KÜBRA ERDEM BİÇER
ASSOC. PROF.

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International Researcher IDs
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Education

Doctorate 2010 - 2014	Turkey
Postgraduate 2007 - 2010	Turkey
Undergraduate 2003 - 2007	Turkey

Foreign Languages

English

Dissertations

Doctorate, Rezidüel hata analizine dayalı Bernoulli sıralama (Collocation) metodu ve kısmi diferansiyel denklemlere uygulanması, 2014
Postgraduate, Lineer olmayan integral denklem sistemlerinin yaklaşık çözümleri, 2010

Academic Positions

Associate Professor 2025 - Present	Manisa Celal Bayar University, Mühendislik Ve Doğa Bilimleri Fakültesi, Matematik
Assistant Professor 2018 - 2025	Manisa Celal Bayar University, Mühendislik Ve Doğa Bilimleri Fakültesi, Matematik
Research Assistant 2011 - 2018	Manisa Celal Bayar University, Mühendislik Ve Doğa Bilimleri Fakültesi, Matematik

Articles

1. **A NUMERICAL SOLUTION TO NONLINEAR ORDINARY DIFFERENTIAL EQUATIONS BASED ON BELL POLYNOMIALS**
   Yıldız Nohutçu G., ERDEM BİÇER K.
   Turkish World Mathematical Society Journal of Applied and Engineering Mathematics, vol.16, no.1, pp.134-146, 2026 (ESCI, Scopus)
2. **Fubini collocation method for numerical solutions of differential equations with quadratic and cubic nonlinearities**
   ERDEM BİÇER K., Turkhan H.
   TURKISH JOURNAL OF MATHEMATICS, vol.50, no.1, 2026 (SCI-Expanded, Scopus, TRDizin)
3. **Solution of the Single Degree of Freedom System Using Bernoulli Collocation Method**
   ERDEM BİÇER K.
   Scientific Research Communications, vol.5, no.1, 2025 (Peer-Reviewed Journal)
4. **NUMERICAL METHOD BASED ON BOOLE POLYNOMIAL FOR SOLUTION OF GENERAL FUNCTIONAL INTEGRO-DIFFERENTIAL EQUATIONS WITH HYBRID DELAYS**
   Biçer K., Dag H. G.
   Turkish World Mathematical Society Journal of Applied and Engineering Mathematics, vol.14, no.3, pp.1264-1277, 2024 (ESCI, Scopus)
5. **BELL POLYNOMIAL SOLUTION OF LINEAR FREDHOLMVOLTERRA INTEGRO DIFFERENTIAL EQUATION SYSTEMS WITH HYBRID DELAYS**
   Yıldız G., SEZER M., ERDEM BİÇER K.
   JOURNAL OF SCIENCE AND ARTS, vol.23, no.4, pp.939-952, 2023 (ESCI)
6. **Numerical solutions of differential equations having cubic nonlinearity using Boole collocation method**
   Bİçer K., Dağ H. G.
   TURKISH JOURNAL OF MATHEMATICS, vol.47, no.2, pp.732-745, 2023 (SCI-Expanded, Scopus)
7. **BELL POLYNOMIAL SOLUTION OF LINEAR FREDHOLM-VOLTERRA INTEGRO DIFFERENTIAL EQUATION SYSTEMS WITH**
   Yildiz G., Sezer M., ERDEM BİÇER K.
   JOURNAL OF SCIENCE AND ARTS, no.4, pp.939-952, 2023 (ESCI)
8. **Numerical Solutions of System of First Order Normalized Linear Differential Equations by Using Bernoulli Matrix Method**
   ERDEM BİÇER K., SEZER M., KAZAZ M.
   Celal Bayar Üniversitesi Fen Bilimleri Dergisi, vol.17, no.2, pp.153-158, 2021 (TRDizin)
9. **A Novel Numerical Approach for Simulating the Nonlinear MHD Jeffery–Hamel Flow Problem**
   Adel W., Biçer K., Sezer M.
   International Journal of Applied and Computational Mathematics, vol.7, no.3, 2021 (Scopus)
10. **Boole approximation method with residual error function to solve linear Volterra integro-differential equations**
    Dağ H. G., ERDEM BİÇER K.
    Celal Bayar Üniversitesi Fen Bilimleri Dergisi, vol.17, no.1, pp.59-66, 2021 (TRDizin)
11. **BOOLE COLLOCATION METHOD BASED ON RESIDUAL CORRECTION FOR SOLVING LINEAR FREDHOLM INTEGRO-DIFFERENTIAL EQUATION**
    Dağ H. G., ERDEM BİÇER K.
    JOURNAL OF SCIENCE AND ARTS, vol.20, no.52, pp.597-610, 2020 (ESCI)
12. **Numerical Solution of Telegraph Equation Using Bernoulli Collocation Method**
    ERDEM BİÇER K., Yalçinbaş S.
    Proceedings of the National Academy of Sciences India Section A - Physical Sciences, vol.89, no.4, pp.769-775, 2019 (SCI-Expanded, Scopus)
13. **A COMPUTATIONAL METHOD FOR SOLVING DIFFERENTIAL EQUATIONS WITH QUADRATIC NON-LINEARITY BY USING BERNOULLI POLYNOMIALS**
    Bicer K., Sezer M.

THERMAL SCIENCE, vol.23, 2019 (SCI-Expanded, Scopus)

14. **Bernoulli Matrix-Collocation Method for Solving General Functional Integro-Differential Equations with Hybrid Delays**
ERDEM BİÇER K., SEZER M.
JOURNAL OF INEQUALITIES AND SPECIAL FUNCTIONS, vol.8, no.3, pp.85-99, 2017 (Peer-Reviewed Journal)
15. **A Matrix Approach to Solving Hyperbolic Partial Differential Equations Using Bernoulli Polynomials**
Bicer K., Yalcinbas S.
FILOMAT, vol.30, no.4, pp.993-1000, 2016 (SCI-Expanded, Scopus)
16. **Fermat collocation method for the solutions of nonlinear system of second order boundary value problems**
YALÇINBAŞ S., ERDEM BİÇER K., Taştekin D.
New Trends in Mathematical Science, vol.4, no.1, pp.87-96, 2016 (Peer-Reviewed Journal)
17. **A New Approximation Method for the Systems of Nonlinear Fredholm Integral Equations**
YALÇINBAŞ S., ERDEM BİÇER K.
Applied Mathematics and Physics, vol.2, no.2, pp.40-48, 2014 (Peer-Reviewed Journal)
18. **A Bernoulli polynomial approach with residual correction for solving mixed linear Fredholm integro-differential-difference equations**
Erdem K., Yalçinbaş S., Sezer M.
Journal of Difference Equations and Applications, vol.19, no.10, pp.1619-1631, 2013 (SCI-Expanded, Scopus)
19. **Approximate solutions of nonlinear volterra integral equation systems**
YalÇinba S., Erdem K.
International Journal of Modern Physics B, vol.24, no.32, pp.6235-6258, 2010 (SCI-Expanded, Scopus)

Books

1. **Boole Polynomial Approach for Solving Nonlinear Delay Differential Equations**
DAĞDELEN H. G., ERDEM BİÇER K.
in: Nonlinear Dynamical Control, Computer Simulation and Optimization Systems Theory and Applications, BALEANU DUMITRU, ÖZDEMİR NECATİ, KARACA YELİZ, EVİRGEN FIRAT, KÜÇÜKKOÇ İBRAHİM, Editor, World Scientific Publishing , pp.217-225, 2026

Papers Presented at Peer-Reviewed Scientific Conferences

1. **A Numerical Method Based on Boole Polynomials for Solving Helmholtz Equations**
Dağ H. G., ERDEM BİÇER K.
9 th International Students Science Congress, 22 May 2025, (Summary Text)
2. **A Numerical Method Based on Boole Polynomial For the Hyperbolic Partial Differential Equations and the Error Analysis**
Dağ H. G., ERDEM BİÇER K.
The Third International Conference on Applied Mathematics in Engineering (ICAME'24), 26 June 2024, (Full Text)
3. **Boole Matrix Method For the Numerical Solution of the Nonlinear Delay Differential Equation And the Error Analysis**
Dağ H. G., ERDEM BİÇER K.
The Third International Conference on Applied Mathematics in Engineering (ICAME'24), 26 June 2024, (Full Text)
4. **Fubini Polynomial Solution of Linear Delay Fredholm Intero Differential Equations**
Türkhan H., ERDEM BİÇER K.
8th International Students Science Congress, 23 May - 10 July 2024, (Full Text)
5. **Bell Collocation Method to Solve High Order Fredholm-Volterra Integro Differential Equations**
Yıldız Nohutçu G., ERDEM BİÇER K.

8th International Students Science Congress, 23 May - 23 June 2024, (Full Text)

6. **A NUMERICAL METHOD BASED ON BERNOULLI POLYNOMIALS FOR THE APPROXIMATE SOLUTIONS OF VOLTERRA INTEGRO DIFFERENTIAL EQUATIONS**
   ERDEM BİÇER K.
   14TH INTERNATIONAL ISTANBUL SCIENTIFIC RESEARCH CONGRESS ON LIFE, ENGINEERING, AND APPLIED SCIENCES, İstanbul, Turkey, 26 - 28 August 2023, (Full Text)
7. **A numerical method based on Boole polynomials for the approximately solutions of Duffing differential equations**
   Dağ H. G., ERDEM BİÇER K.
   11th International Congress of Academic Research, Turkey, 25 - 26 July 2023, (Full Text)
8. **Bell collocation method for quadratic Riccati differential equation**
   Yıldız Nohutçu G., ERDEM BİÇER K.
   11th International Congress of Academic Research, 25 - 26 July 2023, (Full Text)
9. **The Analysis of the Boole Solutions of Volterra-Fredholm Integro-Differential Equations and the Residual Error Analysis**
   Dağ H. G., ERDEM BİÇER K.
   International Dumlupınar Science and Mathematics Congress (IDUSMAC 2022), Kütahya, Turkey, 5 - 07 September 2022, (Summary Text)
10. **Boole Polynomail Solutions of Linear Volterra Integro-Differential Equations**
    Dağ H. G., ERDEM BİÇER K.
    III. INTERNATIONAL CONFERENCE ON MATHEMATICS: AN ISTANBUL MEETING FOR WORLD MATHEMATICIANS, İstanbul, Turkey, 3 - 05 July 2019, (Full Text)
11. **A Numerical Technique Based on Boole Polynomials for Solving Fredholm Integro-Differential Equations**
    Dağ H. G., ERDEM BİÇER K.
    3rd International Students Science Congress, İzmir, Turkey, 3 - 04 May 2019, (Full Text)
12. **Bernoulli Polynomial Solutions of System of Frenet-Like Linear Differential Equations in Normal Form Arising from Differential Geometry**
    ERDEM BİÇER K., SEZER M., KAZAZ M.
    16th International Geometry Symposium, Manisa, Turkey, 4 - 07 July 2018, (Summary Text)
13. **A Numerical Approximation Based On Collocation Method For The Solutions Of Telegraph Equation**
    ERDEM BİÇER K.
    4th International Conference on Recent Advances in Pure and Applied Mathematics (Icrapam 2017), Aydın, Turkey, 11 - 15 May 2017, (Summary Text)
14. **Numerical solutions for Helmholtz equations using Bernoulli polynomials**
    ERDEM BİÇER K., YALÇINBAŞ S.
    International Conference of Numerical Analysis and Applied Mathematics 2016 (ICNAAM 2016), Rodos, Greece, 19 - 25 September 2016, (Full Text)
15. **Bernoulli Matrix-Collocation Method for Solving General Functional Integro-Differential Equations with Hybrid Delays**
    ERDEM BİÇER K., SEZER M.
    2nd International Conference on Analysis and its Applications, Kırşehir, Turkey, 12 - 15 July 2016, (Summary Text)
16. **A Matrix Approach to Solving Hyperbolic Partial Differential Equations Using Bernoulli Polynomials**
    ERDEM BİÇER K., YALÇINBAŞ S.
    28th International Conference of Jangjeon Mathematical Society, Antalya, Turkey, 15 - 19 May 2015, (Summary Text)
17. **A Collocation Approach to Parabolic Partial Differential Equations**
    ERDEM BİÇER K., YALÇINBAŞ S.
    International Congress in Honour of Professor Ravi P. Agarwal, Bursa, Turkey, 23 - 26 June 2014, (Summary Text)
18. **Bernoulli Matrix Method for the Solution of Second Order Linear Hyperbolic Equations**
    ERDEM BİÇER K., YALÇINBAŞ S.

26th International Conference of Jangjeon Mathematical Society (South Korea), India, 1 - 04 August 2013, (Summary Text)

19. **Numerical approach of linear delay difference equations with variable coefficients in terms of Bernoulli polynomials**
Erdem K., Yalçinbaş S.
9th International Conference on Mathematical Problems in Engineering, Aerospace and Sciences, ICNPAA 2012, Vienna, Austria, 10 - 14 July 2012, vol.1493, pp.338-344, (Full Text)
20. **Bernoulli polynomial approach to high-order linear differential-difference equations**
Erdem K., Yalçinbaş S.
International Conference of Numerical Analysis and Applied Mathematics, ICNAAM 2012, Kos, Greece, 19 - 25 September 2012, vol.1479, pp.360-364, (Full Text)
21. **A new Collocation Method for Solution of Linear Fredholm Integro differential Difference Equations using Bernoulli Polynomials**
ERDEM BİÇER K., SEZER M., YALÇINBAŞ S.
International Conference on Applied Analysis and Algebra (ICAAA), Yıldız Technical University, İstanbul, Turkey, 29 June - 02 July 2011, (Summary Text)

Academic and Administrative Experience

2019 - 2022	**Kariyer ve Mezunlar Koordinatörlüğü Koordinatör Yardımcısı**	Manisa Celal Bayar University, Rektörlük
2017 - 2020	**Yabancı Öğrenci Sınavı (YÖS) Soru Hazırlama Komisyonu Üyeliği**	Manisa Celal Bayar University, Rektörlük

Courses

Doctorate

MAT 6256 Sınır Değer Problemleri için Analitik ve Sayısal Yöntemler, Doctorate, 2025 - 2026
MAT 6252 Lineer Olmayan Dinamik Sistemlere Giriş ve Kaos, Doctorate, 2025 - 2026
MAT 6252 Lineer Olmayan Dinamik Sistemlere Giriş ve Kaos, Doctorate, 2025 - 2026
MAT 6287 Yaklaşım Teorisi I, Doctorate, 2025 - 2026
MAT 6284 Delay Diferansiyel Denklemler ve Uygulamaları, Doctorate, 2024 - 2025
MAT 6287 Yaklaşım Teorisi I, Doctorate, 2025 - 2026
MAT 6256 Sınır Değer Problemleri için Analitik ve Sayısal Yöntemler, Doctorate, 2025 - 2026
MAT 6285 Lineer Olmayan İntegral ve İntegro Diferansiyel Denklemler, Doctorate, 2024 - 2025, 2021 - 2022
MAT 6288 Yaklaşım Teorisi II, Doctorate, 2021 - 2022
MAT 6246 Kısmi Diferansiyel Denklemler ve Sınır Değerlerin Nümerik Çözümü, Doctorate, 2021 - 2022

Postgraduate

MAT 5279 Özel Fonksiyonlar ve Yaklaşımlar I, Postgraduate, 2026 - 2027
MAT 5248 İntegral ve İntegro - Dif. Denk. II, Postgraduate, 2019 - 2020, 2018 - 2019
MAT 5247 İntegral ve İntegro - Dif. Denk. I, Postgraduate, 2020 - 2021, 2019 - 2020, 2018 - 2019

Undergraduate

MAK 2102 Mühendislik Matematiği-II, Undergraduate, 2025 - 2026
MKR 2202 Mühendislik Matematiği II, Undergraduate, 2025 - 2026
MKT 2102 Mühendislik Matematiği -II, Undergraduate, 2025 - 2026
MAK 2124 Mühendislik Matematiği II, Undergraduate, 2025 - 2026

MAT 4113 Bitirme Projesi I, Undergraduate, 2026 - 2027
MAT 4204 Kısmi Diferansiyel Denklemler II (S), Undergraduate, 2025 - 2026
MAT 4227 Kısmi Diferansiyel Denklemler I, Undergraduate, 2026 - 2027
MAK 2129 Mühendislik Matematiği-I, Undergraduate, 2026 - 2027
MKR 2109 Diferansiyel Denklemler, Undergraduate, 2026 - 2027
MAK 2102 Mühendislik Matematiği-II, Undergraduate, 2025 - 2026
ESM 2115 Mühendislik Matematiği, Undergraduate, 2025 - 2026
MAT 4227 Kısmi Diferansiyel Denklemler I (S), Undergraduate, 2025 - 2026, 2024 - 2025, 2023 - 2024, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019
MAT 3278 Mesleki Yabancı Dil (İngilizce), Undergraduate, 2024 - 2025, 2023 - 2024
MAT 4114 Bitirme Projesi II, Undergraduate, 2024 - 2025
MAT 2118 Diferansiyel Denklemler II, Undergraduate, 2024 - 2025, 2023 - 2024, 2017 - 2018
MAT 4218 İntegral Denklemler (S), Undergraduate, 2024 - 2025, 2017 - 2018
YZM 2135 Diferansiyel Denklemler, Undergraduate, 2025 - 2026
MAT 2124 Sosyal Sorumluluk Projesi, Undergraduate, 2024 - 2025, 2023 - 2024, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018
MAT 3102 Bitirme Projesi I, Undergraduate, 2023 - 2024, 2021 - 2022, 2018 - 2019
MAT 4106 Mesleki Gelişim, Undergraduate, 2023 - 2024, 2021 - 2022
MAT 2107 Diferansiyel Denklemler I, Undergraduate, 2024 - 2025, 2023 - 2024
MAT 4113 Bitirme Projesi I, Undergraduate, 2024 - 2025
MAK 2101 Mühendislik Matematiği-I, Undergraduate, 2024 - 2025
MAT 4111 Bitirme Projesi II, Undergraduate, 2024 - 2025, 2023 - 2024, 2020 - 2021, 2019 - 2020
MAK 2102 Mühendislik Matematiği II, Undergraduate, 2021 - 2022
MAT 4204 Kısmi Diferansiyel Denklemler II (Fen-Edebiyat Fakültesi Matematik Bölümü), Undergraduate, 2021 - 2022, 2019 - 2020, 2018 - 2019
MAT 2301 Diferansiyel Denklemler, Undergraduate, 2021 - 2022
MAT 4104 İş Yeri Uygulama Eğitimi (Fen-Edebiyat Fakültesi Matematik Bölümü), Undergraduate, 2019 - 2020
MAT 1120 Genel Matematik , Undergraduate, 2019 - 2020, 2018 - 2019
MAT 2301 Diferansiyel Denklemler, Undergraduate, 2020 - 2021
MAT 4108 Araştırma Projesi II (Fen-Edebiyat Fakültesi Matematik Bölümü), Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018
MAT 1302 Matematik II , Undergraduate, 2019 - 2020
MAT 4105 Araştırma Projesi I (Fen-Edebiyat Fakültesi Matematik Bölümü), Undergraduate, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018
MAT 1301 Matematik I , Undergraduate, 2019 - 2020
MAT 2301 Diferansiyel Denklemler , Undergraduate, 2019 - 2020

Supervised Theses

Erdem Biçer K., Lineer Olmayan Volterra-Fredholm Tipi İntegro Diferansiyel Denklem Sistemlerinin Bell Polinomlarına Dayalı Çözümleri, Doctorate, G.Yıldız(Student), in Progress
Erdem Biçer K., Boole Matris Yöntemi ile Kısmi Fonksiyonel İntegro Diferansiyel Denklemler İçin Sayısal Yaklaşımlar, Doctorate, H.Gül(Student), in Progress
ERDEM BİÇER K., Gecikmeli integro diferansiyel denklemlerin fubini polinomları yardımıyla çözümleri, Postgraduate, H.TÜRKHAN(Student), 2023
ERDEM BİÇER K., Yüksek mertebeden fredholm tip lineer integro-diferansiyel denklemlerin abel matris yöntemi ile yaklaşık çözümleri, Postgraduate, B.ERGÜL(Student), 2022
ERDEM BİÇER K., Volterra-Fredholm integro-diferansiyel denklemlerin yaklaşık çözümleri için Boole sıralama yöntem ve rezidüel hata analizi, Postgraduate, H.GÜL(Student), 2020

Metrics

Publication: 41
Citation (WoS): 78
Citation (Scopus): 99
H-Index (WoS): 5
H-Index (Scopus): 6

Research Areas

Avesis Research Areas: Mathematics, Differential Equations, Functional Equations, Integral Equations, Partial Differential Equations, Natural Sciences, Engineering and Technology
WoS Research Areas: Natural Sciences (Sci)