

## Assoc. Prof. MEHMET TARIK ATAY

### Personal Information

**Email:** mehmettarik.atay@agu.edu.tr

**Web:** <https://avesis.agu.edu.tr/mehmettarik.atay>

### Education Information

Doctorate, Middle East Technical University, Faculty Of Engineering, Mühendislik Bilimleri, Turkey 1999 - 2005

Postgraduate, Illinois Institute of Technology, College Of Science, Master Of Applied Mathematics, United States Of America 1993 - 1996

Undergraduate, Middle East Technical University, Fen Edebiyat Fakültesi, Matematik, Turkey 1986 - 1993

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, Üç katmanlı elastik panelin çatlaması, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Mühendislik Bilimleri Bölümü, 2005

Postgraduate, Automatic Differentiation by Using VODE, Illinois Institute Of Technology, College Of Science, Master Of Science In Applied Mathematics, 1996

### Research Areas

Mechanical Engineering, Mechanical, Solid Mechanics, Mathematics, Differential Equations, Numerical Analysis, Natural Sciences, Engineering and Technology

### Academic Titles / Tasks

Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2018 - Continues

Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2014 - 2018

Assistant Professor, Niğde Üniversitesi, Fen Edebiyat Fakültesi, Matematik Bölümü, 2008 - 2014

Lecturer PhD, Niğde Üniversitesi, Fen Edebiyat Fakültesi, Matematik Bölümü, 2006 - 2008

Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Engineering Sciences, 1998 - 2006

Research Assistant, Niğde Üniversitesi, Fen Edebiyat Fakültesi, Matematik Bölümü, 1993 - 1998

### Published journal articles indexed by SCI, SSCI, and AHCI

1. Solution of jamming transition problem using adomian decomposition method

ŞENTÜRK E., COŞKUN S. B., ATAY M. T.

ENGINEERING COMPUTATIONS, vol.35, no.5, pp.1950-1964, 2018 (SCI-Expanded)

- II. **A uniformly valid approximation algorithm for nonlinear ordinary singular perturbation problems with boundary layer solutions**  
Cengizci S., ATAY M. T., Eryilmaz A.  
SPRINGERPLUS, vol.5, 2016 (SCI-Expanded)
- III. **Magnus series expansion method for solving nonhomogeneous stiff systems of ordinary differential equations**  
ATAY M. T., Eryilmaz A., Komez S.  
KUWAIT JOURNAL OF SCIENCE, vol.43, no.1, pp.25-38, 2016 (SCI-Expanded)
- IV. **The Semianalytical Solutions for Stiff Systems of Ordinary Differential Equations by Using Variational Iteration Method and Modified Variational Iteration Method with Comparison to Exact Solutions**  
Atay M. T., KILIC O.  
MATHEMATICAL PROBLEMS IN ENGINEERING, 2013 (SCI-Expanded)
- V. **Buckling of Euler Columns with a Continuous Elastic Restraint via Homotopy Analysis Method**  
Eryilmaz A., Atay M. T., COŞKUN S. B., Basbuk M.  
JOURNAL OF APPLIED MATHEMATICS, 2013 (SCI-Expanded)
- VI. **A novel hybrid method for better evaluation: Evaluating university instructors teaching performance by combining conventional content analysis with fuzzy rule based systems**  
BASARAN M. A., Kalayci N., Atay M. T.  
EXPERT SYSTEMS WITH APPLICATIONS, vol.38, no.10, pp.12565-12568, 2011 (SCI-Expanded)
- VII. **Determination of Buckling Loads and Mode Shapes of a Heavy Vertical Column under its Own Weight Using the Variational Iteration Method**  
Okay F., Atay M. T., COŞKUN S. B.  
INTERNATIONAL JOURNAL OF NONLINEAR SCIENCES AND NUMERICAL SIMULATION, vol.11, no.10, pp.851-857, 2010 (SCI-Expanded)
- VIII. **Computation of Eigenvalues of Sturm-Liouville Problems using Homotopy Perturbation Method**  
Atay M. T., Kartal S.  
INTERNATIONAL JOURNAL OF NONLINEAR SCIENCES AND NUMERICAL SIMULATION, vol.11, no.2, pp.105-111, 2010 (SCI-Expanded)
- IX. **Determination of Buckling Loads of Tilted Buckled Column with Varying Flexural Rigidity Using Variational Iteration Method**  
Atay M. T.  
INTERNATIONAL JOURNAL OF NONLINEAR SCIENCES AND NUMERICAL SIMULATION, vol.11, no.2, pp.97-103, 2010 (SCI-Expanded)
- X. **Determination of critical buckling load for elastic columns of constant and variable cross-sections using variational iteration method**  
COSKUN S. B., Atay M. T.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.58, pp.2260-2266, 2009 (SCI-Expanded)
- XI. **Elastic stability of Euler columns with a continuous elastic restraint using variational iteration method**  
Atay M. T., COSKUN S. B.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.58, pp.2528-2534, 2009 (SCI-Expanded)
- XII. **Determination of Critical Buckling Loads for Variable Stiffness Euler Columns Using Homotopy Perturbation Method**  
Atay M. T.  
INTERNATIONAL JOURNAL OF NONLINEAR SCIENCES AND NUMERICAL SIMULATION, vol.10, no.2, pp.199-206, 2009 (SCI-Expanded)
- XIII. **Fin efficiency analysis of convective straight fins with temperature dependent thermal conductivity using variational iteration method**

COSKUN S. B., Atay M. T.

APPLIED THERMAL ENGINEERING, vol.28, pp.2345-2352, 2008 (SCI-Expanded)

- XIV. **Effects of nonlinearity on the variational iteration solutions of nonlinear two-point boundary value problems with comparison with respect to finite element analysis**

Atay M. T., COSKUN S. B.

MATHEMATICAL PROBLEMS IN ENGINEERING, 2008 (SCI-Expanded)

- XV. **Comparative Analysis of Power-Law Fin-Type Problems Using Variational Iteration Method and Finite Element Method**

Atay M. T., COSKUN S. B.

MATHEMATICAL PROBLEMS IN ENGINEERING, 2008 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Analysis of the motion of a rigid rod on a circular surface using interpolated variational iteration method**  
COŞKUN S. B., ŞENTÜRK E., ATAY M. T.  
SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI, vol.40, no.3, pp.577-584, 2022 (ESCI)
- II. **Numerical Analysis of Stiff Differential Equations via Interpolated Variational Iteration Method**  
ATAY M. T., ŞAŞ ÇAYCI H. S., ÇİFTÇİ C., COŞKUN S. B., TOKER B., YILDIRIM A. T.  
Journal of Basic and Applied Research International, vol.24, no.1, pp.15-24, 2018 (Peer-Reviewed Journal)
- III. **Vibration analysis of a mass on a spring by means of magnus expansion method**  
BAŞBÜK M., ERYILMAZ A., ATAY M. T.  
New Trends in Mathematical Sciences, vol.4, no.2, pp.90-112, 2016 (Peer-Reviewed Journal)
- IV. **A Geometric Integration Based on Magnus Series Expansion for Human T-Cell Lymphotropic Virus I (HTLV-I) Infection of CD4+ T-Cells Model**  
ATAY M. T., BAŞBÜK M., ERYILMAZ A.  
Journal of Advances in Applied Mathematics, vol.1, no.2, 2016 (Peer-Reviewed Journal)
- V. **A numerical approximation to some specific nonlinear differential equations using magnus series expansion method**  
KÖME S., ERYILMAZ A., ATAY M. T.  
New Trends in Mathematical Sciences, vol.4, no.1, pp.125, 2016 (Peer-Reviewed Journal)
- VI. **SCEM approach for singularly perturbed linear turning mid-point problems with an interior layer**  
ATAY M. T., CENGİZCİ S., ERYILMAZ A.  
New Trends in Mathematical Sciences, vol.4, no.1, pp.115, 2016 (Peer-Reviewed Journal)
- VII. **On Critical Buckling Loads Of Euler Columns With Elastic End Restraints**  
Başbük M., ERYILMAZ A., COŞKUN S. B., ATAY M. T.  
Hittite Journal of Science and Engineering, vol.3, no.1, pp.9-14, 2016 (Peer-Reviewed Journal)
- VIII. **Comparative numerical solutions of stiff ordinary differential equations using Magnus series expansion method**  
KÖME S., ATAY M. T., ERYILMAZ A., KÖME C., PIIPPONEN S.  
New Trends in Mathematical Sciences, vol.3, no.1, pp.35-45, 2015 (Peer-Reviewed Journal)
- IX. **On Critical Buckling Loads of Columns under End Load Dependent on Direction**  
Başbük M., ERYILMAZ A., ATAY M. T.  
International Scholarly Research Notices, vol.2014, pp.1-6, 2014 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Yükseköğretimde Eğitim Programı Geliştirme: Öğretim Üyeleri Tarafından Yürütülen Süreçler ve**

## Uygulamalar

KALAYCI ATAY N., ATAY M. T.

Edge Akademi, 2015

## Refereed Congress / Symposium Publications in Proceedings

- I. **Is Civil Engineering Education at Kocaeli University Helping Students Realize Their Potentialities?**  
ERDOĞAN H., GAZELOĞLU C., COŞKUN S. B., MERT KUTSAL S., ATAY M. T., ENGİN S.  
13th International Congress on Advances in Civil Engineering, İzmir, Turkey, 12 - 14 September 2018
- II. **The Numerical Solutions for Stiff Ordinary Differential Equations by Using Interpolated Variational Iteration Method with Comparison to Exact Solutions**  
ÇİFTÇİ C., ŞAŞ ÇAYCI H. S., ATAY M. T., Toker B., Guncan B., Yildirim A. T.  
International Conference of Numerical Analysis and Applied Mathematics (ICNAAM), Thessaloniki, Greece, 25 - 30 September 2017, vol.1978
- III. **Twist-Bend Instability of a Cantilever Beam Subjected to an End Load via Homotopy Perturbation Method**  
Yucesoy A., COŞKUN S. B., ATAY M. T.  
International Conference of Numerical Analysis and Applied Mathematics (ICNAAM), Thessaloniki, Greece, 25 - 30 September 2017, vol.1978
- IV. **The Numerical Solutions for Stiff Ordinary Differential Equations by Using Interpolated Variational Iteration Method with Comparison to Exact Solution**  
ÇİFTÇİ C., ŞAŞ H. S., ATAY M. T., Toker B., Günçan B., Yıldırım A. T.  
15th INTERNATIONAL CONFERENCE OF NUMERICAL ANALYSIS AND APPLIED MATHEMATICS 2017, Thessaloniki, Greece, 25 - 30 September 2017
- V. **A Uniformly Valid Approximation Algorithm for Singularly Perturbed two point boundary value problems in nonlinear ordinary differential equations**  
CENGİZCİ S., ATAY M. T., ERYILMAZ A.  
INTERNATION CONFERENCE ON ADVANCEMENT IN MATHEMATICAL SCIENCE, 5 - 07 November 2015
- VI. **Magnus Expansion Method for Solving Singularly Perturbed Turning Point Problems Having Boundary Layers**  
sure k., ATAY M. T., ERYILMAZ A., KÖME C.  
ICNAAM 2014- Book Series: AIP Conference Proceedings, 5 - 07 January 2015
- VII. **Numerical Solutions of Linear and Nonlinear Lane Emden Type Equations Magnus Expansion Method**  
KÖME C., ATAY M. T., ERYILMAZ A., köme s.  
ICNAAM 2014 - Book Series: AIP Conference Proceedings, Rhodes, Greece, 5 - 07 January 2015
- VIII. **Elastic Stability Analysis of uniform Euler Columns with and without self weight by means of Homotopy Analysis Method**  
ERYILMAZ A., COŞKUN S. B., ATAY M. T., BAŞBÜK M.  
The Algerian-Turkish International Days on Mathematics, İstanbul, Turkey, 12 - 14 September 2013
- IX. **The semi analytical solutions for HIV and Fatal disease models by using variational iteration method and modified variational iteration methods**  
ATAY M. T., KILIÇ O.  
2nd International Conference on Computation for Science and Technology, Turkey, 9 - 11 July 2012
- X. **Computation of Eigenvalues of Sturm Liouville Problems by means of Homotopy Analysis Method A Versatile Approach**  
ERYILMAZ A., ATAY M. T., KARTAL Ş.  
International Conference on Applied Analysis and Algebra, İstanbul, Turkey, 30 June - 02 July 2011
- XI. **Analysis of Convective Fins And Space Radiators with Temperature Dependent Thermal Conductivity Using Variational Iteration Method**  
ATAY M. T., COŞKUN S. B.

21st Canadian Congress of Applied Mechanics, Canada, 30 June - 02 July 2011, vol.2007, pp.1-15

**XII. Homotopy perturbation method for free vibration analysis of beams on elastic foundation**

OZTURK B., COŞKUN S. B., Koc M. Z., Atay M. T.

9th World Congress on Computational Mechanics/4th Asian Pacific Congress on Computational Mechanics, Sydney, Australia, 19 - 23 July 2010, vol.10

## **Metrics**

Publication: 37

Citation (WoS): 177

Citation (Scopus): 176

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H-Index (Scopus): 5