşliđi, Ankara, 2018
- III. **DRBEM solution of MHD flow and electric potential in arectangular pipe with a moving Lid**  
TEZER M., BOZKAYA C.  
in: Lecture Notes in Computational Science and Engineering Numerical Mathematics and Advanced Applications ENUMATH 2015, Bülent Karasözen, Murat Manguoglu, Münevver Tezer-Sezgin, Serdar Göktepe, Ömür Ugur, Editor, Springer, pp.3-11, 2016
- IV. **DRBEM Solution of the Double Diffusive Convective Flow**  
BOZKAYA C., TEZER M.  
in: Numerical Mathematics and Advanced Applications, Bülent Karasözen, Murat Manguođlu, Münevver Tezer, Serdar Göktepe, Ömür Uđur, Editor, Springer, pp.13-21, 2016
- V. **DRBEM Solution of MHD Flow and Electric Potential in a Rectangular Pipe with a Moving Lid**  
TEZER M., BOZKAYA C.  
in: Numerical Mathematics and Advanced Applications ENUMATH 2015, Bülent Karasözen, Murat Manguođlu, Münevver Tezer, Serdar Göktepe, Ömür Uđur, Editor, Springer, pp.3-11, 2016
- VI. **DRBEM solution of the double diffusive convective flow**  
BOZKAYA C., TEZER M.  
in: Lecture Notes in Computational Science and Engineering Numerical Mathematics and Advanced Applications ENUMATH 2015, Bülent Karasözen, Murat Manguoglu, Münevver Tezer-Sezgin, Serdar Göktepe, Ömür Ugur, Editor, Springer, pp.13-21, 2016

## Refereed Congress / Symposium Publications in Proceedings

- I. **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

- II. **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
- III. **DRBEM solution of the MHD forced convection in a channel with sinusoidal walls**  
OĞLAKKAYA F. S., BOZKAYA C.  
International Conference on Boundary Element Techniques-BETEQ2019, Palermo, Italy, 22 - 24 July 2019, pp.186-191
- IV. **A BEM approach for convection-diffusion type equations with variable coefficients**  
Fendoğlu H., BOZKAYA C., TEZER M.  
International Conference on Boundary Element Techniques-BETEQ2019, Palermo, Italy, 22 - 24 July 2019, pp.39-45
- V. **MHD natural convection flow in a porous cavity**  
Bozkaya C.  
International Conference on Pure and Applied Mathematics ICPAM-VAN 2018, Van, Turkey, 11 - 13 September 2018
- VI. **MHD Natural Convection Ferrofluid Flow in Semi-Annulus Enclosures**  
Sidre Oğlakkaya F., Bozkaya C.  
7th International Conference on Mathematical Modeling in Physical Sciences, IC-MSQUARE 2018, Moscow, Russia, 27 - 31 August 2018, vol.1141
- VII. **MHD mixed convection flow in a lid-driven cavity involving a solid body**  
Bozkaya C.  
International Congress of Mathematicians-ICM 2018, Rio-De-Janeiro, Brazil, 1 - 09 August 2018
- VIII. **MHD flow in a rectangular duct with a perturbed boundary**  
Fendoğlu H., Bozkaya C., Tezer M.  
Symposium of the International Association for Boundary Element Methods- IABEM 2018, Paris, France, 26 - 28 June 2018, pp.44
- IX. **Magnetohydrodynamic Flow in a Rectangular Duct**  
BOZKAYA C.  
International conference on Applied Mathematics, Modeling and Computational Science, AMMCS 2017, Waterloo, Canada, 20 - 25 August 2017, vol.259, pp.171-181
- X. **Free convection inside a porous enclosure**  
BOZKAYA C.  
4 th International Conference on Recent Advances in Pure and Applied Mathematics-ICRAPAM 2017, Aydın, Turkey, 11 - 15 May 2017, pp.57
- XI. **Magnetohydrodynamic convection of Cu water nanofluid in a square cavity with a circular cylinder**  
BOZKAYA C.  
The 2016 International Conference on Mathematical Models and Methods in Applied Sciences-MMMAS 2016, 5 - 07 November 2016
- XII. **DRBEM solution to ferrofluid flow and heat transfer in semi annulus enclosure in the presence of magnetic field**  
OĞLAKKAYA F. S., BOZKAYA C.  
Advances in Boundary Element & Meshless Techniques XVII-BETEQ 2016, Ankara, Turkey, 11 - 13 July 2016
- XIII. **Numerical Simulation of MHD Duct flow problems using BEM and DGFEM approaches**  
Yücel H., BOZKAYA C., TEZER M.  
International Conference on Boundary Element and Meshless Techniques XVII, Ankara, Turkey, 11 - 13 July 2016, pp.167-173
- XIV. **Numerical Solution to MHD pipe flow in annular like domains**  
BOZKAYA C., TEZER M.

- International Conference on Boundary Element and Meshless Techniques XVII, Ankara, Turkey, 11 - 13 July 2016, pp.29-34
- XV. **Boundary integral solution of MHD pipe flow**  
TEZER M., BOZKAYA C.  
International Conference on Boundary Element and Meshless Techniques XVII, Ankara, Turkey, 11 - 13 July 2016, pp.155-160
- XVI. **Interaction of laminar near wake with a free surface**  
Kocabiyik S., BOZKAYA C., Liverman E.  
8th Conference of the International Marangoni Association-Interfacial Fluid Dynamics and Processes-IMA8, Bad Honnef, Germany, 12 - 16 June 2016
- XVII. **BEM Solution of MHD Flow in a Semi Infinite Channel with Variable Wall Conductivity**  
TEZER M., BOZKAYA C.  
ICRAPAM 2016, Bodrum-Turgutreis, Turkey, 19 - 23 May 2016, pp.192
- XVIII. **BEM Solution of MHD flow in a semi infinite channel with variable wall conductivity**  
TEZER M., BOZKAYA C.  
International Conference on Recent Advances in Pure and Applied Mathematics (ICRAPAM 2016), Muğla, Turkey, 19 - 23 May 2016
- XIX. **DRBEM solution of the double diffusive donvective flow**  
BOZKAYA C., TEZER M.  
European Conference on Numerical Mathematics and Advanced Applications-ENUMATH-2015, Ankara, Turkey, 14 - 18 September 2015
- XX. **Natural Convection of Nanofluid Flows in a Semicircular Annulus Using DRBEM**  
OĞLAKKAYA F. S., BOZKAYA C.  
European Conference on Numerical Mathematics and Advanced Applications-ENUMATH-2015, Ankara, Turkey, 14 - 18 September 2015
- XXI. **Effect of a heated solid body on mixed convection flow in an open cavity**  
BOZKAYA C.  
The Tenth UK Conference on Boundary Integral Methods-UKBIM 2015, Brighton, United Kingdom, 13 - 15 July 2015, pp.210-220
- XXII. **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
- XXIII. **Numerical investigation of unsteady natural convection from a heated cylinder in a square enclosure**  
BOZKAYA C.  
Advances in Boundary Element & Meshless Techniques XIV-BETEQ 2015, Valencia, Spain, 6 - 08 July 2015, pp.248-253
- XXIV. **Mixed convection flow in a lid driven cavity with hydromagnetic effect using DRBEM**  
OĞLAKKAYA F. S., BOZKAYA C.  
Advances in Boundary Element & Meshless Techniques XIV-BETEQ 2015, Valencia, Spain, 6 - 08 July 2015, pp.44-49
- XXV. **DRBEM simulation on mixed convection with hydromagnetic effect**  
BOZKAYA C.  
The 13th International Conference on Integral Methods in Science and Engineering-IMSE2014, Karlsruhe, Germany, 21 - 25 September 2014
- XXVI. **A numerical study on MHD mixed convection flow**  
BOZKAYA C.  
The Twelfth International Conference on Computational Structures Technology CST2014, Napoli, Italy, 2 - 05 September 2014
- XXVII. **Free surface flow past a circular cylinder under forced rotary oscillations**  
KOCABIYIK S., BOZKAYA C., Liverman E.  
IACM and ECCOMAS joint organization of 11th World congress on Computational Mechanics (WCCM XI)-5th.

European Conference on Computational Mechanics(ECCM V)-6th European Conference on Computational Fluid Dynamics (ECFD VI), Barcelona, Spain, 20 - 25 July 2014

- XXVIII. **MHD flow in rectangular ducts of partly conducting walls under an inclined magnetic field**  
BOZKAYA C., TEZER M.  
Advances in Boundary Element & Meshless Techniques XV-BETEQ 2014, Floransa, Italy, 15 - 17 July 2014, pp.115-120
- XXIX. **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
- XXX. **Free surface flow simulation with application to bluff body flow control**  
KOCABIYIK S., BOZKAYA C.  
7th Conference of the International Marangoni Association-Interfacial Fluid Dynamics and Processes-IMA7, Viyana, Austria, 23 - 26 June 2014
- XXXI. **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
- XXXII. **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
- XXXIII. **THE EFFECT OF NON-LINEAR FREE SURFACE ON BLUFF BODY VORTEX DYNAMICS AND CONTROL**  
Kocabiyik S., BOZKAYA C., Reid G.  
4th International Conference on Computational Methods in Marine Engineering (MARINE), Lisbon, Portugal, 28 - 30 September 2011, pp.230-241

## Supported Projects

BOZKAYA C., TEZER M., FENDOĞLU H., Project Supported by Higher Education Institutions, Zamana bağlı magnetohidrodinamik akış probleminin pertürbe edilmiş sınıra sahip dikdörtgen kanal kesitinde sınır elemanları metodu ile çözümü, 2018 - 2019

TEZER M., BOZKAYA C., Project Supported by Higher Education Institutions, Silindirik kanal içerisinde magnetohidrodinamik akış probleminin teorik çözümü ve nümerik simülasyonu, 2016 - 2016

BOZKAYA C., OĞLAKKAYA F. S., Project Supported by Higher Education Institutions, Magnetohydrodynamic nanofluid and convective heat transfer, 2015 - 2016

BOZKAYA C., Project Supported by Higher Education Institutions, A numerical study on MHD mixed convection flow with a solid body, 2014 - 2014

BOZKAYA C., TÜBİTAK Project, Daralma gösteren damar boyunca akan biyomanyetik akışkan kan modelinin sonlu ve sınır elemanları yöntemleri ile çözümü, 2011 - 2013

BOZKAYA C., Project Supported by Higher Education Institutions, Bem Solution Of Mhd Flows In Coupled Ducts, 2012 - 2012

## Tasks In Event Organizations

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: 87

Citation (WoS): 331

Citation (Scopus): 393

H-Index (WoS): 11

H-Index (Scopus): 12