Assoc. Prof. Mesut KARABACAK

Personal Information

Office Phone: +90 442 231 1557

Web: https://avesis.atauni.edu.tr/mkarabacak

International Researcher IDs

ScholarID: nwJcbYQAAAAJ

ORCID: 0000-0002-0057-8115

Publons / Web Of Science ResearcherID: D-8126-2015

Yoksis Researcher ID: 38051

Education Information

Doctorate, Ataturk University, Fen Bilimleri Enstitüsü, Uygulamalı Matematik, Turkey 2009 - 2015

Undergraduate, Ataturk University, Kâzım Karabekir Eğitim Fakültesi, Matematik Öğretmenliği, Turkey 1998 - 2003

Masters (Non-Thesis), Ataturk University, Kâzım Karabekir Eğitim Fakültesi, Matematik Öğretmenliği, Turkey 1998 - 2003

Dissertations

Doctorate, Kesirli Mertebeli Diferansiyel Cebirsel Denklemlerin Haar Dalgacık Fonksiyonları ile Nümerik Çözümleri , Atatürk Üniversitesi, Fen Fakültesi, Matematik Bölümü/Uygulamalı Matematik, 2015

Research Areas

Mathematics, Computer Science, Differential Equations, Functional Equations, Integral Equations, Integral Transformations, Computational Calculation, Partial Differential Equations, Natural Sciences

Academic Titles / Tasks

Associate Professor, Ataturk University, Fen Fakültesi, Matematik, 2024 - Continues

Assistant Professor, Ataturk University, Fen Fakültesi, Matematik, 2017 - 2023

Assistant Professor, Ataturk University, Fen Fakültesi, Aktüerya Bilimleri, 2015 - 2017

Research Assistant, Ataturk University, Fen Fakültesi, Matematik, 2011 - 2015

Academic and Administrative Experience

Atatürk Üniversitesi, Fen Fakültesi, 2016 - 2017

Courses

Kuantum Hesaplama Teorisine Giriş, Postgraduate, 2024 - 2025

Bilgisayar Uygulamaları, Undergraduate, 2022 - 2023, 2021 - 2022

İLERİ DİFERANSİYEL DENKLEMLER I, Postgraduate, 2022 - 2023, 2021 - 2022, 2019 - 2020

İLERİ NÜMERİK ANALİZ I, Doctorate, 2022 - 2023, 2021 - 2022

Mesleki İngilizce, Undergraduate, 2022 - 2023

Bilgisayara Giriş, Undergraduate, 2023 - 2024, 2022 - 2023

Matematiksel Simülasyon, Undergraduate, 2023 - 2024

Temel Matematik, Undergraduate, 2023 - 2024

Bilgisayar Programlama, Undergraduate, 2023 - 2024, 2022 - 2023

Matematik, Undergraduate, 2023 - 2024, 2021 - 2022

Matematik Laboratuvarı IV, Undergraduate, 2022 - 2023

Bilgisayar Destekli Matematik, Undergraduate, 2022 - 2023

Diferansiyel Denklemler, Undergraduate, 2022 - 2023

Algoritma ve Programlama , Undergraduate, 2021 - 2022

Kısmi Diferansiyel Denklemler, Undergraduate, 2021 - 2022

Nümerik Analiz, Undergraduate, 2022 - 2023

İLERİ DİFERANSİYEL DENKLEMLER II, Postgraduate, 2021 - 2022

Diferansiyel Denklemler, Undergraduate, 2022 - 2023, 2020 - 2021

Algorithm and Programming, Undergraduate, 2021 - 2022

Diferansiyel Denklemler, Undergraduate, 2022 - 2023

Mathematics-II, Undergraduate, 2020 - 2021

Diferansiyel Denklemler, Undergraduate, 2021 - 2022

Linear Algebra, Undergraduate, 2020 - 2021

Bilgisayara Giriş I, Undergraduate, 2021 - 2022

Matematik-I, Undergraduate, 2021 - 2022

Matematik-I, Undergraduate, 2021 - 2022

İLERİ DİFERANSİYEL DENKLEMLER I , Postgraduate, 2021 - 2022

Matematik-I, Undergraduate, 2021 - 2022

Matematik-II, Undergraduate, 2019 - 2020

Mathematics-I, Undergraduate, 2020 - 2021

Bilgisayara Giriş II, Undergraduate, 2019 - 2020

Matematik-I, Undergraduate, 2018 - 2019

Advising Theses

Karabacak M., YAPAY SİNİR AĞLARI İLE DİFERANSİYEL DENKLEM ÇÖZÜMÜ ÜZERİNE YAPILAN BİR ARAŞTIRMA, Postgraduate, A.YILDIRIM(Student), 2024

Karabacak M., H∞ control of linear differential-algebraic equations (DAEs) systems, Doctorate, H.GÜNDÜZ(Student), 2023

Karabacak M., Solutions of Partial Diferential Equations with Hosoya Neural Network, Doctorate, M.ZEYNEP(Student), 2023

Karabacak M., The Exact Solutions of Differential Algebraic Equations by Tarig Transform, Postgraduate, E.KÖSE(Student), 2022

Karabacak M., Değişken Katsayılı Diferansiyel Denklemlerin Mohand Dönüşümü İle Tam Çözümleri, Postgraduate, Ş.VURMAZ(Student), 2022

Karabacak M., β-uyumlu kesirli türev ile modellenen bazı fiziksel ve biyolojik problemlerin tam çözümleri, Postgraduate, S.BULUT(Student), 2021

Jury Memberships

Post Graduate, Post Graduate, Ağrı İbrahim Çeçen Üniversitesi, August, 2022

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Interval neutrosophic multi-criteria group decision-making based on Aczel-Alsina aggregation operators**
KARABACAK M.
COMPUTATIONAL & APPLIED MATHEMATICS, vol.42, no.3, 2023 (SCI-Expanded)

II. **Correlation coefficient for Neutrosophic Z-Numbers and its applications in decision making**
KARABACAK M.
Journal of Intelligent and Fuzzy Systems, vol.45, no.1, pp.215-228, 2023 (SCI-Expanded)

III. **New Solitary and Periodic Wave Solutions of (n+1)-Dimensional Fractional Order Equations Modeling Fluid Dynamics**
Bulut S., KARABACAK M., Ahmad H., Askar S.
SYMMETRY-BASEL, vol.13, no.11, 2021 (SCI-Expanded)

IV. **Solving fuzzy fractional partial differential equations by fuzzy Laplace-Fourier transforms**
KHODADADI E., KARABACAK M.
JOURNAL OF COMPUTATIONAL ANALYSIS AND APPLICATIONS, vol.19, no.2, pp.260-271, 2015 (SCI-Expanded)

Articles Published in Other Journals

I. **A comparative view to H∞-norm of transfer functions of linear DAEs**
Gündüz H., Çelik E., KARABACAK M.
International Journal of Optimization and Control: Theories and Applications, vol.14, no.4, pp.346-354, 2024 (ESCI)

II. **A novel distance measure for simplified neutrosophic sets with its applications in pattern recognition**
Karabacak M.
Gümüşhane Üniversitesi Fen Bilimleri Dergisi, vol.12, no.4, pp.1207-1215, 2022 (Peer-Reviewed Journal)

III. **Singular Cauchy problem for generalized homogeneous Euler–Poisson–Darboux equation**
SHISHKINA E. L., KARABACAK M.
Mathematical Notes of NEFU, vol.25, pp.85-96, 2018 (Scopus)

IV. **The Legendre Wavelets Method for Approximate Solution of Fractional Differential-Algebraic Equations**
KARABACAK M., YİĞİDER M.
INTERNATIONAL JOURNAL OF APPLIED MATHEMATICS & STATISTICS, vol.57, no.4, pp.161-173, 2018 (ESCI)

V. **On the Approximate Solution of Fractional Logistic Equation by Shannon Wavelets**
Karabacak M., Karabacak E.
International Journal of Engineering and Applied Sciences, vol.4, no.12, pp.65-68, 2017 (Peer-Reviewed Journal)

VI. **Shannon wavelet transform for solving fractional differential algebraic equations numerically**
KARABACAK M., YİĞİDER M.
International Journal of Engineering and Applied Sciences, vol.3, 2016 (Peer-Reviewed Journal)

VII. **Solving fuzzy fractional Riccati differential equations by the variational iteration method**
KHODADADI E., KARABACAK M., ÇELİK E.
International Journal of Engineering and Applied Sciences, vol.2, pp.35-40, 2015 (Peer-Reviewed Journal)

VIII. **The Numerical Solution of Fractional Differential Algebraic Equations FDAEs by Haar Wavelet Functions**
KARABACAK M., ÇELİK E.
International Journal of Engineering and Applied Sciences, vol.2, pp.65-71, 2015 (Peer-Reviewed Journal)

IX. **The Numerical Solution of Helmholtz Equation Via Multivariate Padé Approximation**

YİĞİDER M., KARABACAK M.

International Journal of Research in Engineering and Technology, vol.4, pp.670-678, 2015 (Peer-Reviewed Journal)

X. **A multi attribute decision making method based on inclusion measure for interval neutrosophic sets**

Şahin R., Karabacak M.

International Journal of Engineering and Applied Sciences, vol.2, pp.13-15, 2015 (Peer-Reviewed Journal)

XI. **The Numerical Solution of Fractional Differential Algebraic Equations FDAEs**

KARABACAK M., ÇELİK E.

New Trends in Mathematical Sciences, vol.1, pp.1-6, 2013 (Peer-Reviewed Journal)

Books & Book Chapters

I. **A Novel Similarity Measure for Single-Valued Neutrosophic Sets and Its Applications in Medical Diagnosis, Taxonomy And Clustering Analysis**

Şahin R., Karabacak M.

in: Optimization Theory Based on Neutrosophic and Plithogenic Sets, Florentin Smarandache,Mohamed Abdel-Basset, Editor, Elsevier Science, Oxford/Amsterdam , New York, pp.315-341, 2020

Refereed Congress / Symposium Publications in Proceedings

I. **Quantum Computing: A Paradigm Shift in Finance, Economics, And Sustainability**

Karabacak M.

III. International Congress on Finance, Economy and Sustainable Policies, Tirane, Albania, 19 - 21 September 2024, pp.47

II. **A comparative wiev to H_∞-norm of transfer functions of linear DAEs**

GÜNDÜZ H., ÇELİK E., KARABACAK M.

The 5th International Turkic World Congress on Science and Engineering (TURK-COSE-2023), Bishkek, Kyrgyzstan, 15 - 17 September 2023

III. **Numerical Solution of Fractional Order Advection Reaction Diffusion Equation with Hosoya Neural Network**

KAYA M. Z., ÇELİK E., KARABACAK M.

The 5th International Turkic World Congress on Science and Engineering (TURK-COSE-2023), Bishkek, Kyrgyzstan, 15 - 17 September 2023

IV. **A New Score Function Based on Pythagorean Fuzzy Set to Multiple Criteria Group Decision-Making**

KHODADADI E., KARABACAK M., ÇELİK E.

I. International Congress On Finance, Economy And Sustainable Policies (ICOFESP), ÜSKÜP, Macedonia, 4 - 06 September 2023

V. **Evaluation of Financial Performance and Ranking of Refinery Companies Active in Tehran Stock Exchange using SWARA And MABAC Fuzzy Multi-Criteria Decision Making Method**

KHODADADI E., AGHABEIGI M., KARABACAK M.

I. International Congress On Finance, Economy And Sustainable Policies (ICOFESP), ÜSKÜP, Macedonia, 4 - 06 September 2023

VI. **Solutions Of Partial Differential Equations with Hosoya Neural Network**

KAYA M. Z., KARABACAK M., ÇELİK E.

The 7th International Conference on Computational Mathematics and Engineering Sciences (CMES2023), Elazığ, Turkey, 20 - 21 May 2023

VII. **Computing of $\mathcal{H}\infty$-Norm of Transfer Functions of DAEs by Extended Balanced Singular Perturbation Method**

GÜNDÜZ H., KARABACAK M., ÇELİK E.

The 7th International Conference on Computational Mathematics and Engineering Sciences (CMES2023), Elazığ, Turkey, 20 - 21 May 2023

VIII. **Historical development of artificial neural network**
YILDIRIM A., KARABACAK M.
The 7th International Conference on Computational Mathematics and Engineering Sciences (CMES2023), Elazığ, Turkey, 20 - 21 May 2023

IX. **PREDICTOR-CORRECTOR (m+1) −STEP METHOD FOR SOLVING FUZZY ORDINARY DIFFERENTIAL EQUATIONS BY USING THE INTERPOLATION OF FUZZY NUMBER**
Khodadadi E., Karabacak M., Çelik E.
The Sixth International Conference on Computational Mathematics and Engineering Sciences (CMES-2022), Ordu, Turkey, 20 - 22 May 2022, pp.282

X. **NUMERICAL SOLUTION OF FUZZY DIFFERENTIAL EQUATIONS BY TWO-STEP MODIFIED SIMPSON RULE**
Khodadadi E., Karabacak M., Çelik E.
The Sixth International Conference on Computational Mathematics and Engineering Sciences (CMES-2022), Ordu, Turkey, 20 - 22 May 2022, pp.276

XI. **SUB-EQUATION METHOD FOR SPACE-TIME FRACTIONAL DIFFERENTIAL EQUATIONS USING THE ATANGANA CONFORMABLE DERIVATIVE**
BULUT S., KARABACAK M.
1st INTERNATIONAL SYMPOSIUM ON RECENT ADVANCES IN FUNDAMENTAL AND APPLIED SCIENCES, 10 - 12 September 2021

XII. **MODIFIED EXPONENTIAL FUNCTION METHOD TO CALOGERO-BOGOYAVLENSKII-SCHIFF EQUATION**
BULUT S., KARABACAK M.
1st INTERNATIONAL CONGRESS ON NATURAL SCIENCES, 10 - 12 September 2021

XIII. **Ultraspherical Wavelets Method for Solving Fractional Bratu Type Initial Value Problem**
Karabacak M.
International Conference"Applied Mathematics, Computational Science and Mechanics: Current Problems", Voronezh, Russia, 17 - 19 December 2018

XIV. **Numerical Solutions of Time-Fractional Differential Equations**
KARABACAK M.
The 6th Abu Dhabi University Annual International Conference: Mathematical, Physical Sciences Engineering Applications, 19 - 21 December 2017

XV. **On Solving Fractional Differential-Algebraic Equations Numerically**
KARABACAK M., YİĞİDER M.
The 6th Abu Dhabi University Annual International Conference: Mathematical Science and Its Applications, Abu Dhabi, United Arab Emirates, 19 - 21 December 2017

XVI. **The approximate solutions of time-fractional differential equations**
KARABACAK M.
2017 6th International Confrence on Pure and Applied Mathematics, Czech Republic, 22 - 25 July 2017

XVII. **On solving fractional-order logistic equation numerically**
KARABACAK M., KARABACAK E.
2017 6th International Conference on Pure and Applied Mathematics, Czech Republic, 22 - 25 July 2017

XVIII. **On approximate solutions of fractional differential-algebraic equations numerically**
KARABACAK M.
The 9th 10th Dynamical Systems and its Applications in Engineering and Environmental Sciences International Conference, 12 - 15 July 2017

XIX. **Application of Legendre wavelets for solving fractional differential algebraic equations numerically**
KARABACAK M., YİĞİDER M.
International Conference: The 9th Dynamical Systems and Applications, Antalya, Turkey, 20 - 23 July 2016

XX. **Shannon wavelet transform for solving fractional differential algebraic equations numerically**
KARABACAK M., YİĞİDER M.

The 2016 International Conference onApplied Mathematics and Computational Methods in Engineering, Riga, Latvia, 28 - 30 May 2016

XXI. **The Numerical Solution of Fractional Differential Algebraic Equations FDAEs by Coifman Wavelet Functions**
KARABACAK M., YİĞİDER M.
Conference On Interdisciplinary Mathematics, Statistics & Computational Techniques, Barcelona, Spain, 18 - 20 November 2015

XXII. **On The Numerical Solution of Differential Algebraic Equations of Fractional Order by Haar Transform Method**
KARABACAK M., YİĞİDER M., ÇELİK E.
IV International Conference of the Georgian Mathematical Union dedicated to the 110-th birthday anniversary of academician Victor Kupradze and the 90-th year anniversary of Georgian Mathematical Union, Tbilisi, Georgia, 9 - 15 September 2013

XXIII. **THE NUMERICAL SOLUTION OF FRACTIONAL DIFFERENTIAL ALGEBRAIC EQUATIONS FDAEs BY HAAR WAVELET METHOD**
KARABACAK M., ÇELİK E.
International Conference on Applied Analysis and Mathematical Modelling, İstanbul, Turkey, 2 - 05 June 2013

XXIV. **The Numerical Solutions of Fractional Differential Algebraic Equations**
KARABACAK M., YİĞİDER M., ÇELİK E.
Georgian Mathematical Union Third International Conference, Batumi, Georgia, 2 - 09 September 2012

XXV. **The Numerical Solutions of Partial Differential Algebraic Equations PDAEs by Multivariate Padé Approximation**
YİĞİDER M., KARABACAK M., ÇELİK E.
International Conference on Applied Analysis and Algebra, İstanbul, Turkey, 20 - 24 June 2012

XXVI. **Numerical Solutions of the Helmholtz Equation by Multivariate Padé Approximation**
YİĞİDER M., KARABACAK M., ÇELİK E.
Georgian Mathematical Union Second International Conference, Batumi, Georgia, 15 - 19 September 2011

XXVII. **Stochastic Model in the Evolution of a Single Crystal**
KHODADADI E., KARABACAK M., ÇELİK E.
International Conference on Applied Analysis and Algebra, İstanbul, Turkey, 29 June - 02 July 2011

Expert Reports

I. **2016/498 Esas Nolu Davanın Destekten Yoksun Kalma Tazminatı Hesaplanması**
Karabacak M.
Erzurum 1. İdare Mahkemesi, pp.4, Erzurum, 2018

II. **2016/392 Esas Nolu Davanın Destekten Yoksun Kalma Tazminatı Hesaplanması**
Karabacak M.
Erzurum 1. İdare Mahkemesi, pp.4, Erzurum, 2017

III. **2016/367 Esas Nolu Davanın Destekten Yoksun Kalma Tazminatı Hesaplanması**
Karabacak M.
Erzurum 1. İdare Mahkemesi, pp.4, Erzurum, 2017

IV. **2014/56 Esas Nolu Davanın Destekten Yoksun Kalma Tazminatı Hesaplanması**
Karabacak M.
Erzurum 1.İdare Mahkemesi, pp.4, Erzurum, 2015

Supported Projects

YILDIRIM F., KAPLAN A., AKBULUT K., CENGİZ N., SUBAŞI M., UĞUR T., KARAMAN Ç., TAŞ S., ŞENER KILIÇ S. Ş.,

KARABACAK M., et al., Project Supported by Higher Education Institutions, II. Uluslararası Temel ve Uygulamalı Matematik Bilimlerindeki Güncel Gelişmeler Sempozyumu, 2023 - 2024

KARABACAK M., KAYA M. Z., Project Supported by Higher Education Institutions, Hosoya Yapay Sinir Ağları ile Kısmi Diferansiyel Denklemlerinin Çözümü, 2022 - 2024

Karabacak M., Universities of Other Countries Supported Project, Fiziksel ve Kimyasal Olarak Modellenmiş Lineer ve Lineer Olmayan Diferansiyel-Cebirsel Denklem Sistemlerinin Laplace-Padé Seri Metodu ile Analitik veya Numerik Çözümü, 2023 - 2023

YILDIRIM F., KARAMAN Ç., SARAÇ Y., BAKIRTAŞ Ş., AKTAY M., ŞENER KILIÇ S. Ş., GÖKKAYA E. S., TAŞ S., YURTTANÇIKMAZ S., CENGİZ N., et al., Project Supported by Higher Education Institutions, Teorik ve Uygulamalı Matematik Bilimleri Sempozyumu, 2021 - 2022

YILDIRIM İ., ÇELİK E., CENGİZ N., KADIOĞLU E., ÖZDEMİR M., KOPUZLU A., UĞUR T., KÜÇÜK A., GÜLTEKİN İ., KAZAZ C., et al., Project Supported by Higher Education Institutions, Workshop on Pure and Applied Mathematics 2019, (WOPAM 2019), 2019 - 2020

Karabacak M., Çelik E., Project Supported by Higher Education Institutions, Workshop on Pure and Applied Mathematics 2019, 2019 - 2020

ÇELİK E., KARABACAK M., GEÇMEN M. Z., Project Supported by Higher Education Institutions, Palandöken Uygulamalı Matematik ve Mühendislik Çalıştayı, 2019 - 2019

Karabacak M., Project Supported by Higher Education Institutions, Fraksiyonel Kesirli Mertebeden Diferansiyel Cebirsel Denklemlerin DAEs Nümerik Çözümleri İçin Veri Bankası Oluşturulması, 2015 - 2016

Activities in Scientific Journals

INDEPENDENT JOURNAL OF MANAGEMENT & PRODUCTION, Committee Member, 2015 - Continues

Scientific Refereeing

JOURNAL OF INTELLIGENT AND FUZZY SYSTEMS, Journal Indexed in SCI-E, February 2023
JOURNAL OF INTELLIGENT AND FUZZY SYSTEMS, Journal Indexed in SCI-E, January 2023
JOURNAL OF INTELLIGENT AND FUZZY SYSTEMS, Journal Indexed in SCI-E, December 2022
JOURNAL OF INTELLIGENT AND FUZZY SYSTEMS, Journal Indexed in SCI-E, November 2022
JOURNAL OF INTELLIGENT AND FUZZY SYSTEMS, SCI Journal, October 2022

Metrics

Publication: 47
Citation (WoS): 10
Citation (Scopus): 9
H-Index (WoS): 4
H-Index (Scopus): 2

Representation and Promotion Activities

Institutional Representation, Atatürk Üniversitesi Kariyer Merkezi Müdürlüğü, Turkey, Erzurum, 2023 - 2024
Institutional Representation, Atatürk Üniversitesi Kariyer Merkezi Müdürlüğü, Turkey, Erzurum, 2022 - 2023

Non Academic Experience

MİLLİ EĞİTİM BAKANLIĞI