

Prof. Musa akır

Personal Information

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Address: Yüzüncü Yıl Üniversitesi, Fen Fakültesi, Matematik Bölümü, 65080, Kampüs, Van, Türkiye

Education Information

Doctorate, Van Yüzüncü Yıl University, Fen Bilimleri Enstitüsü, Matematik (Dr), Turkey 1994 - 1999

Postgraduate, Van Yüzüncü Yıl University, Fen Bilimleri Enstitüsü, Matematik/ Uygulamalı Matematik, Turkey 1992 - 1994

Undergraduate, Van Yüzüncü Yıl University, Fen-Edebiyat Fakültesi, Matematik, Turkey 1984 - 1988

Foreign Languages

English, B2 Upper Intermediate

Research Areas

Mathematics, Differential Equations, Functional Equations, Numerical Analysis, Natural Sciences

Academic Titles / Tasks

Professor, Van Yüzüncü Yıl University, Fen Fakültesi, Matematik Bölümü, 2016 - Continues

Associate Professor, Van Yüzüncü Yıl University, Fen Fakültesi, Matematik Bölümü, 2011 - 2016

Assistant Professor, Van Yüzüncü Yıl University, Fen Fakültesi, Matematik Bölümü, 2000 - 2011

Research Assistant, Van Yüzüncü Yıl University, Matematik, 1993 - 1999

Academic and Administrative Experience

Van Yüzüncü Yıl University, Çaldıran Meslek Yüksekokulu, 2019 - Continues

Van Yüzüncü Yıl University, Rektörlük, 2017 - Continues

Van Yüzüncü Yıl University, Fen Fakültesi, İstatistik, 2004 - 2010

Van Yüzüncü Yıl University, Fen Fakültesi, Matematik, 2001 - 2008

Courses

Uygulamalı Matematik-I, Undergraduate, 2018 - 2019

İntegral Denklemlerin Nümerik Çözümleri-I-II, Postgraduate, 2018 - 2019

Uygulamalı Matematik-II, Undergraduate, 2018 - 2019

Nümerik Analiz, Undergraduate, 2018 - 2019

İntegral Denklemlerin Nümerik Çözümleri-II, Postgraduate, 2018 - 2019

Yaklaşım Teorisi ve Uygulamaları-I, Postgraduate, 2018 - 2019

Nümerik Analiz, Undergraduate, 2018 - 2019

Advising Theses

Çakır M., İntegral Sınır Şartlı Singüler Pertürbe Sınır Değer Probleminin Çözümü İçin Düzgün Yakınsak Nümerik Metotlar, Doctorate, Z.TEMEL(Student), 2019

Çakır M., İntegral Sınır Şartlı Singüler Pertürbe Problemlerin Nümerik Çözümü İçin Sonlu Fark Metodu, Postgraduate, B.Gürbüz(Student), 2017

Çakır M., Finite Difference Schemes for Solving Convection Diffusion Problem with Boundary Layer Behavior, Postgraduate, R.Younis(Student), 2017

Çakır M., Uniformly Convergent Numerical Method for Solving Parameterized Singular Perturbation Problem, Postgraduate, D.Saeed(Student), 2017

Çakır M., Çok Noktalı Singüler Pertürbe Özellikli Problemlerin Nümerik Çözümü, Doctorate, D.Arslan(Student), 2016

Çakır M., İkinci Mertebeden Singüler Pertürbe Olmuş Başlangıç Değer Problem İçin Fark Metodu, Postgraduate, A.Duman(Student), 2011

Çakır M., Tek Boyutlu Parabolik Denklemler İçin Fark Şemaları, Postgraduate, H.Yıldız(Student), 2010

Çakır M., Singüler Pertürbe Periyodik Sınır Değer Problemi İçin Fark Şeması, Postgraduate, Y.Bora(Student), 2007

Çakır M., Bir Boyutlu Konveksiyon Difüzyon Problemleri İçin Kat Çözüm Metotları, Postgraduate, R.Oktay(Student), 2006

Çakır M., Diferansiyel Denklemler İçin Nonlocal Problemlerin Nümerik Çözümleri, Postgraduate, B.Şimşek(Student), 2005

Çakır M., Singüler Pertürbe Diferansiyel Denklemlerle Matematiksel Modeller ve Nümerik Çözümleri, Postgraduate, E.Çimen(Student), 2004

Çakır M., Singüler Pertürbe Olmuş Konveksiyon-Difüzyon Sınır Değer Problemlerinin Nümerik Çözümleri, Postgraduate, H.Yılmaz(Student), 2003

Jury Memberships

Appointment to Academic Staff-Assistant Professorship, Dr. Öğrt. Üyesi Kadrosuna Atanma, Bitlis Eren Üniversitesi, November, 2018

Appointment to Academic Staff-Assistant Professorship, Dr. Öğrt. Üyesi Kadrosuna Atanma, Van Yüzüncü Yıl Üniversitesi, June, 2018

Doctoral Examination, Doktora yeterlilik sınavı jüri üyeliği, Van Yüzüncü Yıl Üniversitesi, April, 2018

Post Graduate, Neutral Delay Diferansiyel Denklemlerin Nümerik çözümleri, Yüzüncü Yıl Üniversitesi, June, 2017

Post Graduate, Parametreye Bağlı Delay Diferansiyel Denklemlerin Yaklaşık Çözümleri, Yüzüncü Yıl Üniversitesi, June, 2017

Doctorate, Belli Türden Nötral Tipten Diferansiyel Denklemlerde Çözümlerin Bazı Niteliksel Davranışları, Yüzüncü Yıl Üniversitesi, February, 2017

Published journal articles indexed by SCI, SSCI, and AHCI

I. A Fitted Operator Finite Difference Approximation for Singularly Perturbed Volterra-Fredholm Integro-Differential Equations

Çakır M., Gunes B.

MATHEMATICS, vol.10, no.19, 2022 (SCI-Expanded)

II. Numerical solution of singularly perturbed Fredholm integro-differential equations by homogeneous second order difference method

Durmaz M. E., Çakır M., AMİRALİ İ., AMİRALİ G.

JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.412, 2022 (SCI-Expanded)

- III. **A numerical approach for solving nonlinear Fredholm integro-differential equation with boundary layer**
Çakır M., Ekinçi Y., Çimen E.
COMPUTATIONAL & APPLIED MATHEMATICS, vol.41, no.6, 2022 (SCI-Expanded)
- IV. **Exponentially fitted difference scheme for singularly perturbed mixed integro-differential equations**
Çakır M., Gunes B.
GEORGIAN MATHEMATICAL JOURNAL, vol.29, pp.193-203, 2022 (SCI-Expanded)
- V. **A new difference method for the singularly perturbed Volterra-Fredholm integro-differential equations on a Shishkin mesh**
Çakır M., Gunes B.
HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, vol.51, no.3, pp.787-799, 2022 (SCI-Expanded)
- VI. **A second order numerical method for singularly perturbed problem with non-local boundary condition**
Çakır M., AMİRALİ G.
JOURNAL OF APPLIED MATHEMATICS AND COMPUTING, vol.67, no.1-2, pp.919-936, 2021 (SCI-Expanded)
- VII. **A new numerical approach for a singularly perturbed problem with two integral boundary conditions**
Çakır M., Arslan D.
COMPUTATIONAL & APPLIED MATHEMATICS, vol.40, no.6, 2021 (SCI-Expanded)
- VIII. **A uniform numerical method for solving singularly perturbed Fredholm integro-differential problem**
Çimen E., Çakır M.
COMPUTATIONAL & APPLIED MATHEMATICS, vol.40, no.2, 2021 (SCI-Expanded)
- IX. **A novel computational method for solving nonlinear Volterra integro-differential equation**
Çakır M., Gunes B., Duru H.
Kuwait Journal of Science, vol.48, no.1, pp.1-9, 2021 (SCI-Expanded)
- X. **The difference schemes for solving singularly perturbed three-point boundary value problem**
Çakır M., Çimen E., Amiraliev G. M.
LITHUANIAN MATHEMATICAL JOURNAL, vol.60, no.2, pp.147-160, 2020 (SCI-Expanded)
- XI. **CONVERGENCE ANALYSIS OF FINITE DIFFERENCE METHOD FOR SINGULARLY PERTURBED NONLOCAL DIFFERENTIAL-DIFFERENCE PROBLEM**
Çimen E., Çakır M.
MISKOLC MATHEMATICAL NOTES, vol.19, no.2, pp.795-812, 2018 (SCI-Expanded)
- XII. **High-order finite difference technique for delay pseudo-parabolic equations**
Amiraliev G. M., Çimen E., Amiraliev I., Çakır M.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.321, pp.1-7, 2017 (SCI-Expanded)
- XIII. **Numerical treatment of nonlocal boundary value problem with layer behaviour**
Çimen E., Çakır M.
BULLETIN OF THE BELGIAN MATHEMATICAL SOCIETY-SIMON STEVIN, vol.24, no.3, pp.339-352, 2017 (SCI-Expanded)
- XIV. **A Numerical Study on the Difference Solution of Singularly Perturbed Semilinear Problem with Integral Boundary Condition**
Çakır M.
MATHEMATICAL MODELLING AND ANALYSIS, vol.21, no.5, pp.644-658, 2016 (SCI-Expanded)
- XV. **Numerical treatment of a quasilinear initial value problem with boundary layer**
Çakır M., Çimen E., Amiraliev I., Amiraliev G. M.
INTERNATIONAL JOURNAL OF COMPUTER MATHEMATICS, vol.93, no.11, pp.1845-1859, 2016 (SCI-Expanded)
- XVI. **The Adomian Decomposition Method and the Differential Transform Method for Numerical Solution of Multi-Pantograph Delay Differential Equations**
Çakır M., Arslan D.
Applied Mathematics, vol.6, pp.1332-1343, 2015 (SCI-Expanded)

- XVII. **Explicit Finite Difference Methods for the Delay Pseudoparabolic Equations**
Amirali I, Amiraliyev G. M., Çakır M., Çimen E.
SCIENTIFIC WORLD JOURNAL, 2014 (SCI-Expanded)
- XVIII. **Uniform Second-Order Difference Method for a Singularly Perturbed Three-Point Boundary Value Problem**
Çakır M.
ADVANCES IN DIFFERENCE EQUATIONS, vol.2010, pp.1-13, 2010 (SCI-Expanded)
- XIX. **Uniform Second-Order Difference Method for a Singularly Perturbed Three-Point Boundary Value Problem**
Cakir M.
ADVANCES IN DIFFERENCE EQUATIONS, 2010 (SCI-Expanded)
- XX. **A Numerical Method for a Singularly Perturbed Three-Point Boundary Value Problem**
Çakır M., Amiraliyev G. M.
JOURNAL OF APPLIED MATHEMATICS, 2010 (SCI-Expanded)
- XXI. **Numerical solution of a singularly perturbed three-point boundary value problem**
Cakir M., Amiraliyev G. M.
INTERNATIONAL JOURNAL OF COMPUTER MATHEMATICS, vol.84, no.10, pp.1465-1481, 2007 (SCI-Expanded)
- XXII. **The convergence of a finite difference method on layer-adapted mesh for a singularly perturbed system**
Amiraliyev G.
APPLIED MATHEMATICS AND COMPUTATION, vol.162, no.3, pp.1023-1034, 2005 (SCI-Expanded)
- XXIII. **A finite difference method for the singularly perturbed problem with nonlocal boundary condition**
Cakir M., Amiraliyev G.
APPLIED MATHEMATICS AND COMPUTATION, vol.160, no.2, pp.539-549, 2005 (SCI-Expanded)
- XXIV. **Numerical solution of the singularly perturbed problem with nonlocal boundary condition**
Amiraliyev G., Cakir M.
APPLIED MATHEMATICS AND MECHANICS-ENGLISH EDITION, vol.23, no.7, pp.755-764, 2002 (SCI-Expanded)

Articles Published in Other Journals

- I. **A ROBUST NUMERICAL TECHNIQUE FOR SOLVING NON-LINEAR VOLTERRA INTEGRO-DIFFERENTIAL EQUATIONS WITH BOUNDARY LAYER**
Cakir F., Çakır M., Cakir H. G.
COMMUNICATIONS OF THE KOREAN MATHEMATICAL SOCIETY, vol.37, no.3, pp.939-955, 2022 (ESCI)
- II. **A NUMERICAL METHOD ON BAKHVALOV SHISHKIN MESH FOR VOLTERRA INTEGRO-DIFFERENTIAL EQUATIONS WITH A BOUNDARY LAYER**
Guckir Cakir H., Cakir F., Çakır M.
COMMUNICATIONS FACULTY OF SCIENCES UNIVERSITY OF ANKARA-SERIES A1 MATHEMATICS AND STATISTICS, vol.71, no.1, pp.51-67, 2022 (ESCI)
- III. **A Numerical Solution study on Singularly Perturbed Convection-Diffusion Nonlocal Boundary Problem**
Çakır M., Arslan D.
COMMUNICATIONS FACULTY OF SCIENCES UNIVERSITY OF ANKARA-SERIES A1 MATHEMATICS AND STATISTICS, vol.68, no.2, pp.1482-1491, 2019 (Peer-Reviewed Journal)
- IV. **A NUMERICAL SOLUTION STUDY ON SINGULARLY PERTURBED CONVECTION-DIFFUSION NONLOCAL BOUNDARY PROBLEM**
Arslan D., Çakır M.
COMMUNICATIONS FACULTY OF SCIENCES UNIVERSITY OF ANKARA-SERIES A1 MATHEMATICS AND STATISTICS, vol.68, no.2, pp.1482-1491, 2019 (ESCI)
- V. **Finite Difference For Nonlocal Singularly Perturbed Problem**

Çakır M., Arslan D.

International Journal of Modern Research in Engineering and Technology, vol.1, pp.25-39, 2016 (Peer-Reviewed Journal)

VI. Numerical Solution of The Nonlocal Singularly Perturbed Problem

Çakır M., Arslan D.

International Journal of Modern Research in Engineering and Technology, vol.1, pp.13-24, 2016 (Peer-Reviewed Journal)

VII. A Convergence Analysis of the Numerical Method for a Singularly Perturbed Periodical Boundary Value Problem

Çakır M., Amiralı İ., Kudu M., Amiralıyev G. M.

Journal of Mathematics and Computer Science, vol.16, pp.248-255, 2016 (ESCI)

VIII. A Numerical Method for Nonlinear Singularly Perturbed Multi-Point Boundary Value Problem

Çakır M., Arslan D.

Journal of Applied Mathematics and Physics, vol.4, pp.1143-1156, 2016 (Peer-Reviewed Journal)

IX. Convergence analysis of the numerical method for a singularly perturbed periodical boundary value problem

Çakır M., AMİRALI İ., KUDU M., Amiralıyev G. M.

JOURNAL OF MATHEMATICS AND COMPUTER SCIENCE-JMCS, vol.16, no.2, pp.248-255, 2016 (ESCI)

X. Explicit Finite Difference Methods for the Delay Pseudoparabolic Equations

Amiralı İ., Çakır M., Amiralıyev G. M., Çimen E.

THESCIENTIFICWORLDJOURNAL, vol.2014, pp.1-7, 2014 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Uniformly Convergent Difference Schemes for Solving Singularly Perturbed Semilinear Problem with Integral Boundary Condition**
Çakır M.
8 th International Eurasian Conference on Mathematical Sciences and Applications-IECMSA-2019, Baku, Azerbaijan, 27 - 30 August 2019, pp.145
- II. **LOKAL OLMAYAN ŞARTA SAHİP SİNGÜLER PERTÜRBE ÖZELLİKLİ PROBLEMLER İÇİN İKİNCİ MERTEBEDEN DÜZGÜN BİR NÜMERİK METOT**
Çakır M., Amiralıyev G. M.
31. ULUSA MATEMATİK SEMPOZYUMU, Erzincan, Turkey, 12 - 15 September 2018, pp.81
- III. **A robust numerical method for solving multi-point boundary value problem with boundary layer behavior**
Arslan D., Çakır M.
Caucasian Mathematics Conference II, Van, Turkey, 22 - 24 August 2017, pp.33
- IV. **Numerical solution of singularly perturbed nonlocal problem with delay**
Çakır M., Çimen E.
Caucasian Mathematics Conference II, Van, Turkey, 22 - 24 August 2017, pp.44
- V. **The Fixed Point of the Sum of Nonlinear Operators in WC-Banach Algebras Relative to the Weak Topology**
Temel C., Çakır M.
6th International Eurasian Conference on Mathematical Sciences and Applications, Budapest, Hungary, 15 - 18 August 2017, pp.49
- VI. **Some Results on Fixed Points of Contractive Operator in Banach Spaces, July 3-7, 2017, İstanbul Gelişim Üniversitesi, Istanbul-Turkey**
Temel C., Çakır M.
International Conference on Applied Analysis and Mathematical Modeling ICAAMM17, İstanbul, Turkey, 3 - 07 July 2017, vol.1, no.1, pp.161

- VII. **Uniform Convergence of a Finite Difference Method for a Singularly Perturbed Semilinear Boundary Value Problem with Integral Boundary Conditions**
Çakır M., Temel C., İşleyen Ş.
International Conference on Applied Analysis and Mathematical Modeling, İstanbul, Turkey, 3 - 07 July 2017, pp.150
- VIII. **Some Results on Fixed Points of Contractive Operator in Banach Spaces**
Temel C., Çakır M.
International Conference on Applied Analysis and Mathematical Modeling, İstanbul, Turkey, 3 - 07 July 2017, pp.161
- IX. **Uniform Convergence of a Finite Difference Method for a Singularly Perturbed Semilinear Boundary Value Problem With Integral Boundary Conditions, İstanbul Gelişim Üniversitesi,**
Çakır M., Temel C., İşleyen S.
International Conference on Applied Analysis and Mathematical Modeling ICAAMM17, İstanbul, Turkey, 3 - 07 July 2017, vol.1, no.1, pp.150
- X. **Sınır Katman Davranışlı Nonlocal Başlangıç Değer Probleminin Nümerik Çözümü**
Çakır M., Çimen E.
28. ULUSAL MATEMATİK SEMPOZYUMU, Antalya, Turkey, 7 - 09 September 2015, pp.190
- XI. **Finite Difference Approximation for Solving Quasilinear Nonlocal Problem with Boundary Layers**
Çakır M.
4th International Eurasian Conference on Mathematical Sciences and Application (IECMSA-2015), Atina, Greece, 31 August - 03 September 2015, pp.122
- XII. **A Numerical Method for Nonlinear Singularly Perturbed Multi-Point Boundary Value Problem**
Çakır M., Arslan D.
International Conference on Pure and Applied Mathematics (ICPAM-2015), Van, Turkey, 25 - 28 August 2015, pp.57
- XIII. **Reduced Differential Transform Method for Sixth-Order Singularly Perturbed Boussinesq Equation**
Çakır M., Arslan D.
International Conference on Pure and Applied Mathematics (ICPAM-2015), Van, Turkey, 25 - 28 August 2015, pp.58

Supported Projects

Çakır M., Project Supported by Higher Education Institutions, İntegral Sınır Şarhı Yarı Lineer Singüler Pertürbe Problemin Çözümü İçin Düzgün Yakınsak Fark Şemaları, 2019 - 2019

Çakır M., Project Supported by Higher Education Institutions, Singüler Pertürbe Özellikli Lokal Olmayan Sınır Değer Problemi İçin İkinci Mertebeden Düzgün Yakınsak Nümerik Metot, 2018 - 2019

AMİRALİ G., Erdoğan F., Duru H., Çakır M., Şevgin S., Project Supported by Higher Education Institutions, Norlineer dispersive dalga yayılım problemleri için matematiksel ve hesaplama metotları, 2005 - 2008

Scientific Refereeing

Applied Numerical Mathematics, SCI Journal, August 2019

Journal of Mathematics Chemistry, SCI Journal, July 2019

Quaestiones Mathematicae, SCI Journal, June 2019

Computational and Applied Mathematics, SCI Journal, May 2019

Journal of Computational and Applied Mathematics, SCI Journal, May 2019

Applied Numerical Mathematics, SCI Journal, May 2019

BIT Numerical Mathematics, SCI Journal, February 2019

International Journal of Numerical Analysis and Modeling, SCI Journal, February 2019

Journal of Computational and Applied Mathematics, SCI Journal, February 2019
Numerical Algorithms, Mathematical Reviews, SCI Journal, December 2018
Differential Equations and Dynamical Systems, Mathematical Reviews, Other Indexed Journal, September 2018
Computational Methods for Differential Equations, SCI Journal, September 2018
Commun. Appl. Math. Comput. Sci., Mathematical Reviews, SCI Journal, June 2018
Computers and Mathematics with Applications, Mathematical Reviews, SCI Journal, May 2018
Vladikavkaz. Math. Zh., Mathematical Reviews, Other Indexed Journal, May 2018
J. Adv. Math. Stud., Mathematical Reviews, Other Indexed Journal, April 2018
Nonlinear Studies, Mathematical Reviews, Other Indexed Journal, April 2018
Math. Meth. Appl. Sci., Mathematical Reviews, SCI Journal, March 2018
Numeric Algorithm, The Mathematical Reviews , SCI Journal, December 2017
Mathematics and Computersin Simulation, The Mathematical Reviews , SCI Journal, October 2017
Journal of Computational and Applied Mathematics, The Mathematical Reviews , SCI Journal, October 2017
Applied Numerical Mathematics, The Mathematical Reviews , SCI Journal, September 2017
Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü, National Scientific Refreed Journal, July 2017
Journal of Computational and Applied Mathematics, SCI Journal, May 2017
BIT Numer Math, The Mathematical Reviews , SCI Journal, April 2017
Project Supported by Higher Education Institutions, December 2016

Metrics

Publication: 47
Citation (WoS): 118
Citation (Scopus): 104
H-Index (WoS): 7
H-Index (Scopus): 6

Congress and Symposium Activities

8 th International Eurasian Conference on Mathematical Sciences and Applications, Attendee, Baku, Azerbaijan, 2019
31. Ulusal Matematik Sempozyumu, Session Moderator, Erzincan, Turkey, 2018
31. ULUSAL MATEMATİK SEMPOZYUMU, Attendee, Erzincan, Turkey, 2018
Caucasian Mathematics Conference, Session Moderator, Van, Turkey, 2017
Caucasian Mathematics Conference CMC II, Attendee, Van, Turkey, 2017
International Conference on Applied Analysis and Mathematical Modeling, Attendee, İstanbul, Turkey, 2017
2nd International Conference on Pure and Applied Sciences (ICPAS-2016), Attendee, Turkey, 2016
28. Ulusal Matematik Sempozyumu, Attendee, Antalya, Turkey, 2015
International Conference on Pure and Applied Mathematics (ICPAM-2015), Attendee, –Seçiniz--, Turkey, 2015
3rd International Eurasian Conference on Mathematical Sciences and Application (IECMSA-2014), Attendee, Wien, Austria, 2014
XXVI. Ulusal Matematik Sempozyumu, Attendee, Diyarbakır, Turkey, 2013
International Congress of Mathematics, Attendee, Haidarâbâd, India, 2010
XXII. Ulusal Matematik Sempozyumu, Attendee, İzmir, Turkey, 2009
XXI. Ulusal Matematik Sempozyumu, Attendee, İstanbul, Turkey, 2008
XVIII. Ulusal Matematik Sempozyumu, Attendee, Turkey, 2005
XVI. Ulusal Matematik Sempozyumu, Attendee, Van, Turkey, 2003