

## Assoc. Prof. Zeynep Kayar

### Personal Information

**Email:** zeynepkayar@yyu.edu.tr

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### Education Information

Doctorate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Mathematics, Turkey  
2005 - 2014

Under Graduate, Ankara University, Fen Fakültesi, Matematik, Turkey 2000 - 2004

### Foreign Languages

English, B2 Upper Intermediate

Spanish, B1 Intermediate

### Dissertations

Doctorate, Lyapunov Type Inequalities and Their Applications For Linear and Nonlinear Systems Under Impulse Effect (İmpuls Etkisi Altındaki Lineer ve Lineer Olmayan Sistemler İçin Lyapunov Tipi Eşitsizlikler ve Uygulamaları), Middle East Technical University, Graduate School Of Natural And Applied Sciences, Matematik, 2014

### Research Areas

Mathematics, Differential Equations, Natural Sciences

### Academic Titles / Tasks

Associate Professor, Van Yüzüncü Yil University, Fen Fakültesi, Matematik, 2019 - Continues

Assistant Professor, Van Yüzüncü Yil University, Fen Fakültesi, Matematik, 2014 - 2019

Research Assistant PhD, Van Yüzüncü Yil University, Fen Fakültesi, Matematik, 2014 - 2014

Research Assistant PhD, Middle East Technical University, Fen Fakültesi, Matematik, 2014 - 2014

Research Assistant, Middle East Technical University, Fen Fakültesi, Matematik, 2005 - 2014

### Courses

Analitik Geometri-II, Under Graduate, 2017 - 2018, 2018 - 2019

İmpulsif Diferansiyel Denklemler, Post Graduate, 2017 - 2018, 2018 - 2019

Analitik Geometri-I, Under Graduate, 2017 - 2018, 2018 - 2019

Lineer Sınır Değer ve Özdeğer Problemleri, Post Graduate, 2018 - 2019

Genel Matematik-II, Under Graduate, 2016 - 2017, 2017 - 2018

Genel Matematik-I, Under Graduate, 2017 - 2018

Lineer Cebir-II, Under Graduate, 2016 - 2017  
Genel Matematik-I, Under Graduate, 2016 - 2017  
Lineer Cebir 2, Under Graduate, 2014 - 2015, 2015 - 2016  
İmpulsif Diferansiyel Denklemler, Post Graduate, 2016 - 2017  
Lineer Cebir-I, Under Graduate, 2016 - 2017  
İmpulsif Diferansiyel Denklemler, Post Graduate, 2014 - 2015, 2015 - 2016  
Lineer Sınır Değer ve Özdeğer Problemleri, Post Graduate, 2015 - 2016  
Lineer Sınır Değer ve Özdeğer Problemleri, Post Graduate, 2016 - 2017  
Mühendislik Matematiği, Under Graduate, 2015 - 2016  
Lineer Cebir 1, Under Graduate, 2014 - 2015, 2015 - 2016  
Mühendislik Matematiği, Under Graduate, 2014 - 2015, 2015 - 2016

## Advising Theses

Kayar Z., Some results on fractional boundary value problems with slit strip and multi strip boundary conditions (Yarık şerit ve çoklu şerit sınır koşullarına sahip kesirli sınır değer problemleri üzerine bazı sonuçlar), Post Graduate, D.Hashim(Student), 2016

Kayar Z., Sturmian comparison theory for nonlinear impulsive differential equations (Lineer olmayan impulsif diferansiyel denklemler için Sturm karşılaştırma teorisi), Post Graduate, S.Kamal(Student), 2016

## Jury Memberships

Post Graduate, Post Graduate, Van Yüzüncü Yıl Üniversitesi, September, 2020

Doctorate, Doctorate, Van Yüzüncü Yıl Üniversitesi, May, 2020

Post Graduate, Tez Savunma Jürisi, Van Yüzüncü Yıl Üniversitesi, August, 2019

Post Graduate, Tez Savunma Jürisi, Van Yüzüncü Yıl Üniversitesi, February, 2019

Post Graduate, Tez Savunma Jürisi, Yüzüncü Yıl Üniversitesi, May, 2016

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Bennett–Leindler Type Inequalities for Nabla Time Scale Calculus**  
Kayar Z., Kaymakçalan B., Pelen N. N.  
Mediterranean Journal Of Mathematics, vol.18, no.14, pp.1-18, 2021 (Journal Indexed in SCI Expanded)
- II. **A New Gronwall-Bellman Inequality in Frame of Generalized Proportional Fractional Derivative**  
Alzabut J., Sudsutad W., Kayar Z., Baghani H.  
MATHEMATICS, vol.7, 2019 (Journal Indexed in SCI)
- III. **Lyapunov type inequalities and their applications for quasilinear impulsive systems**  
Kayar Z.  
JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, vol.13, pp.711-721, 2019 (Journal Indexed in SCI)
- IV. **STURM-PICONE COMPARISON THEOREMS FOR NONLINEAR IMPULSIVE DIFFERENTIAL EQUATIONS**  
Kayar Z., Masiha S. K. R.  
MATHEMATICA SLOVACA, vol.68, pp.1373-1384, 2018 (Journal Indexed in SCI)
- V. **An existence and uniqueness result for linear fractional impulsive boundary value problems as an application of Lyapunov type inequality**  
Kayar Z.  
HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS, vol.47, pp.287-297, 2018 (Journal Indexed in SCI)
- VI. **Sturm-Picone comparison theorems for nonlinear impulsive differential equations with discontinuous solutions**

- Kayar Z., Masiha S. K.  
 MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.40, pp.7879-7888, 2017 (Journal Indexed in SCI)
- VII. **AN EXISTENCE AND UNIQUENESS RESULT FOR LINEAR SEQUENTIAL FRACTIONAL BOUNDARY VALUE PROBLEMS (BVPS) VIA LYAPUNOV TYPE INEQUALITY**  
 Kayar Z.  
 DYNAMIC SYSTEMS AND APPLICATIONS, vol.26, pp.147-156, 2017 (Journal Indexed in SCI)
- VIII. **Matrix measure approach to Lyapunov-type inequalities for linear Hamiltonian systems with impulse effect**  
 Kayar Z., Zafer A.  
 JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS, vol.440, pp.250-265, 2016 (Journal Indexed in SCI)
- IX. **Lyapunov-type inequalities for nonlinear impulsive systems with applications**  
 Kayar Z., Zafer A.  
 Electronic Journal of Qualitative Theory of Differential Equations, pp.1-13, 2016 (Journal Indexed in SCI)
- X. **Stability criteria for linear Hamiltonian systems under impulsive perturbations**  
 Kayar Z., Zafer A.  
 APPLIED MATHEMATICS AND COMPUTATION, vol.230, pp.680-686, 2014 (Journal Indexed in SCI)
- XI. **Higher-Order Numerical Scheme for the Fractional Heat Equation with Dirichlet and Neumann Boundary Conditions**  
 PRIYA G. S. , PRAKASH P., NIETO J. J. , Kayar Z.  
 NUMERICAL HEAT TRANSFER PART B-FUNDAMENTALS, vol.63, pp.540-559, 2013 (Journal Indexed in SCI)
- XII. **Impulsive Boundary Value Problems for Planar Hamiltonian Systems**  
 Kayar Z., Zafer A.  
 ABSTRACT AND APPLIED ANALYSIS, 2013 (Journal Indexed in SCI)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Generalization of Hardy-Copson type inequalities to time scale nabla calculus**  
 Kayar Z., Kaymakçalan B.  
 International Conference on Pure and Applied Mathematics ICPAM-VAN 2020, Van, Turkey, 3 - 05 September 2020, pp.77
- II. **A novel Lyapunov type inequality for linear discrete Hamiltonian systems**  
 Kayar Z.  
 XIX International Conference "Dynamical System Modeling and Stability Investigations" (DSMSI-2019), Kyiv, Ukraine, 22 - 24 May 2019, pp.55-56
- III. **Disconjugacy via Lyapunov type inequality for linear discrete Hamiltonian systems**  
 Kayar Z.  
 International Workshop on Dynamical Systems and Applications (IWDSA 2019), Ankara, Turkey, 3 - 04 May 2019, pp.47
- IV. **A novel Lyapunov type inequality for quasilinear impulsive systems**  
 Kayar Z.  
 International Conference on Pure and Applied Mathematics (ICPAM 2018), Van, Turkey, 11 - 13 September 2018, pp.93
- V. **Adjoint Riemann-Liouville and Caputo fractional differential operators**  
 Kayar Z.  
 International Congress of Mathematicians 2018 (ICM 2018), Rio De Janeiro, Brazil, 1 - 09 August 2018, pp.1
- VI. **Lyapunov type inequality for linear dynamic Hamiltonian systems**  
 Kayar Z.  
 The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, 5 - 09 July 2018, pp.223
- VII. **Stability of linear periodic impulsive fractional differential equations**

- Kayar Z.  
Caucasian Mathematics Conference (CMC-II), Van, Turkey, 22 - 24 August 2017, pp.88
- VIII. **Stability criteria for linear periodic sequential fractional differential equations**  
Kayar Z.  
Recent Trends in Pure and Applied Mathematics, Alba Lulia, Romania, 31 July - 04 August 2017, pp.24
- IX. **Nonlinear analogues of Sturm-Picone and Leighton type comparison theorems for impulsive differential equations with discontinuous solutions**  
Kayar Z.  
International Conference on Differential & Difference Equations and Applications 2017, Amadorra, Portugal, 5 - 09 June 2017, pp.66-67
- X. **Sturm-Picone Type Theorems for Second Order Nonlinear Impulsive Differential Equations**  
Kayar Z.  
International Conference on Numerical Analysis and Applied Mathematics (ICNAAM), Rhodes, Greece, 19 - 25 September 2016, vol.1863
- XI. **A generalized Lyapunov type inequality for fractional  $2n \times 2n$  Hamiltonian systems**  
Kayar Z.  
Conference on Applied Mathematics and Analysis (ICAMA 2016), Ankara, Turkey, 11 - 13 July 2016, pp.65
- XII. **İkinci mertebeden lineer olmayan impulsif diferansiyel denklemler için Sturm-Picone tipi teoremler**  
Kayar Z.  
11. Ankara Matematik Günleri, Ankara, Turkey, 26 - 27 May 2016, pp.1
- XIII. **İmpuls Etkisi Altındaki Lineer ve Lineer Olmayan Sistemler İçin Lyapunov Tipi Eşitsizlikler ve Uygulamaları**  
Kayar Z.  
Genç Matematikçiler Toplantısı, İzmir, Turkey, 13 - 18 September 2015, pp.12
- XIV. **Existence and Uniqueness Results For Linear Impulsive Fractional Boundary Value Problems (BVPs) via Lyapunov Type Inequality**  
Kayar Z.  
7-th International Conference on Mathematical Analysis, Differential Equation & Their Applications, Baku, Azerbaijan, 8 - 13 September 2015, pp.84
- XV. **Fractional Boundary Value Problems (BVPs) and Lyapunov Type Inequality**  
Kayar Z.  
International Conference on Pure and Applied Mathematics, Van, Turkey, 25 - 28 August 2015, pp.89
- XVI. **Kesirli Mertebeden Lineer İmpulsif Diferansiyel Denklemler İçin Homojen Olmayan Sınır Değer Problemleri (SDP)**  
Kayar Z.  
10. Ankara Matematik Günleri, Ankara, Turkey, 11 - 12 June 2015, pp.80
- XVII. **Existence and Uniqueness of Solutions of Inhomogenous Boundary Value Problem (BVP) for Linear Impulsive Fractional Differential Equations**  
Kayar Z.  
International Conference on Differential & Difference Equations and Applications, Lizbon, Portugal, 18 - 22 May 2015, pp.84
- XVIII. **Lyapunov type inequalities and stability criteria for linear planar periodic Hamiltonian systems under impulse effect**  
Kayar Z.  
International Congress of Mathematicians (ICM 2014), Seoul, South Korea, 13 - 21 August 2014, pp.1

## Supported Projects

Kayar Z., Project Supported by Higher Education Institutions, Lineer ayrık Hamiltonian sistemler için Lyapunov tipi eşitsizlik, 2019 - 2019

Kayar Z., Project Supported by Higher Education Institutions, The International Conference of Numerical Analysis and Applied Mathematics 2016 ICNAAM 2016 session on Difference & Differential Equations and Applications, 2016 - 2017

## **Memberships / Tasks in Scientific Organizations**

Türkiye Matematik Derneği (Ankara Şubesi), Member, 2014 - Continues

Türk Kadın Matematik Derneği, Member, 2014 - Continues

## **Scientific Refereeing**

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, May 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, May 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, May 2020

Journal of the Egyptian Mathematical Society, Other Indexed Journal, April 2020

Journal of the Egyptian Mathematical Society, Other Indexed Journal, April 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, March 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, March 2020

TURKISH JOURNAL OF MATHEMATICS, Journal Indexed in SCI-E, March 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, February 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, February 2020

JOURNAL OF TAIBAH UNIVERSITY FOR SCIENCE, Journal Indexed in SCI-E, January 2020

Journal of the Egyptian Mathematical Society, Other Indexed Journal, October 2019

Communications Faculty of Sciences University of Ankara Series A1 Mathematics and Statistics, Journal Indexed in ESCI, September 2019

Advances in Difference Equations, SCI Journal, August 2019

Journal of Taibah University for Science, SCI Journal, April 2019

Communications Faculty of Sciences University of Ankara Series A1 Mathematics and Statistics, Other Indexed Journal, March 2019

Journal of Inequalities and Applications, SCI Journal, March 2019

Journal of Taibah University for Science, SCI Journal, March 2019

Journal of Inequalities and Applications, SCI Journal, February 2019

Arab Journal of Basic and Applied Sciences, Other Indexed Journal, February 2019

Journal of Taibah University for Science, SCI Journal, January 2019

Journal Arab Journal of Basic and Applied Sciences, Other Indexed Journal, December 2018

Advances in Difference Equations, SCI Journal, October 2018

Advances in Difference Equations, SCI Journal, September 2018

Journal of Inequalities and Applications, SCI Journal, June 2018

Journal of Nonlinear Sciences and Applications, Other Indexed Journal, November 2017

Hacettepe Journal of Mathematics and Statistics, SCI Journal, May 2017

European Physical Journal, SCI Journal, May 2017

Journal of the Egyptian Mathematical Society, Other Indexed Journal, February 2017

Discrete Dynamics in Nature and Society, SCI Journal, January 2017

## **Tasks In Event Organizations**

Kayar Z., 3rd International Conference on Pure and Applied Mathematics ICPAM-VAN 2020, Scientific Congress, Van, Turkey, Eylül 2020

Kayar Z., Akgün N., 2nd International Conference on Pure and Applied Mathematics, ICPAM - VAN 2018, Scientific

Congress, Van, Turkey, Eylül 2018

Kayar Z., Caucasian Mathematics Conference (CMC-II), Scientific Congress, Van, Turkey, Ağustos 2017

Kayar Z., 12th International Workshop on Dynamical Systems and Applications (IWDSA 2013), Scientific Congress, Ankara, Turkey, Ağustos 2013

## Invited Congress and Symposium Activities

International Conference on Pure and Applied Mathematics ICPAM-VAN 2020, Attendee, Van, Turkey, 2020

International Workshop on Dynamical Systems and Applications (IWDSA 2019), Attendee, Ankara, Turkey, 2019

XIX International Conference "Dynamical System Modeling and Stability Investigations" (DSMSI-2019), Attendee, Kyiv, Ukraine, 2019

VI. Kadın Matematikçiler Derneği Çalıştayı, Attendee, Konya, Turkey, 2019

International Conference on Pure and Applied Mathematics (ICPAM 2018), Attendee, Van, Turkey, 2018

International Congress of Mathematicians 2018 (ICM 2018), Attendee, Rio-De-Janeiro, Brazil, 2018

The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Attendee, Taipei, Taiwan, 2018

Caucasian Mathematics Conference (CMC-II), Attendee, Van, Turkey, 2017

Recent Trends in Pure and Applied Mathematics (TREPAM 2017), Attendee, Romania, 2017

Caucasian Mathematics Conference (CMC-II), Session Moderator, Van, Turkey, 2017

International Conference on Differential & Difference Equations and Applications 2017, Attendee, Amadora, Portugal, 2017

14 th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM), Attendee, Ródos, Greece, 2016

Conference on Applied Mathematics and Analysis (ICAMA 2016), Attendee, Ankara, Turkey, 2016

11. Ankara Matematik Günleri, Attendee, Ankara, Turkey, 2016

Genç Matematikçiler Toplantısı, Attendee, İzmir, Turkey, 2015

7-th International Conference on Mathematical Analysis, Differential Equation & Their Applications, Attendee, Baku, Azerbaijan, 2015

International Conference on Pure and Applied Mathematics, Attendee, Van, Turkey, 2015

International Conference on Pure and Applied Mathematics, Session Moderator, Van, Turkey, 2015

10. Ankara Matematik Günleri, Attendee, Ankara, Turkey, 2015

International Conference on Differential & Difference Equations and Applications, Session Moderator, Lisbon, Portugal, 2015

International Conference on Differential & Difference Equations and Applications, Attendee, Lisboa, Portugal, 2015

International Congress of Mathematicians, Attendee, Seoul, South Korea, 2014

International Conference on Nonlinear Differential and Difference Equations: Recent Developments and Applications, Attendee, Antalya, Turkey, 2014

12th International Workshop on Dynamical Systems and Applications, Attendee, Ankara, Turkey, 2013

Workshop on Qualitative Theory for Differential Equations, Attendee, Spain, 2012

10. Dinamik Sistemler Çalıştayı, Attendee, Kocaeli, Turkey, 2011

8th International ISAAC Congress, Attendee, Moskva, Russia, 2011

International Conference on Differential & Difference Equations and Applications, Session Moderator, Ponta-Delgada, Portugal, 2011

International Conference on Differential & Difference Equations and Applications, Attendee, Ponta Delgada, Portugal, 2011

Matematik Lisansüstü Çalıştayı-1, Attendee, İstanbul, Turkey, 2010

7th International ISAAC Congress, Attendee, London, United Kingdom, 2009

4. Ankara Matematik Günleri, Attendee, Ankara, Turkey, 2009

8. Ankara Diferansiyel Denklemler Çalıştayı, Attendee, İstanbul, Turkey, 2008

## **Citations**

Total Citations (WOS):43

h-index (WOS):2

## **Scholarships**

Doktora Bursu, TUBITAK, 2005 - 2010

## **Awards**

Kayar Z., 2013-2014 Yılı En İyi Doktora Tezi Ödülü, ODTÜ, May 2015