Prof. FATMA AYAZ

Personal Information

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Education Information

Doctorate, The University of Leeds, School Of Mathematics, United Kingdom 1991 - 1995
Postgraduate, Ege University, Güneş Enerjisi Enstitüsü, Enerji (Yl) (Tezli), Turkey 1987 - 1989
Undergraduate, Bursa Uludağ University, Balıkesir Necatibey Eğitim Fakültesi, Matematik Pr., Turkey 1980 - 1984

Foreign Languages

English, B2 Upper Intermediate

Dissertations

Doctorate, Fluid Mechanics of Microscopic Filter Feeding, The University of Leeds, School Of Mathematics, 1995
Postgraduate, Pasif sistemlerden çift cam duvar uygulamasında zamana göre değişen sıcaklık profilinin zamana göre değişen ısı akısına olan etkisinin araştırılması, Ege University, Güneş Enerjisi Enstitüsü, Enerji (Yl) (Tezli), 1989

Research Areas

Natural Sciences, Engineering and Technology

Academic Titles / Tasks

Professor, Gazi University, Fen Fakültesi, Matematik, 2014 - Continues
Associate Professor, Gazi University, Fen Fakültesi, Matematik, 2009 - 2014
Assistant Professor, Balikesir University, Faculty Of Arts And Sciences, Department Of Mathematics, 1996 - 2004
Research Assistant, Balikesir University, Faculty Of Arts And Sciences, Department Of Mathematics, 1986 - 1996

Advising Theses

AYAZ F., Kesirli mertebeden diferensiyel denklemler için yaklaşık çözümler: Sayısal integral alma yöntemleri, Postgraduate, İ.BEKTAŞ(Student), 2018

AYAZ F., Investıgatıon Of Magnetohydrodynamic Flow And Heat Transfer In Dıfferent Geometrıes, Postgraduate, H.YETİM(Student), 2018

AYAZ F., Kesirli mertebeden diferensiyel denklemler için sayısal ve yaklaşık yöntemler, Postgraduate, O.GÖRGÜLÜ(Student), 2017

AYAZ F., A Method For Some Nonlınear Mathematıcal Models, Doctorate, M.EKİCİ(Student), 2016

AYAZ F., Approximate solutions for fractional order variable coefficients differential equations and the system of such equations by hermite collocation method, Doctorate, N.AKGÖNÜLLÜ(Student), 2014

AYAZ F., Laplace transforms of fractional calculus and some of the biophysical applications, Postgraduate, F.ÖZKARA(Student), 2013

AYAZ F., Differential equations of fractional order and a study on numerical solutions, Postgraduate, A.DOĞAN(Student), 2011

Ayaz F., BAZI ÖZEL TİPTE BAŞLANGIÇ VE SINIR DEĞER PROBLEMLERİNİN YAKLAŞIK ÇÖZÜMLERİ ÜZERİNE BİR ÇALIŞMA : VAN DER POL DENKLEMİ VE DİFERENSİYEL TRANSFORM, Postgraduate, Y.GÜRKAN(Student), 2010

Ayaz F., A STUDY OF LİNEAR SİNGULAR AND NON-SİNGULAR İNTEGRAL EQUATİON ON APROXİMATE SOLUTİONS: FRACTURE MECHANİC, Postgraduate, M.EKİCİ(Student), 2010

Ayaz F., APPROXIMATE SOLUTIONS OF SINGULAR INITIAL OR BOUNDARY VALUE PROBLEMS: DIFFERENTIAL TRANSFORMATION AND ADOMIAN DECOMPOSITION METHODS, Postgraduate, D.ÜNAL(Student), 2010

AYAZ F., Singüler başlangıç veya sınır değer problemlerinin yaklaşık çözümleri: Diferensiyel dönüşüm ve adomian ayrıştırma metodları, Postgraduate, D.ÜNAL(Student), 2010

Ayaz F., NUMERICAL SOLUTIONS VIA MAPLE AND NUMERICAL METHODS OF SOME PARTICULAR BOUNDARY VALUE PROBLEMS AND INITIAL VALUE PROBLEMS, Postgraduate, G.GÜMÜŞ(Student), 2008

AYAZ F., Painleve analizi ile bazı lineer olmayan kısmi türevli denklemlerin integrallenebilirliği ve soliton çözümleri üzerine, Doctorate, F.KANGALGİL(Student), 2008

AYAZ F., Kısmi türevli diferansiyel denklemlerin çözümünde iki boyutlu diferansiyel dönüşüm ve adomian ayrıştırma metotlarının karşılaştırılması, Postgraduate, S.ALTUN(Student), 2004

AYAZ F., Şırnak ilköğretim okullarında Türkçe'nin etkin kullanımının matematik eğitimi açısından değerlendirilmesi, Postgraduate, E.BAY(Student), 2000

Published journal articles indexed by SCI, SSCI, and AHCI

I. **A New Technique for Solving Fractional Order Systems Hermite Collocation Method**
Pırım N. A., Ayaz F.
Applied Mathematics, vol.7, no.18, pp.2307-2323, 2016 (SCI-Expanded)

II. **FRACTIONAL CAPUTO HEAT EQUATION WITHIN THE DOUBLE LAPLACE TRANSFORM**
Anwar A. M. O., Jarad F., Baleanu D., Ayaz F.
ROMANIAN JOURNAL OF PHYSICS, vol.58, pp.15-22, 2013 (SCI-Expanded)

III. **SOLITARY WAVE SOLUTIONS FOR HIROTA-SATSUMA COUPLED KdV EQUATION AND COUPLED mKdV EQUATION BY DIFFERENTIAL TRANSFORM METHOD**
Kangalgil F., AYAZ F.
ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING, vol.35, pp.203-213, 2010 (SCI-Expanded)

IV. **Solitary wave solutions for the KdV and mKdV equations by differential transform method**
Kangalgil F., AYAZ F.
CHAOS SOLITONS & FRACTALS, vol.41, no.1, pp.464-472, 2009 (SCI-Expanded)

V. **New exact travelling wave solutions for the Ostrovsky equation**
Kangalgil F., AYAZ F.
PHYSICS LETTERS A, vol.372, no.11, pp.1831-1835, 2008 (SCI-Expanded)

VI. **Modelling age- and density-structured reproductive biology and seasonal survival of Apanteles galleriae Wilkinson (Hym., Braconidae)**
UÇKAN F., Ergin E., Ayaz F.
JOURNAL OF APPLIED ENTOMOLOGY, vol.128, no.6, pp.407-413, 2004 (SCI-Expanded)

VII. **Applications of differential transform method to differential-algebraic equations**
Ayaz F.
APPLIED MATHEMATICS AND COMPUTATION, vol.152, no.3, pp.649-657, 2004 (SCI-Expanded)

VIII. **Solutions of the system of differential equations by differentical transform method**
Ayaz F.
APPLIED MATHEMATICS AND COMPUTATION, vol.147, no.2, pp.547-567, 2004 (SCI-Expanded)

IX. **On the two-dimensional differential transform method**
Ayaz F.
APPLIED MATHEMATICS AND COMPUTATION, vol.143, pp.361-374, 2003 (SCI-Expanded)

X. **Dissolution kinetics of ulexite in aqueous EDTA solutions**
Alkan M., Cifci C., Ayaz F., Dogan M.
CANADIAN METALLURGICAL QUARTERLY, vol.39, no.4, pp.433-439, 2000 (SCI-Expanded)

XI. **Flow through and particle interception by an infinite array of closely-spaced circular cylinders**
Ayaz F., Pedley T.
EUROPEAN JOURNAL OF MECHANICS B-FLUIDS, vol.18, no.2, pp.173-196, 1999 (SCI-Expanded)

Articles Published in Other Journals

I. **Fractional model for blood flow under MHD influence in porous and non-porous media**
AYAZ F., Heredağ K.
International Journal of Optimization and Control: Theories and Applications, vol.14, no.2, pp.156-167, 2024 (ESCI)

II. **Approximate solution for magnetohydrodynamics fluid flowbetween two circular discs**
AYAZ F., Yetim H., Pirim Akgönüllü N.
International Journal of Mechanical Engineering, vol.3, pp.1-8, 2018 (Scopus)

III. **Hermite collocation method for fractional order differentialequations**
AYAZ F., Akgonüllü Pirim N.
An International Journal of Optimization and Control: Theories Applications, vol.8, no.2, pp.228-236, 2018 (Scopus)

IV. **Solution of model equation of completely passive natural convection by improved differential transform method**
AYAZ F., EKİCİ M.
Cross Ref, vol.3, pp.1-10, 2017 (Peer-Reviewed Journal)

V. **A Hybrid Method for Solving Some Particular Types of FractionalDifferential Equations**
AYAZ F., Görgülü O.
A Hybrid Method for Solving Some Particular Types of FractionalDifferential Equations, vol.2, pp.6-12, 2017 (Peer-Reviewed Journal)

VI. **Solution of linear and nonlinear heat equations by differential transform method**
KANGALGİL F., AYAZ F.
Selçuk Journal of applied Mathematics, vol.8, no.1, pp.75-85, 2007 (Peer-Reviewed Journal)

VII. **An Approximate solution of Burgers Equation by differential transform method**
AYAZ F., OTURANÇ G.
Selçuk Journal of Applied Mathematics, vol.5, no.2, pp.15-24, 2004 (Peer-Reviewed Journal)

Books & Book Chapters

I. **Python Destekli Sayısal Analiz**
AYAZ F., ÇIBIK A. B., Haçat G.
seçkin yayıncılık, Ankara, 2024

II. **A Numerical Approach for Variable Order Fractional Equations**

Ayaz F., Bektas İ.

in: Numerical Solutions of Realistic Nonlinear Phenomena, J.A.Tanreiro Machado,Necati Özdemir,Dumitru Baleanu, Editor, Springer, Altdorf, pp.195-212, 2020

Refereed Congress / Symposium Publications in Proceedings

I. **Formulation and effectiveness Hand Sanitizer close leaf oil (Syzygium aromaticum L.) and curcuma extract (Curcuma xanthorrhiza R.)**
    Widhyastuty S., Harismah K., Mirzaei M., AYAZ F.
    2021 International Summit on Education, Technology and Humanity, ISETH 2021, Surakarta, Indonesia, 20 - 21 December 2021, vol.2727

II. **ESTIMATION OF PARAMETERS IN DYNAMICSYSTEMS USING THE HYBRID HOMOTOPYANALYSIS METHOD WITH THE MULTIOBJECTIVEGENETIC ALGORITHM**
    F Qasim O., F Qasim A., AYAZ F., Enver A.
    4th International Conference on Computationalş Mathematics and engineering Sciences (CMES'xx2019), Antalya, Turkey, 20 - 22 April 2019, pp.463-481

III. **MHD Flow for Different Flow Geometries**
    AYAZ F., YETİM H.
    International Conference on Mathematics and Mathematics education, Urfa, Turkey, 11 - 13 May 2017

IV. **An Approximate Technique for Variable Order Fractional Equations**
    AYAZ F., BEKTAS İ.
    International Conference on Mathematics and Mathematics Education, Urfa, Turkey, 11 - 13 May 2017

V. **A numerical Approach for solving multi -term Fractional Order Dfiferential Equations**
    AYAZ F., GORGULU O.
    Çankaya Üniversitesi, Ankara, Turkey, 27 - 29 April 2017

VI. **A-hybrid method for solving some particular types of feractional order equations**
    Ayaz F., Gorgulu O.
    AMATHI'xx17AIKED'xx17 Applications of Informatics in Mathematical Models, Cambridge, Canada, 24 January - 27 April 2017

VII. **A Taylor Polynomial Solution to Fluid Flow and Heat Transfer in a Permeable Channel**
    AYAZ F., Yetim H.
    Emerging Trends in Applied Mathematics and Mechanics (ETAMM 2016), Perpignan, France, 30 May - 03 June 2016

VIII. **Solution of the model of beam type micro and nano scale electrostatic actuators by differential transform method for nonlinear boundary value problem**
    EKİCİ M., AYAZ F.
    The International Journal of Arts and Sciences, Boston, 26 - 30 May 2015

Activities in Scientific Journals

An International Journal of Optimization and Control: Theories & Applications (IJOCTA), Scientific Committee Membership, 2016 - Continues

Metrics

Publication: 29
Citation (WoS): 650
Citation (Scopus): 736

H-Index (WoS): 9
H-Index (Scopus): 9

Awards

Engin T., Cerit C., Ayaz F., 2013 TÜBA-TEÇEP Çeviri Eser Ödülü, Türkiye Bilimler Akademisi, April 2014

Non Academic Experience

Balıkesir Üniversitesi
Bozkurt Lisesi