

## Prof. HALİS BİLGİL

### Personal Information

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### International Researcher IDs

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### Education Information

Doctorate, Erciyes University, Fen Bilimleri Enstitüsü, MATEMATİK, Turkey 2006 - 2010

Postgraduate, Kütahya Dumlupınar University, FBE, MATEMATİK, Turkey 2002 - 2005

Undergraduate, Kütahya Dumlupınar University, FEF, MATEMATİK, Turkey 1998 - 2002

### Dissertations

Doctorate, SEKTÖREL KAVİTELERDEKİ 2-D NAVIER-STOKES DENKLEMİNİN ÇÖZÜM HAREKETLERİNİN ÇATALLANMALARI, Erciyes University, Fen Bilimleri Enstitüsü, MATEMATİK, 2010

Postgraduate, Diferansiyel denklemlerin integrallenebilirliği ve painleve özelliği, Kütahya Dumlupınar University, FBE, MATEMATİK, 2005

### Research Areas

Mathematics

### Academic Titles / Tasks

Professor, Kayseri University, Mühendislik, Mimarlık Ve Tasarım Fakültesi, Mühendislik Temel Bilimleri Bölümü, 2023 - Continues

Professor, Aksaray University, Fen Edebiyat Fakültesi, Matematik, 2021 - 2023

Associate Professor, Aksaray University, Fen Edebiyat Fak., Matematik, 2016 - 2021

Assistant Professor, Aksaray University, Fen Edebiyat Fakültesi, Matematik, 2011 - 2016

Research Assistant, Erciyes University, Fen Fakültesi, Matematik, 2006 - 2010

Research Assistant, Kütahya Dumlupınar University, Fen Edebiyat Fakültesi, Matematik, 2002 - 2006

### Academic and Administrative Experience

Yüksekokul Kurulu Üyesi, Kayseri University, Mustafa Çıkrıkçıoğlu Meslek Yüksekokulu, 2023 - Continues

Director of Vocational School, Kayseri University, Mustafa Çıkrıkçıoğlu Meslek Yüksekokulu, --, 2023 - Continues

College Management Board Member, Kayseri University, Mustafa Çıkrıkçıoğlu Meslek Yüksekokulu, 2023 - Continues

Head of Department, Aksaray University, Fen Edebiyat, Matematik, 2021 - 2023

Head of Department, Aksaray University, 2016 - 2019

Assistant Director of the Institute, Aksaray University, 2013 - 2015

Head of Department, Aksaray University, 2011 - 2013

## Supervised Theses

Bilgil H., Çelik E., Gri kurt ve kambur balina optimizasyonlarının matematiksel modellemeler üzerine uygulamaları, Postgraduate, A.ÖZKEPİR(Student), 2024

Bilgil H., Kesir mertebeden diferansiyel denklemlerin laplace dönüşümleri ile çözümleri, Postgraduate, S.YÜKSEL(Student), 2024

Bilgil H., Kesir mertebeden diferansiyel denklemlerin sayısal çözümleri, Postgraduate, G.KAHVECİ(Student), 2024

Bilgil H., Kesir mertebeden diferansiyel denklemlerin bazı matematiksel modellemeleri, Doctorate, Z.ÖZTÜRK(Student), 2023

Bilgil H., Uyumlu kesirli türevli gri modelleme, Postgraduate, Ü.ERDİNÇ(Student), 2022

Bilgil H., Zaman serilerinin tahmini için gri modelleme metodu, Postgraduate, L.AKYÜZ(Student), 2022

Bilgil H., Bazı gri modellerin karşılaştırılması ve uygulamaları, Postgraduate, B.ZİLE(Student), 2022

Bilgil H., Stokes akış problemleri için biortagonallik şartları, Postgraduate, M.KOYUN(Student), 2019

Bilgil H., Eğrisel bir bölgede Stokes akış probleminin analitik çözümü, Postgraduate, Z.DEHRİ(Student), 2019

Bilgil H., İki boyutlu Navier-Stokes denkleminin sonlu elemanlar metodu ile çözümü ve kapakla sürülen kavite akış problemi üzerine uygulaması, Postgraduate, D.SEDEEQ(Student), 2018

Bilgil H., Üstel fonksiyon yöntemiyle lineer olmayan kısmi türevli diferansiyel denklemlerin tam çözümleri, Postgraduate, Z.ÖZTÜRK(Student), 2018

Bilgil H., Kıl folikülü şeklinin kısmi diferansiyel denklem yöntemi kullanılarak tasarlanması, Postgraduate, S.YOUNIS(Student), 2018

Bilgil H., Irak'ın duhok şehrinde binaların ısıtma ve iklimlendirme sistemlerinin matematiksel modelinin oluşturulması, Postgraduate, N.EOARSH(Student), 2017

Bilgil H., Kapakla sürülen dikdörtgen ve yarım halka tipi kavitelerde stokes akış, Postgraduate, Z.DÖLEK(Student), 2015

## Jury Memberships

Post Graduate, Post Graduate, Erciyes Üniversitesi, October, 2024

Post Graduate, Post Graduate, Kayseri Üniversitesi, August, 2024

Doctorate, Doctorate, Erciyes Üniversitesi, July, 2024

Associate Professor Exam, Associate Professor Exam, ÜAK, May, 2024

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

- I. **Comparison of Conformable and Caputo fractional grey models**  
BİLGİL H., YUKSEL S.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, 2025 (SCI-Expanded)
- II. **A Novel Fractional Forecasting Model for Time Dependent Real World Cases**  
ERDİNÇ Ü., BİLGİL H., ÖZTÜRK Z.  
REVSTAT STATISTICAL JOURNAL, vol.22, no.2, pp.169-188, 2024 (SCI-Expanded)
- III. **A mathematical model of mobility-related infection and vaccination in an epidemiological case**  
BOZKURT F., BALEANU D., BİLGİL H.  
COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING, 2024 (SCI-Expanded)
- IV. **A fractional-order mathematical model based on vaccinated and infected compartments of SARS-**

#### **CoV-2 with a real case study during the last stages of the epidemiological event**

Bilgil H., Yousef A., Erciyes A., Erdinc U., Ozturk Z.

JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.425, 2023 (SCI-Expanded)

- V. **Application of Fractional SIQRV Model for SARS-CoV-2 and Stability Analysis**  
Öztürk Z., Bilgil H., Sorgun S.  
SYMMETRY, vol.15, no.5, pp.1048-1067, 2023 (SCI-Expanded)
- VI. **A mathematical model with piecewise constant arguments of colorectal cancer with chemo-immunotherapy**  
Bozkurt F., Yousef A., BİLGİL H., Baleanu D.  
Chaos, Solitons and Fractals, vol.168, 2023 (SCI-Expanded)
- VII. **Analytical solution and flow topology in a lid-driven S-shaped cavity**  
Bilgil H., Şafak İ., Ozturk Z.  
PHYSICS OF FLUIDS, vol.34, no.12, 2022 (SCI-Expanded)
- VIII. **An optimized continuous fractional grey model for forecasting of the time dependent real world cases**  
Özturk Z., Bilgil H., Erdinc U.  
HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, vol.51, no.1, pp.308-326, 2022 (SCI-Expanded)
- IX. **New grey forecasting model with its application and computer code**  
Bilgil H.  
AIMS MATHEMATICS, vol.6, no.2, pp.1497-1514, 2021 (SCI-Expanded)
- X. **Effect of the Reynolds number on flow bifurcations and eddy genesis in a lid-driven sectorial cavity**  
Bilgil H., Gurcan F.  
JAPAN JOURNAL OF INDUSTRIAL AND APPLIED MATHEMATICS, vol.33, no.2, pp.343-360, 2016 (SCI-Expanded)
- XI. **Bifurcations and eddy genesis of Stokes flow within a sectorial cavity PART II: Co-moving lids**  
Gurcan F., Bilgil H., Sahin A.  
EUROPEAN JOURNAL OF MECHANICS B-FLUIDS, vol.56, pp.200-210, 2016 (SCI-Expanded)
- XII. **A note on exp-function method combined with complex transform method applied to fractional differential equations**  
Guner O., Bekir A., Bilgil H.  
ADVANCES IN NONLINEAR ANALYSIS, vol.4, no.3, pp.201-208, 2015 (SCI-Expanded)
- XIII. **Optical soliton solutions for the variable coefficient modified Kawahara equation**  
Bekir A., Guner O., Bilgil H.  
OPTIK, vol.126, no.20, pp.2518-2522, 2015 (SCI-Expanded)
- XIV. **Bifurcations and eddy genesis of Stokes flow within a sectorial cavity**  
Gurcan F., Bilgil H.  
EUROPEAN JOURNAL OF MECHANICS B-FLUIDS, vol.39, pp.42-51, 2013 (SCI-Expanded)
- XV. **A numerical approach to determine viscosity-dependent segregation in fresh concrete**  
Bilgil A., Ozturk B., Bilgil H.  
APPLIED MATHEMATICS AND COMPUTATION, vol.162, no.1, pp.225-241, 2005 (SCI-Expanded)

#### **Articles Published in Other Journals**

- I. **China Total Energy Consumption Forecast with Optimized Continuous Conformable Fractional Grey Model**  
Bilgil H., Erdinç Ü.  
Alphanumeric Journal, vol.12, no.3, pp.157-168, 2024 (Peer-Reviewed Journal)
- II. **ANALYZING COAL CONSUMPTION IN CHINA: FORECASTING WITH THE ECFGM(1, 1) MODEL AND A PERSPECTIVE ON THE FUTURE**  
Erdinç Ü., Bilgil H.  
Turkish Journal of Forecasting , vol.8, no.2, pp.45-53, 2024 (Peer-Reviewed Journal)

- III. **A Fractional-order mathematical model to analyze the stability and develop a sterilization strategy for the habitat of stray dogs**  
Ozturk Z., Yousef A., Bilgil H., Sorgun S.  
INTERNATIONAL JOURNAL OF OPTIMIZATION AND CONTROL-THEORIES & APPLICATIONS-IJOCTA, vol.14, no.2, pp.134-146, 2024 (ESCI)
- IV. **A new application of fractional glucose-insulin model and numerical solutions**  
Öztürk Z., Bilgil H., Sorgun S.  
SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES, vol.42, no.3, pp.1-12, 2024 (ESCI)
- V. **Fractional SIQRV Model for COVID-19 and Numerical Solutions**  
Öztürk Z., Bilgil H., Sorgun S.  
Konuralp Journal of Mathematics, vol.11, no.2, pp.131-140, 2023 (ESCI)
- VI. **Application of Fractional SPR Psychological Disease Model in Turkey and Stability Analysis**  
Öztürk Z., Bilgil H., Sorgun S.  
Journal of mathematical sciences and modelling (Online), vol.6, no.2, pp.49-55, 2023 (Scopus)
- VII. **Application of Standard and Exponential Grey Forecasting Models on Turkey's Education Expenditures**  
Akyuz L., Bilgil H.  
New Trends in Mathematical Science, vol.10, pp.9-19, 2022 (Peer-Reviewed Journal)
- VIII. **Stability Analysis of Fractional PSQp Smoking Model and Application in Turkey**  
Öztürk Z., Bilgil H., Sorgun S.  
New Trends in Mathematical Science, vol.10, no.4, pp.54-62, 2022 (Peer-Reviewed Journal)
- IX. **GM (1,1) ve EXGM (1,1) Tahmin Modellerinin Türkiye'nin Ar-Ge Harcamalarına Uygulanması**  
Akyüz L., Bilgil H.  
Aksaray University Journal of Science and Engineering, vol.6, no.2, pp.95-106, 2022 (Peer-Reviewed Journal)
- X. **SIQRV Modeli ve Nümerik Uygulaması**  
Öztürk Z., Sorgun S., Bilgil H.  
Avrupa Bilim ve Teknoloji Dergisi, vol.2021, pp.573-578, 2021 (Peer-Reviewed Journal)
- XI. **New Exact Solutions of Conformable Time-Fractional Bad and Good Modified Boussinesq Equations**  
Öztürk Z., Sorgun S., Bilgil H., Erdinç Ü.  
Journal of New Theory, vol.2021, no.37, pp.8-25, 2021 (Peer-Reviewed Journal)
- XII. **The Grey Forecasting Modelling and Its Application**  
Bilgil H., Ozturk Z., Ozgul E.  
Aksaray University Journal of Science and Engineering, vol.3, no.2, pp.75-81, 2019 (Peer-Reviewed Journal)
- XIII. **Exact Solutions of Rosenzweig-MacArthur (RM) Model Equations by Using Exp Function Method**  
Öztürk Z., Bilgil H.  
Avrupa Bilim ve Teknoloji Dergisi, vol.2019, pp.427-433, 2019 (Peer-Reviewed Journal)
- XIV. **Mathematical Estimation of Expenditures in The Health Sector in TURKEY with Grey Modeling**  
Öztürk Z., Bilgil H.  
ERCIYES UNIVERSITY JOURNAL OF SOCIAL SCIENCES INSTITUTE, vol.35, no.3, pp.52-58, 2019 (Peer-Reviewed Journal)
- XV. **An application of khuri's biorthogonality condition on stokes flow in a rectangular cavity**  
BİLGİL H.  
Applied Mathematics E - Notes, vol.19, pp.456-464, 2019 (Scopus)
- XVI. **An Application Of Khuri's Biorthogonality Condition On Stokes Flow In A Rectangular Cavity**  
Bilgil H.  
APPLIED MATHEMATICS E-NOTES, vol.19, pp.456-464, 2019 (ESCI)
- XVII. **Mathematical Modeling for Prediction of Heating and Air-Conditioning Energies of Multistory Buildings in Duhok City**  
Zaya N. E., Hassan L. H., Bilgil H.  
Academic Journal of Nawroz University, vol.7, no.4, pp.153-167, 2018 (Peer-Reviewed Journal)
- XVIII. **EFFECT OF THE CAVITY ANGLE ON FLOW STRUCTURES IN AN ANNULAR WEDGE CAVITY**

Bilgil H., Dölek Z.

Konuralp Journal of Mathema, vol.3, no.2, pp.1-16, 2015 (ESCI)

**XIX. EXACT SOLUTIONS AND PAINLEVE ANALYSIS OF NONLINEAR EVOLUTION EQUATIONS**

Özer M. N., Bekir A., Bilgil H.

HADRONIC JOURNAL, vol.28, no.4, pp.453-466, 2005 (Peer-Reviewed Journal)

**XX. APPLICATIONS OF EXTENDED TANH METHODS FOR NONLINEAR EQUATIONS**

Özer M. N., Bekir A., Bilgil H.

HADRONIC JOURNAL, vol.28, no.5, pp.559-569, 2005 (Peer-Reviewed Journal)

## **Papers Published in Refereed Scientific Meetings**

**I. APPLICATIONS OF GRAY WOLF AND HUMPTY WHALE OPTIMIZATIONS ON MATHEMATICAL MODELING**

Özkepir A., BİLGİL H., Çelik E.

12. INTERNATIONAL SUMMIT SCIENTIFIC RESEARCH CONGRESS, Turkey, 19 May 2024

**II. SOLUTION OF FRACTIONAL EQUATIONS USING THE ADAMSBASHFORTH-MOULTON METHOD**

BİLGİL H., Kahveci G.

12. INTERNATIONAL SUMMIT SCIENTIFIC RESEARCH CONGRESS, ga, Turkey, 29 May 2024

**III. COMPARISON OF CAPUTO AND CONFORMABLE FRACTIONAL MODELS**

Yüksel S., BİLGİL H.

11th INTERNATIONAL ZEUGMA CONFERENCE ON SCIENTIFIC RESEARCH, Turkey, 18 March 2024

**IV. Kesir Mertebeden Glikoz-İnsülin Modeli**

ÖZTÜRK Z., BİLGİL H., SORGUN S.

IV. INTERNATIONAL TURKIC WORLD CONGRESS ON SCIENCE AND ENGINEERING, Niğde, Turkey, 23 June 2022

**V. APPLICATION OF GM (1.1) AND EXGM (1.1) FORECASTING MODELS TO TURKEY'S R&D EXPENDITURES**

AKYÜZ L., BİLGİL H.

INTERNATIONAL EUROASIA Congress on Scientific Researches and Recent Trends 9, Turkey, 18 February 2022

**VI. Stokes Flow Problem in S Shaped Cavity**

BİLGİL H.

III. International Scientific And Vocational Studies Congress-Science and, 27 - 28 September 2019

**VII. Application of The Grey Forecasting Model on Flow Structures: The Similar Flow Structure in Sectorial Cavities,**

BİLGİL H., şafak i.

III. International Scientific And Vocational Studies Congress-Engineering, 27 - 28 September 2019

**VIII. Yeni Bir Gri Modelleme Yöntemi Ve Türkiye'deki Sağlık Harcamalarının Tahmini Üzerine Uygulaması,**

BİLGİL H.

Uluslararası Türk Dünyası Fen ve Mühendislik Kongresi, 17 - 18 June 2019

**IX. Sektörel Kavitelere Benzer Akış Yapıları**

BİLGİL H., GÜRCAN F.

14. Ankara Matematik Günleri, Turkey, 28 - 29 June 2019

**X. Sektörel kavitelere Kavite Açısının Akış Yapıları Üzerine Etkisi**

BİLGİL H., ZARİFE D.

28. Ulusal Matematik Sempozyumu, Kayseri, Turkey, 7 - 09 September 2015

**XI. Septic B Spline Collocation Method for Fisher s Equation**

ŞAHİN A., BİLGİL H.

International Conference on Applied Analysis and Mathematical Modelling, 8 - 12 June 2015

**XII. 2D Steady Stokes Flow in Annular Lid Driven Cavity**

BİLGİL H., ŞAHİN A.

International Conference on Applied Analysis and Mathematical Modelling, 8 - 12 June 2015

- XIII. **Lineer Olmayan Kısmi Diferensiyel Denklemlerin Üstel Fonksiyon Yöntemiyle Tam Çözümleri**  
BİLGİL H.  
14. Matematik Sempozyumu, Niğde, Turkey, 14 - 16 May 2015
- XIV. **Least Squares B Spline Finite element Method in Numerical Solutions of Partial Differential Equations**  
ŞAHİN A., BİLGİL H.  
Second International Conference on Mathematics and Statistics, 2 - 05 April 2015

### **Supported Projects**

Bilgil H., Şafak İ., TUBITAK Project, Eğrisel Bölgelerde Stokes Akış Probleminin Analitik Çözümü ve Akış Yapıları, 2021 - 2023

### **Peer Reviews in Scientific Publications**

PHYSICS OF FLUIDS, SCI Journal, May 2024

### **Congress and Symposium Activities**

5. INTERNATIONAL CAPPADOCIA SCIENTIFIC RESEARCH CONGRESS, Session Moderator, Nevşehir, Turkey, 2023  
9th International IFS and Contemporary Mathematics and Engineering Conference, Attendee, Mersin, Turkey, 2023