



# MURAT KARAÇAYIR

## RES. ASST. PHD

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### International Researcher IDs

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## Learning Knowledge

Doctorate  
2013 - 2018

Akdeniz University, Institute of Science, Matematik, Turkey

Postgraduate  
2007 - 2010

Middle East Technical University, Institute Of Applied Mathematics, Kriptografi, Turkey

Undergraduate  
2003 - 2007

Middle East Technical University, Fen Fakültesi, Matematik, Turkey

## Foreign Languages

English, B2 Upper Intermediate

## Dissertations

Doctorate, Diferansiyel, Fonksiyonel Diferansiyel ve İntegro-diferansiyel Denklemler ve Sistemleri için Galerkin-tipi bir Sayısal Yöntem, Akdeniz University, Institute of Science, Matematik, 2018

## Academic Titles / Tasks

Research Assistant  
2013 - Continues

Akdeniz University, Faculty of Science, Matematik

Published journal articles indexed by SCI, SSCI, and AHCI

1. **A Galerkin-type approach to solve systems of linear Volterra-Fredholm integro-differential equations**  
KARAÇAYIR M., YÜZBAŞI Ş.  
Turkish Journal of Mathematics, vol.46, no.8, pp.3121-3138, 2022 (SCI-Expanded)
2. **An approximation technique for solutions of singularly perturbed one-dimensional convection-diffusion problem**  
YÜZBAŞI Ş., KARAÇAYIR M.  
International Journal of Numerical Modelling: Electronic Networks, INTERNATIONAL JOURNAL OF NUMERICAL MODELLING-ELECTRONIC NETWORKS DEVICES AND FIELDS, vol.33, no.1, 2020 (SCI-Expanded)
3. **A Galerkin-Type Fractional Approach for Solutions of Bagley-Torvik Equations**  
YÜZBAŞI Ş., KARAÇAYIR M.  
CMES-COMPUTER MODELING IN ENGINEERING & SCIENCES, vol.123, no.3, pp.941-956, 2020 (SCI-Expanded)
4. **A Galerkin-like method for solving linear functional differential equations under initial conditions**  
YÜZBAŞI Ş., KARAÇAYIR M.  
TURKISH JOURNAL OF MATHEMATICS, vol.44, no.1, pp.85-97, 2020 (SCI-Expanded)
5. **A Galerkin-Type Method for Solving a Delayed Model on HIV Infection of CD4(+) T-cells**  
YÜZBAŞI Ş., KARAÇAYIR M.  
IRANIAN JOURNAL OF SCIENCE AND TECHNOLOGY TRANSACTION A-SCIENCE, vol.42, no.A3, pp.1087-1095, 2018 (SCI-Expanded)
6. **A Galerkin-Type Method to Solve One-Dimensional Telegraph Equation Using Collocation Points in Initial and Boundary Conditions**  
YÜZBAŞI Ş., KARAÇAYIR M.  
INTERNATIONAL JOURNAL OF COMPUTATIONAL METHODS, vol.15, no.5, 2018 (SCI-Expanded)
7. **A Numerical Approach for Solving High-Order Linear Delay Volterra Integro-Differential Equations**  
YÜZBAŞI Ş., KARAÇAYIR M.  
INTERNATIONAL JOURNAL OF COMPUTATIONAL METHODS, vol.15, no.5, 2018 (SCI-Expanded)
8. **A numerical method for solutions of Lotka-Volterra predator-prey model with time-delay**  
YÜZBAŞI Ş., KARAÇAYIR M.  
INTERNATIONAL JOURNAL OF BIOMATHEMATICS, vol.11, no.2, 2018 (SCI-Expanded)
9. **A Galerkin-Like Approach to Solve Multi-Pantograph Type Delay Differential Equations**  
YÜZBAŞI Ş., KARAÇAYIR M.  
FILOMAT, vol.32, no.2, pp.409-422, 2018 (SCI-Expanded)
10. **A Galerkin-like scheme to solve two-dimensional telegraph equation using collocation points in initial and boundary conditions**  
YÜZBAŞI Ş., KARAÇAYIR M.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.74, no.12, pp.3242-3249, 2017 (SCI-Expanded)
11. **Application of homotopy perturbation method to solve two models of delay differential equation systems**  
YÜZBAŞI Ş., KARAÇAYIR M.  
INTERNATIONAL JOURNAL OF BIOMATHEMATICS, vol.10, no.6, 2017 (SCI-Expanded)
12. **An exponential Galerkin method for solutions of HIV infection model of CD4+ T-cells**  
YÜZBAŞI Ş., KARAÇAYIR M.  
COMPUTATIONAL BIOLOGY AND CHEMISTRY, vol.67, pp.205-212, 2017 (SCI-Expanded)
13. **A Galerkin-like approach to solve continuous population models for single and interacting species**  
YÜZBAŞI Ş., KARAÇAYIR M.  
KUWAIT JOURNAL OF SCIENCE, vol.44, no.2, pp.9-26, 2017 (SCI-Expanded)
14. **A Galerkin-like approach to solve high-order integro-differential equations with weakly singular kernel**  
YÜZBAŞI Ş., KARAÇAYIR M.  
KUWAIT JOURNAL OF SCIENCE, vol.43, no.2, pp.106-120, 2016 (SCI-Expanded)

## Articles Published in Other Journals

1. **A GALERKIN-LIKE SCHEME TO DETERMINE CURVES OF CONSTANT BREADTH IN EUCLIDEAN 3-SPACE**  
YÜZBAŞI Ş., KARAÇAYIR M.  
Turkish World Mathematical Society Journal of Applied and Engineering Mathematics, vol.11, no.3, pp.646-658, 2021 (Scopus)
2. **A GALERKIN-TYPE METHOD FOR SOLUTIONS OF PANTOGRAPH-TYPE VOLTERRA-FREDHOLM INTEGRO-DIFFERENTIAL EQUATIONS WITH FUNCTIONAL UPPER LIMIT**  
YÜZBAŞI Ş., KARAÇAYIR M.  
SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI, vol.38, no.2, pp.995-1005, 2020 (ESCI)
3. **A numerical scheme to solve boundary value problems involving singular perturbation**  
YÜZBAŞI Ş., KARAÇAYIR M.  
EUROPEAN JOURNAL OF COMPUTATIONAL MECHANICS, vol.27, no.2, pp.109-122, 2018 (ESCI)
4. **A Galerkin-like scheme to solve Riccati equations encountered in quantum physics**  
YÜZBAŞI Ş., KARAÇAYIR M.  
Journal of Physics: Conference Series, vol.766, 2016 (Scopus)

## Refereed Congress / Symposium Publications in Proceedings

1. **Numerical Solutions of One-Dimensional Convection-Diffusion Equation by a Galerkin-Like Method Using Polynomial Basis**  
YÜZBAŞI Ş., KARAÇAYIR M.  
International Conference of Mathematics, İstanbul, Turkey, 3 - 06 July 2018, pp.246
2. **Numerical Solutions of Lotka-Volterra Equations by a Weighted Residual Scheme Using the Method of Least Squares**  
YÜZBAŞI Ş., KARAÇAYIR M.  
International Conference of Mathematics (ICOM), İstanbul, Turkey, 3 - 06 July 2018, pp.245
3. **Numerical solution of initial value problems by a Galerkin-like method using multiple intervals**  
YÜZBAŞI Ş., KARAÇAYIR M.  
2nd International Conference on Advances in Science, İstanbul, Turkey, 13 - 15 September 2017, pp.282
4. **Application of Galerkin-like method to Lotka-Volterra Predator-prey model**  
YÜZBAŞI Ş., KARAÇAYIR M.  
International Conference on Applied Analysis and Mathematical Modelling, İstanbul, Turkey, 03 July 2017, pp.105
5. **An operational matrix approach for solutions of multi-pantograph equations**  
YÜZBAŞI Ş., KARAÇAYIR M., Ismailov N.  
2nd International Symposium on Multidisciplinary Studies, Roma, Italy, 18 - 21 May 2017, pp.120
6. **A Numerical Approach to Obtain Approximate Solutions of Volterra's Population Model with Single Species**  
YÜZBAŞI Ş., KARAÇAYIR M.  
2nd International Symposium on Multidisciplinary Sciences, Roma, Italy, 18 - 21 May 2017, pp.121
7. **A Numerical Scheme to Obtain Approximate Solutions of Two-dimensional Telegraph Equation**  
YÜZBAŞI Ş., KARAÇAYIR M.  
International Conference on Mathematics and Engineering, İstanbul, Turkey, 10 - 12 May 2017, pp.63
8. **Approximate Solutions of Singularly Perturbed Differential Equations by a Numerical Scheme Based on Inner Product**  
KARAÇAYIR M., YÜZBAŞI Ş.  
International Conference on Mathematics and Engineering, İstanbul, Turkey, 10 - 12 May 2017, pp.82
9. **Determination of the curves of constant breadth according to Bishop Frame in Euclidean 3-space by a Galerkin-like method**

KARAÇAYIR M.

14th International Geometry Symposium, Denizli, Turkey, 25 - 28 May 2016, pp.186

10. **A Galerkin-like scheme to solve Riccati equations encountered in quantum physics**

YÜZBAŞI Ş., KARAÇAYIR M.

International Conference on Quantum Science and Applications, Eskişehir, Turkey, 24 - 28 May 2016, pp.107

11. **A Numerical Method to Obtain Approximate Solutions of a Model on HIV Infection of CD4+ T-cells**

KARAÇAYIR M., YÜZBAŞI Ş.

International Conference On Advancements in Mathematical Sciences, Antalya, Turkey, 5 - 07 November 2015, pp.137

12. **Lotka-Volterra Nüfus Modelinin Galerkin Tipi Bir Yöntemle Yaklaşık Çözülmesi**

YÜZBAŞI Ş., KARAÇAYIR M.

28. Ulusal Matematik Sempozyumu, Antalya, Turkey, 7 - 09 September 2015, pp.202

13. **Application of the homotopy perturbation method for solving delay HIV infection model of CD4+ T-cells**

YÜZBAŞI Ş., KARAÇAYIR M.

Karatekin Mathematics Days, Çankırı, Turkey, 11 - 13 June 2014, pp.102

## Congress and Symposium Activities

International Conference on Mathematics (ICOM), Attendee, İstanbul, Turkey, 2018

2nd International Conference on Advances in Science, Attendee, Turkey, 2017

International Conference on Applied Analysis and Mathematical Modelling, Attendee, İstanbul, Turkey, 2017

International Conference on Mathematics and Engineering, Attendee, İstanbul, Turkey, 2017

II. International Symposium on Multidisciplinary Studies, Attendee, Roma, Italy, 2017

International Conference on Applied Mathematics and Analysis, Attendee, Ankara, Turkey, 2016

14th International Geometry Symposium, Attendee, Denizli, Turkey, 2016

International Conference on Quantum Science and Applications (ICQSA 2016), Attendee, Eskişehir, Turkey, 2016

International Conference on Advancements in Mathematical Sciences, Attendee, Antalya, Turkey, 2015

Ulusal Matematik Sempozyumu, Attendee, Antalya, Turkey, 2015

Karatekin Mathematics Days 2014, Attendee, Çankırı, Turkey, 2014

## Research Areas

Mathematics, Differential Equations, Numerical Analysis, Natural Sciences