



## Y. CENGİZ TOKLU

- Istanbul Aydin University, Professor of Civil Engineering
- Founding member, TUSREC, Turkish Space Research Consortium
- Member, Technical Committee on Space Engineering and Construction, Aerospace Division (ASD), American Society of Civil Engineers (ASCE)
  - Board Member, The Moon Society
- Member, Turkish Constructional Steel Association (TUCSA)
  - Member, Academic Council, Marmara Foundation

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## CONTENTS

<b>PERSONAL INFORMATION.....</b>	<b>2</b>
<b>LANGUAGES .....</b>	<b>2</b>
<b>ACADEMIC AND PROFESSIONAL EXPERIENCE.....</b>	<b>2</b>
<b>DESIGN AND CONSULTANCY EXPERIENCE .....</b>	<b>3</b>
<b>CONSTRUCTION EXPERIENCE .....</b>	<b>5</b>
<b>PROGRAMMING AND INFORMATICS EXPERIENCE.....</b>	<b>5</b>
<b>ACADEMIC ADMINISTRATIVE DUTIES.....</b>	<b>6</b>
<b>THESES SUPERVISED .....</b>	<b>6</b>
MS Theses .....	6
PhD Theses Jury Membership and Examinership.....	8
<b>PROFESSIONAL AFFILIATIONS .....</b>	<b>8</b>
<b>SCHOLARSHIPS AND AWARDS .....</b>	<b>9</b>
<b>SEMINARS, INVITED AND KEYNOTE SPEECHES .....</b>	<b>9</b>
<b>COURSES OFFERED .....</b>	<b>13</b>
<b>CONGRESSES ORGANIZED.....</b>	<b>14</b>
<b>SEMINARS ORGANIZED .....</b>	<b>17</b>
<b>JOURNAL REFEREE DUTIES, EDITORSHIP .....</b>	<b>18</b>
<b>PROJECTS.....</b>	<b>19</b>
International .....	19
National .....	19
<b>HOBBIES, EXTRA-TECHNICAL ACTIVITIES AND MEDIA .....</b>	<b>20</b>
<b>RESEARCH SUBJECTS.....</b>	<b>20</b>
<b>PUBLICATIONS.....</b>	<b>22</b>
Peer reviewed journal papers, in (SCI / SCIE) indexed journals .....	22
Peer reviewed journal papers, in other indexed journals .....	23
Peer reviewed international conference papers .....	24
Books.....	30
Chapters in Books .....	31
National congress papers with printed proceedings .....	32
Other conferences and publications .....	34

## **PERSONAL INFORMATION**

- Birth: Ankara, Turkey, July 5<sup>th</sup>, 1946
- Marital status: Married, two children
- Citizenship: Turkish
- Phone: Mobile (+90) 533 689 41 32 e-mail: cengiztoklu@gmail.com

LinkedIn: <https://www.linkedin.com/in/y-cengiz-toklu-3787805/>

Google Scholar: <https://scholar.google.com.tr/citations?user=JkzvARkAAAAJ&hl=en&oi=ao>

Face Book: <https://www.facebook.com/cengiztoklu>

ORCID: <https://orcid.org/0000-0002-1550-1911>

Scopus ID: 6602550484

TÜBİTAK ID: TBTK-0008-1296

## **EDUCATION**

- Dr. Ing., Institut de Mecanique Theorique et Appliquée, Faculté des Sciences, Université Paris VI (Pierre et Marie CURIE), Paris, France, 1976.  
Thesis: Contribution a l'étude des mortiers des graves traitees aux liants hydrauliques et aux liants mixtes en vue de la reduction de leur fissuration de retrait. Supervisor: Professor R. Siestrunck  
Degree: Tres honorable
- M.S. in Civil Engineering, Middle East Technical University, (METU), Ankara, Turkey, 1969. Thesis: On the stability of bars with one-sided constraints. Supervisor: Professor Murat Dikmen
- B.S. in Civil Engineering, METU, Ankara, Turkey, 1967

## **LANGUAGES**

Turkish, English, French

## **ACADEMIC AND PROFESSIONAL EXPERIENCE**

- Professor; Civil Engineering Department, Faculty of Engineering. Istanbul Aydin University, Istanbul, Turkey, 2024 – .
- Professor; Civil Engineering Department, Faculty of Engineering and Architecture. Istanbul Beykent University, Istanbul, Turkey, 2018 – 2024
- Professor; Civil Engineering Department, Faculty of Engineering, Member of the Administrative Board of the Faculty of Engineering, Okan University, Istanbul, Turkey, 2016 – 2018
- Professor; Head, Civil Engineering Department, Member of the Administrative Board of the Faculty of Engineering, Bilecik Şeyh Edebali University, Bilecik, Turkey, 2013 – 2016.
- Acting Dean of the Faculty of Arts and Industrial Design; Member of Senate of the University, Member of Administrative Board of the University, Bilecik Şeyh Edebali University, Bilecik, Turkey, 2014 – 2016.
- Visiting Professor; Department of Civil Engineering and Architecture, Illinois Institute of Technology, Chicago, USA, June 2014 – September 2014.

- Professor; Acting Dean of Faculty of Engineering, Member of Senate of the University, Member of Administrative Board of the University, Chairman of the Administrative Board of the Faculty of Engineering, Bayburt University, Bayburt, Turkey, 2012 – 2013
- Professor; Head of the Department of Civil Engineering, Istanbul Aydin University, Faculty of Engineering and Architecture, Istanbul, Turkey, 2012 –2012
- Professor; Founding Head of the Department of Civil Engineering Yeditepe University, Faculty of Engineering and Architecture, Member of the Administrative Board of the Faculty, Istanbul, Turkey, 2008 – 2012
- Head, Scientific Council, Turkish Science Centers Foundation, Istanbul, Turkey; 2006 - 2020
- Associate Professor; Founding Head of the Mechatronics Engineering Department; Bahçeşehir University, Istanbul, Turkey, 2005– 2007
- Associate Professor; Head, Civil Engineering Department; Acting Head, Computer Engineering Department; Vice Dean, Faculty of Engineering; Cyprus International University, Lefkosa, Turkish Republic of Northern Cyprus, 2004 – 2005
- Assistant Professor, Vice Chair, Civil Engineering Department, Eastern Mediterranean University, Magosa, Turkish Republic of Northern Cyprus, 1998-2004
- Advisor to the General Directorate of Highways through DELCAN-DAP Joint Venture, 1992-1997
- Founder and associate of TVT Engineering Ltd., 1992- 2000
- Construction Group Manager, Middle East Technical University PARLAR Foundation, Ankara, 1992-1995
- Founder and associate of PMT Co. Inc., 1991- 1998
- Technical Director, Bayindir Construction Co., Izmir, 1990-1991
- Cost and Schedule Director, Kutlutas-Dillingham Joint Venture, Izmir, 1988-1990
- Associate, General Director, Private Works in Construction, Consultancy and Computer Services, 1986-1988
- Technical Director, HB International Construction Co. Inc., Istanbul, 1985-1986
- Technical Director for the Design of the Second Bosphorus Bridge (Fatih Sultan Mehmet Bridge) and the Peripheral Motorways, Head of Computer Department, Freeman Fox and Partners - BOTEK Technical Consultancy Co. Inc. Istanbul, 1984-1985
- Director of Istanbul Office, Technical Director for the Design of the New Galata Bridge, Head of Computer Department, Mott, Hay and Anderson - GAMB Engineering and Consulting Company Ltd., Istanbul, 1983-1984
- Head of Formwork Factory Design Team, Head of Computer Department, SANTA Construction and Industry Co. Inc., Istanbul, 1982-1983
- Assistant Professor, Department of Engineering Sciences, METU, Ankara, 1976-1982
- Vice Chair, Department of Engineering Sciences, METU, Ankara, 1977-1979
- Researcher, Assistant, Laboratoire Central des Ponts et Chaussées, Paris, France, 1973-1976
- Researcher, Institut Supérieur des Matériaux et de la Construction Mécanique, Saint Ouen, France, 1970-1973
- Assistant, Instructor, Civil Engineering and Engineering Sciences Departments, METU, Ankara, 1967-1970
- Designer, Kiska Design Office, Ankara, 1966-1967

## ***DESIGN AND CONSULTANCY EXPERIENCE***

- Soma-B Thermal Power Plant mat foundation calculations with two different second order methods and specially prepared programs. / Turkey Electricity Authority / HES Co. Ltd./ Ankara, 1977
- Consultancy for Istanbul - Izmit motorway/ General Directorate of Highways / DEA Consultancy Co. / Istanbul, 1977
- Ceyhan Fertilizer Factory wharf and conveyor system, solutions about frames and 3-dimensional trusses /Toros Fertilizer and Chemistry Industry Co. Inc./ Sonar Engineering Co. Inc./ Istanbul, 1981 (Revision, 1983)
- Batikoy Satellite Town for 50 000 Inhabitants, computer aided analysis of tower blocks with interacting shear walls and real and fictive frames using specially prepared programs / Sinankent Construction Tourism and Trade Co. Inc / Sonar Engineering Co. Inc. / Istanbul, 1982
- Computer analysis of the existing Antalya Carbide Factory for reinforcing purposes / Etibank / Sonar Engineering Co. Inc./ Istanbul, 1983
- Mazidagi Semikhan Primary Concentration Plant computer analysis of conveyor support systems and transfer building frames / Etibank / Sonar Engineering Co. Inc./ Istanbul, 1983
- Preliminary statical calculations of Ankara Sheraton Hotel / Ahmet Hattat and Brothers / GAMB Co. Ltd. / Istanbul, 1983
- New Galata Bridge, a 367m long pontoon bridge with sidewise opening section at the middle, Head of the Turkish design team / General Directorate of Highways / Mott, Hay and Anderson International Ltd.- GAMB Co. Ltd./ Istanbul, 1983
- 2nd Bosphorus Highway Crossing (Fatih Sultan Mehmet Suspension Bridge) and Peripheral Roads Technical Director, Head of the Turkish Design Team / General Directorate of Highways / Freeman Fox and Partners - BOTEK Technical Consultancy Co. Inc. / Istanbul, 1984 - 1985
- Bakirkoy - Bahcelievler Transportation Planning and design of two bridges with prestressed beams, Technical Director / Bakirkoy Municipality / BOTEK Technical Consultancy Co. Inc. / Istanbul, 1984 - 1985
- Statical design of various buildings, a hotel, a highway bridge (four spans, piled foundations, in-situ concrete, very heavy industrial loads for the construction of Hamitabat Power Plant, Lüleburgaz), private, 1985 - 1988.
- Restoration project of an historical tunnel, Abrahampasa Tunnel, Beykoz Istanbul, private, 1986
- Computerized follow up of the design and construction of Izmir - Aydin Motorway and Izmir-Çesme Motorway. Scheduling by using PrimaVera software / 1988-1992
- Designs by TVT / Grade separated interchanges in Izmir (Bozyaka Bridge, named Kostence Bridge later), and Adana,
- Design by TVT/ Ikizdere-Balçova section of the peripheral motorway in Izmir / Kutlutaş – Dillingham Joint Venture / State Highways Authority
- Design by TVT / Feasibility studies of Izmir-Salihli and Izmir-Bursa Motorways for OTAK Construction Co.
- Supervisor for the design of Imrahor Viaduct, part of the Mamak – Çankaya peripheral road of Ankara,
- Supervisor for ANKARAY light railed transport system, designs of various infrastructural and superstructural works / 1991-1995.
- Consultancy for Izmit Bay Crossing and Gebze - Orhangazi Motorway / General Directorate of Highways / 1992-1995
- Consultancy for Izmir Metro, passage through KonakPlaza / Municipality of Izmir / 1994
- Design of Infrastructural Works of Belkent, Çesme, Izmir / 1996-1997
- Design of Urla - Iskele Dual Road / Municipality of Urla / 1996-1997

- Design of Entegre Medical Appliances Factory, Izmir, 1996-1997

## **CONSTRUCTION EXPERIENCE**

- Leading and planning construction of 45 villas, Istanbul / HB Construction Co. / 1986
- Construction of Burhaniye sewage sea discharge facility / Iller Bankasi / 1984-88
- Water supply of a village and a group of villages, Çatalca and Sile, Istanbul, / Directorate of Village Services / private / 1987 - 1988
- Drainage works of Mahmutbey - Kinali Motorway / General Directorate of Highways / IGL - STFA Joint Venture / private (Subcontractor) / 1987
- Izmir - Aydın Motorway / Scheduling and Planning Director / Kutlutas Construction Co. / 1988-1990
- Izmir - Çesme Motorway / Technical Director / Bayindir Construction Co. / 1990 -1991
- Supervisor for the construction of Imrahor Viaduct, ANKARAY light railed transport system, 1992 - 1994
- Construction scheduling for various firms (AFA, ERAL, ÜSTAY, SEGA, ...) / TVT / 1992 – 1998
- Supervision of Entegre Medical Appliances Factory, Izmir, 1997

## **PROGRAMMING AND INFORMATICS EXPERIENCE**

- Directing computer centers of SANTA, GAMB, BOTEK, Kutlutas-Dillingham JV, BAYINDIR, PMT and TVT
- Computer coordinator of Engineering Sciences Department, METU, 1979-1982, Liaison to the Central University Computer and Director of Departmental computer laboratory.
- Computer Committee of the Civil Engineering Department, EMU, 1998-2004
- Scientific and business programs prepared including
  - \* A payroll program and an accounting program (dealing with 2000 employees using a 64 KB RAM computer, with two floppy drivers, 360 KB each)
  - \* CPM/PERT program,
  - \* Frame, grid, truss and continuous beam programs using finite element techniques and active column profile method,
  - \* Various reinforced concrete design programs for prestressed beams, retaining walls, sheet pile walls, culverts, underpasses etc.
  - \* A program for lateral analysis of structural systems with interacting shear walls and frames,
  - \* A program for determination of composite steel reinforced concrete section properties,
  - \* Programs for solving linear systems of equations.
  - \* An optimization program using linear programming technique,
  - \* A mat foundation solution program,
  - \* A series of programs for non - linear analysis of beams and frames,
  - \* An aggregate blending program,
  - \* Programs for transformation of linear viscoelastic functions,
  - \* Several programs about eigenvalue problems, curve fitting, solution of systems of differential equations, and many other sorts of numerical analysis problems,

- Preparation of the software for the first Book Club in Turkey
- Use of structural analysis packages like SAP and ETABS
- MS Project, Primavera and Primavera Vision Programs for Scheduling
- Preparation of a software package called ENSOFT for cross - section calculations and plots of motorways
- Preparation of a construction project scheduling program using Genetic Algorithms based on start dates as state variables
- Preparation of an aggregate blending program using Genetic Algorithms
- Preparation of several software packages on meta-heuristic algorithms like random search, simulated annealing, genetic algorithms, big-bang and big-crunch algorithm
- Creation of the method Total Potential Optimization using Metaheuristic Algorithms (TPO/MAs) for structural analysis and its generalized version Finite Element Method with Energy Minimization (FEMEM) which broadens the application area of the well-known Finite Element Method (FEM).

## **ACADEMIC ADMINISTRATIVE DUTIES**

Vice Head of Dept.	METU Dept of Engineering Sciences / 1977-1979
Vice Head of Dept.	EMU Civil Engineering Department / 1998-1999
Acting Dean	CIU Faculty of Engineering / Sept. 2004- Oct. 2004
Vice Dean	CIU Faculty of Engineering / Nov. 2004 - 2005
Head of Dept.	CIU Computer Engineering Department / 2004 – 2005
Head of Dept.	CIU Civil Engineering Department / 2005 – 2005
Head of Dept. (Founder)	BŞU Mechatronics Engineering Dept. / 2005 – 2007
Head of Dept. (Founder)	7TU Civil Engineering Dept. / 2008 – 2012
Head of Dept.	IAU Civil Engineering Dept. / 2012 – 2012
Head of Dept.	ByU Civil Engineering Dept / 2012 – 2013
Dean, Board M., Senate	ByU Faculty of Engineering / 2012 – 2013
Head of Dept.	BŞEU Civil Engineering Dept. / 2013 – 2014
Dean, Board M., Senate	BŞEU Faculty of Arts and Ind. Design / 2014 - 2016
Fac.Board M., Ethical Cons.	OKAN Civil Engineering Dept. / 2016 – 2018

(BŞU: Bahçeşehir Univ.; ByU: Bayburt University; BŞEU: Bilecik Şeyh Edebali Univ.; CIU: Cyprus International Univ., EMU: Eastern Mediterranean Univ., IAU: Istanbul Aydın University, METU: Middle East Technical Univ., OKAN: Okan University, 7TU: Yeditepe University)

## **THESES SUPERVISED**

### **MS Theses**

- Farsialiabad, Farsin, “Scheduling of Parallel Activities Using Genetic Algorithms”, Eastern Mediterranean University, 2001
- Hatay, Tolga, “Simulated Annealing Applied to Optimization of Trusses”, Eastern Mediterranean University, 2001
- Eren, Mehmet, “Finite Element Method Analysis of Part of Bellapais Monastery”, Eastern Mediterranean University, 2001

- İremilci, Işıl, “Linear Programming Applied to Aggregate Blending”, Eastern Mediterranean University, 2002 (Co-supervisor)
- Ghani, M. H. “Simplified Methodology for Rational Unified Process Using Unified Modeling Language”, Cyprus International University, 2004
- Toklu, Şakir Çağlar “Nonlinear Displacement Analysis of Trusses Using Ant Colony Optimization”, Bahcesehir University, 2008 (Co-supervisor)
- Zorlu, Hüseyin “Kalıcı Bir Ay Üssü Tasarlanması, <Design of a Sustainable Lunar Base>” Havacılık ve Uzay Teknolojileri Enstitüsü, Hava Harp Okulu Komutanlığı, <Aeronautics and Space Technologies Institute of Turkey >, 2009
- Özveren, İsmail Hakkı “Uzay Alanındaki Çalışmalar ve Türkiye’nin Stratejisi<Space Research and Strategy of Turkey>”. Havacılık ve Uzay Teknolojileri Enstitüsü, Hava Harp Okulu Komutanlığı,<Aeronautics and Space Technologies Institute of Turkey >, Temmuz 2009
- Anakök, Serkan “Uzay Adamı Yetiştirilmesi ve Gerekli Tesisler <Astronaut Training and Necessary Facilities>”. Havacılık ve Uzay Teknolojileri Enstitüsü, Hava Harp Okulu Komutanlığı, <Aeronautics and Space Technologies Institute of Turkey >, Temmuz 2009
- Kuvvet Melike “Regolit ve Ay Yapılarında Kullanımı <Regolith and Its Use in Lunar Constructions>”. Havacılık ve Uzay Teknolojileri Enstitüsü, Hava Harp Okulu Komutanlığı, <Aeronautics and Space Technologies Institute of Turkey>, Temmuz 2009
- Hatipoğlu, Yavuz Selim, “Sönmüş kireç ve çimento harçlarının zeolit ve toz haline getirilmiş Bayburt Taşları ile mekanik özelliklerinin iyileştirilmesi [The effect of zeolite and powdered Bayburt Stone on lime and cement mortars]”, Bayburt Üniversitesi, Mayıs 2014
- Çerçevik, A. E. “Elastik konsol kirişlerin büyük deformasyon analizi” <Large deformation analysis of elastic cantilevers>, Bilecik Şeyh Edebali Üniversitesi, Mayıs 2014
- Şahinöz, Melih, “Otomatik yapı üretimi için en uygun malzemelerin belirlenmesi <Determination of the most suitable materials for automated construction>”, Bilecik Şeyh Edebali Üniversitesi, 2016
- Nur Eroğlu. İstanbul Üniversitesi – Cerrahpaşa.. Metasezgisel Algoritmalar Kullanan Toplam Potansiyel Enerji Minimizasyonu Yöntemi ile Yapı Sistemlerinin Analizi <Analysis of Structural Systems by Total Potential Energy Minimization Method Using Metaheuristic Algorithms> Eş danışman. 2020-
- Batuhan ŞANLI, Eskişehir Osman Gazi Üniversitesi. “Kafes Sistemlerin Enerji Minimizasyonu ile Sonlu Elemanlar Analizi için bir Python Kütüphanesi hazırlanması <A Python Library for Finite Element Analysis of Truss Systems with Energy Minimization>”, Eş danışman. 2021-2023
- Umut Emre CAN, Eskişehir Osman Gazi Üniversitesi. "Katı Cisimlerin Enerji Minimizasyonu ile Sonlu Elemanlar Analizi. <Finite Element Analysis of Solids with Energy Minimization>", Eş danışman. 2021- 2023
- Doğuşcan ARAS, Eskişehir Osman Gazi Üniversitesi. “Kafes sistemlerde aşamalı göçme analizi. <Collapse analysis of truss systems>”, >, Eş danışman. 2023-2024

## PhD Theses Jury Membership and Examinership

- Bekdaş, Gabriel "Eksenel Simetrik Kısa Silindirik Duvarların Analizi [Analysis of Axially Symmetrical Short Cylindrical Walls]", Istanbul University, 2011
- Temür, Rasim, Istanbul University, 2012
- Aydın, Recep "İnce Cidarlı Sinüzoidal Gövdeli Çelik I Eleman Birleşimlerinin Performansı", Istanbul Technical University, 2014.
- Guha, Himadri "A framework for measuring construction performance and its risks in Kolkata, India", West Bengal University of Technology, Kolkata, India, *Continuing*
- Aylin Ece Kayabekir. "Metasezgisel Algoritmalar ile Optimize Aktif Ayarlı Kütle Sönümleyicileri ile Yapıların Kontrolü < Control of Structures by Active Tuned Mass Dampers Optimized via Metaheuristic Algorithms > Member of the PhD Follow-up committee, 2019 - 2021, İstanbul University (Cerrahpaşa) *Completed*

## PROFESSIONAL AFFILIATIONS

- Turkish Chamber of Civil Engineers
- Turkish Informatics Society (\*)
- Turkish - French Association of Engineers, Secretary of Izmir branch (\*)
- Turkish - French Association of Engineers, Istanbul branch, Member of Administrative Board (\*)
- Technical Commission of Izmir Branch of Chamber of Civil Engineers (\*)
- Commission of Use of Computer Programs for Structural Design, Ministry of Settlement and Turkish Chamber of Civil Engineers (\*)
- American Concrete Institute (ACI) (\*)
- Yollar Turk Milli Komitesi (Turkish Road Association) (\*)
- Society of Rheology (\*)
- American Society of Civil Engineers (ASCE)
- ASCE Structural Engineering Institute, Emerging Computing Technologies Committee
- ASCE Global Center of Excellence in Computing
- European Group for Intelligent Computing in Engineering (EG-ICE)
- Türkiye Köprü ve İnşaat Cemiyeti (Turkish Association for Bridge and Structural Engineering) (\*)
- IABSE (International Association for Bridge and Structural Engineering) (\*)
- Member of the Commission for Preparation of the 4th Five Year Plan Civil Engineering Works in Turkish Republic of Northern Cyprus (\*)
- European Chapter of Metaheuristics (EU/ME)
- Founding member of the non-profit corporation The Space Resources Roundtable, Inc. (\*)
- Founding Executive Committee of the Technopark of Northern Cyprus (\*)
- Chair, Scientific Council, Foundation of Turkish Science Centers (\*)
- Member, Board of Trustees, Foundation of Turkish Science Centers (\*)

- Member, Academic Council, Marmara Foundation
- Member, Turkish Constructional Steel Association (TUCSA) [Türk Yapısal Çelik Derneği, (TYÇD)]
- Member of European Council for Computing in Construction
- Member of the Administrative Board, The Moon Society, < <https://www.moonsociety.org/>>
- Member, Technical Committee on Space Engineering and Construction, Aerospace Division (ASD), American Society of Civil Engineers (ASCE)
- Founding member, TUSREC, Turkish Space Research Consortium
- Member, Academic Editorial Board, International Journal of Aerospace Engineering.

(\*): Not continuing or completed

## **SCHOLARSHIPS AND AWARDS**

- Won American Field Service (AFS) examination at high school
- Full Turkish Scientific and Technological Research Council (TUBITAK) scholarship for M.S. studies
- Full scholarship for the doctoral studies by TUBITAK
- Full Scholarship for the doctoral studies by French Government
- The "Tres honorable" degree in obtaining Ph.D. degree
- 8 incentive awards for scientific publications by TUBITAK
- Paper presented in ACE2002 has been chosen to be one of the best 20 papers and is reprinted in the journal ARI, Bulletin of Istanbul Technical University
- Listed in "Who's Who in Computational Science and Engineering 2005-2006, Saxe-Coburg Publications, 2006, ISBN 1-874672-18-0

## **SEMINARS, INVITED AND KEYNOTE SPEECHES**

- Congress Chair, ICCM 2026, 17TH INTERNATIONAL CONFERENCE ON COMPUTATIONAL METHODS, AUGUST 02-05, 2026, ISTANBUL  
<https://www.2025-iccm.com/>
- Invited Speech, "Research on lunar habitations performed in Türkiye", Turkish-Japan Workshop on Lunar Agriculture, Yaşar University, May 5, 2026, İzmir
- Speech. Workshop on BAP project No: 2025/04, "Dünya Dışından Getirilen Tüm Toprakların İleri Düzeyde Araştırmalara Temel Teşkil Etmek Üzere Benzerlerinin Dünyada Üretilmesi <Production of Simulants of all kinds of regoliths brought from space bodies for supporting advanced research>", Istanbul Aydın University, April 13, 2026, Istanbul
- Keynote Speech, 8th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry 2024, SEPTEMBER 6 TO 8, 2024 - ANTALYA, TURKIYE <<https://3dprintturkey.org/>>

- Keynote Speech, Global Meet on 3D Printing and Additive Manufacturing, GM3DPRINT2024, OCTOBER 01-03, 2024, ZURICH, SWITZERLAND <<https://www.primemeetings.org/2024/3dprinting-additive-manufacturing>>
- Seminar, "Use of cable-strut structures on space bodies", 2024 Lunar Development Conference (Online) The Moon Society, 20-21 July 2024 <[https://www.moonsociety.org/wp-content/uploads/2024/05/LDC2024-BookofAbstracts\\_prepublication-May27.pdf](https://www.moonsociety.org/wp-content/uploads/2024/05/LDC2024-BookofAbstracts_prepublication-May27.pdf)>
- Seminar, General overview on water existence in lunar regolith, Together with I. Bay and Y. Kaya, 2024 Lunar Development Conference (Online) The Moon Society, 20-21 July 2024 <[https://www.moonsociety.org/wp-content/uploads/2024/05/LDC2024-BookofAbstracts\\_prepublication-May27.pdf](https://www.moonsociety.org/wp-content/uploads/2024/05/LDC2024-BookofAbstracts_prepublication-May27.pdf)>
- Çalıştay, “Mesleğimizin Geleceği”, TMMOB İnşaat Mühendisleri Odası, İstanbul Şubesi, Mesleğimiz Ve Geleceğimiz Çalıştayı, 21 Ocak 2024 Pazar
- Seminar, "Uzay İnşaat Mühendisliği - En eski mühendislik dalının yeni dünyalarda uygulamaları", İnşaat Mühendisleri Odası, İstanbul Şubesi Karaköy Hizmet Binası Harun Karadeniz Konferans salonu, 14/12/2023 19:00
- Plenary Speaker, "Applications of Metaheuristic Methods in Engineering", CONFERENCE ON MATHEMATICS AND COMPUTERS IN SCIENCE AND ENGINEERING, Ierapetra Beach, Crete, Greece, August 25-27, 2023, <http://2023.macise.com/> CANCELED
- Invited Speaker, INTERNATIONAL MOON DAY CELEBRATION, ULUSLARARASI AY GÜNÜ, Aya ilk insanlı gidişin yıldönümü, 20 TEMMUZ 2023, İngilizce 16:00 Ben Smith, Türkçe 19:00 Cengiz Toklu, İsveççe 20:00 Niklas Jarvstrat, <https://www.linkedin.com/feed/update/urn:li:activity:7086086066931179520/>
- Keynote Speaker. Global Experts Meet on Civil, Architectural and Environmental Engineering (GEMCAE22), June 16-18, 2022, in Rome, Italy. İPTAL EDİLDİ, CANCELED <https://www.mscholarconferences.com/GEMCAEE2022/22/home.html>
- Plenary Speaker, "21th International Conference on Hybrid Intelligent Systems", 14-16/12/2021, <http://www.mirlabs.org/his21/speakers.php>
- Seminar. “Production of lunar soil simulant in Turkey”. Kadir Has University, Istanbul, 19.11.2021
- Invited Speaker. One-Week Online Faculty Development Program on “Emerging Optimization Techniques for Engineering Applications” (27th Sept. To 01st Oct, 2021) Rajarambapu Institute of Technology, Rajaramnagar
- Seminar. "Genie Civil sur la Lune et au dela" Association Franco-Turque d'Ingenieurs, Istanbul, 23.09.2021
- Invited Speaker at Space Days 4, Organized by the Aeronautics and Space Club of Gebze Technical University, 14-15 March 2020, Cayirova, Istanbul. *DELAYED DUE TO CORONA PANDEMIC*

- Keynote Speaker at 5th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry 2020, 04 - 06 June 2020, KHARKIV, UKRAINE. [<http://3dprintturkey.org/>](http://3dprintturkey.org/). *DELAYED DUE TO CORONA PANDEMIC*
- Keynote Speaker at “6th International Conference on Harmony Search, Soft Computing and Applications (ICHSA 2020), 22-24 April 2020, Istanbul, Turkey” [<https://ichsa.istanbulc.edu.tr/en/ >](https://ichsa.istanbulc.edu.tr/en/)
- Keynote speech. Congress chairman. “Space habitations, technical aspects and international cooperation”, 7<sup>th</sup> International Conference on Earth Science, Climate Change & Space Technology. Rome, Italy on May 22-23, 2019.
- Invited speaker. “Metaheuristic Algorithms and Structural Mechanics Problems”, 8th International Conference on ENGINEERING MECHANICS, STRUCTURES, ENGINEERING GEOLOGY (EMESG '15), Konya, Turkey, May 20-22, 2015.
- Seminar. “Applications of Meta-heuristic Algorithms to Civil Engineering Problems”, Illinois Institute of Technology, Chicago, IL, USA, Department of Civil, Architectural, and Environmental Engineering, 09.09.2014.
- Seminar. “Metaheuristic Algorithms and Engineering Applications” Bayburt University, Faculty of Engineering, 03.12.2012.
- Invited Speaker. Member of the Scientific Committee. “Increasing Role of Meta-heuristics in Solving Engineering Problems” Mathematics in architecture and civil engineering design and education, Pecs, Hungary, 26-28 May 2011  
[http://matep.pmmik.pte.hu/en/matep\\_Invited\\_speakers](http://matep.pmmik.pte.hu/en/matep_Invited_speakers)  
[http://matep.pmmik.pte.hu/data/2011/0301/820/abstract\\_YCToklu.pdf](http://matep.pmmik.pte.hu/data/2011/0301/820/abstract_YCToklu.pdf)
- Invited Speaker. “Aggregate Blending as a Multi-Objective Optimization Problem” Advanced Concrete, Aggregates and Asphalt Conference, Istanbul 08-09 March 2011
- Scientific and Technical Committee Member. “TERRESTRIAL BENEFITS OF RESEARCH ON EXTRATERRESTRIAL CONSTRUCTIONS” United Nations Committee of Peaceful Uses of Outer Space, 48th Meeting, 7-18 February 2011  
[http://www.tubitak.gov.tr/tubitak\\_content\\_files/spaceworkshop/presentations/Toklu.Cengiz.pdf](http://www.tubitak.gov.tr/tubitak_content_files/spaceworkshop/presentations/Toklu.Cengiz.pdf)
- Scientific and Technical Committee Member. “TERRESTRIAL BENEFITS OF RESEARCH ON EXTRATERRESTRIAL CONSTRUCTIONS” United Nations Committee of Peaceful Uses of Outer Space, 48th Meeting, 7-18 February 2011  
[http://www.tubitak.gov.tr/tubitak\\_content\\_files/spaceworkshop/presentations/Toklu.Cengiz.pdf](http://www.tubitak.gov.tr/tubitak_content_files/spaceworkshop/presentations/Toklu.Cengiz.pdf)
- Invited Speaker. “Applications of Metaheuristic Methods in Engineering”, Istituto Dalle Molle di Studi sull'Intelligenza Artificiale (IDSIA), Manno, Switzerland, 21 October 2010.
- “FROM GLOBALIZATION TO SPATIALIZATION” United Nations / Turkey / European Space Agency Workshop on Space Technology Applications for Socio-Economic Benefits

Hosted by The Scientific and Technological Research Council of Turkey (TUBITAK), 14-17 September 2010, Istanbul, Turkey

- Keynote Speech. “Increasing Role of Meta-heuristics in Solving Engineering Problems”, Sixth International PhD & DLA Symposium, University of Pécs, Pollack Mihály Faculty of Engineering, 2010,
- “A LOOK TO THE SOCIAL AND HISTORICAL ASPECTS OF SPACE RESEARCH” United Nations Committee of Peaceful Uses of Outer Space, Scientific and Technical Committee 47th Meeting, 8-19 February 2010, Vienna, Austria.  
<http://www.oosa.unvienna.org/pdf/pres/stsc2010/tech-03.pdf>  
DOI: 10.13140/2.1.3470.5927
- “TECHNICAL ASPECTS OF SPACE CONSTRUCTIONS AND BASES” United Nations Committee of Peaceful Uses of Outer Space, Scientific and Technical Committee 47th Meeting, 8-19 February 2010, Vienna, Austria.  
<http://www.oosa.unvienna.org/pdf/pres/stsc2010/tech-08.pdf>  
DOI: 10.13140/2.1.4781.3121
- Invited Speaker. “Optimization in Structural Analysis and Design”, IUPUI, Indiana University and Purdue University at Indianapolis, 5 May 2009
- Keynote Speech. “Solving structural systems by total potential optimization” Fourth International PhD & DLA Symposium, University of Pécs, Pollack Mihály Faculty of Engineering, 20 Oct 2008,
- Seminar. “Space Civil Engineering”, Cyprus International University, Northern Cyprus, April 15, 2005
- Seminar. “Metaheuristic Optimization Techniques with Engineering Applications”, Cyprus International University, Northern Cyprus, I – General Principles of Optimization, March 1, 2005; II – Metaheuristic Optimization Techniques, March 8, 2005; III – Engineering Applications, March 15, 2005.
- Invited Speaker. "Structural Analysis Through Energy Minimization", Rutgers University, New Jersey, USA, May 28, 2004
- Invited Speaker. "Structural Analysis Through Energy Minimization", Columbia University, New York, USA, May 27, 2004
- Seminar. "Yapıların geometri ve malzeme yönünden doğrusal olmayan davranışlarının incelenmesi için yeni bir yöntem (A New Method for the Analysis of Geometrically and Materially Nonlinear Structures) ", Istanbul Technical University, May 9, 2002
- Seminar. "A New Method in Computational Structural Analysis", Eastern Mediterranean University, Northern Cyprus, December 12, 2001
- Seminar. "Evolutionary Algorithms - Applications to Civil Engineering", Eastern Mediterranean University, Northern Cyprus, March 21, 2001 (together with Farzin Farsaliabad and Tolga Hatay)

- Seminar. "Race Against Earthquakes", Eastern Mediterranean University, Northern Cyprus, August 17, 2000
- Invited Speaker. "Design and Construction of Lunar Bases", Illinois Institute of Technology, Chicago, USA, March 3, 2000
- Seminar. "Catastrophic 1999 Earthquakes in Turkey", Eastern Mediterranean University, Northern Cyprus, December 8, 1999

## **COURSES OFFERED**

- Engineering Mechanics (1, METU, BSU)
- Statics (1, METU, EMU, BSU, IST)
- Strength of Materials (1, METU, EMU, ByU, OKAN, BeyU)
- Advanced Strength of Materials (1, EMU)
- Structural Systems (2, IYTE)
- Structural Analysis I (1, CIU, EMU, BŞEU)
- Structural Analysis II (1, CIU, BŞEU)
- Steel Structures (1, BeyU)
- Energy Methods in Structural Analysis (2, ByU, BŞEU)
- Reinforced Concrete (1, EMU, 7TU, OKAN)
- Design and Construction of Special Structures (2, EMU)
- Introduction to Earthquake Engineering (1, BŞEU)
- Retrofitting and Reinforcing Damaged Structures (2, BŞEU)
- Engineering Rheology (1, 2, 3, METU)
- Numerical Methods (with introduction to FORTRAN) (1, 2, METU)
- Numerical Methods for Civil Engineers (BŞEU 2)
- Mathematics for Engineers (1, METU)
- Mathematical Topics for Engineers (2, 3, EMU)
- Introduction to Computer Usage (1, EMU)
- Computer Applications (1, EMU)
- Computational Methods in Civil Engineering (2, EMU)
- Metaheuristic Applications in Engineering (1, 2, CIU)
- Advanced Optimization (2, BSU, IST)
- Optimization Techniques in Engineering (1,2, ByU, BŞEU)
- Evolutionary Algorithms (1, 2, 3, 7TU)
- Construction Management (1, DEU)
- Construction Management and Planning (1, CIU, ByU; 2, ByU)
- Project Management (3, BŞEU)
- Engineering Economy (1, EMU)
- Systems Engineering (2, 3, EMU)
- Introduction to Space Civil Engineering (1, EMU)
- Space and Humans (1, BSU)
- Space Bases and Structures, Design and Construction (2, ASTIN)
- Introduction to Civil Engineering (1, 7TU, ByU)

Notes: 1: Undergraduate, 2: Graduate, 3: Post graduate

ASTIN: Aeronautics and Space Technologies Institute, Istanbul, Turkey  
BŞEU: Bilecik Şeyh Edebali University  
BSU: Bahçeşehir University, İstanbul, Turkey  
ByU: Bayburt University, Bayburt, Turkey  
BeyU: Beykent University, Istanbul, Turkey  
CIU, Cyprus International University, Lefkosa, Northern Cyprus  
DEU: Dokuz Eylül University, Izmir, Turkey  
EMU: Eastern Mediterranean University, Gazimagusa, Northern Cyprus  
IST: Istanbul University, Istanbul, Turkey  
IYTE: Izmir Institute of Advanced Technologies, Izmir, Turkey  
METU: Middle East Technical University, Ankara, Turkey  
OKAN: Okan University, Istanbul, Turkey  
7TU: Yeditepe University, Istanbul, Turkey

## **CONGRESSES ORGANIZED**

Session Organizer (together with Pezhman Mardanpour) “Inflatable and Deployable Structures: Habitable Applications for Space and Planetary Environments” ASCE Earth & Space Conference 2024, April 15-18, 2024, Miami, Florida, USA; <https://earthspace2024.fiu.edu>

Bilim ve Danışma Kurulu Üyesi, Oturum Başkanı <Scientific Committee Member, Session Chair>, Mühendislikte Bilgisayar Uygulamaları ve Teknolojik Gelişmeler Sempozyumu <Computer Applications in Engineering and Technological Advances Symposium>, TGS, 22-23 Aralık 2023, Ankara, Türkiye, <http://tgs.imo.org.tr/>

Scientific Committee Member. Session Chairman. 7th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry 2023, October 25 to 27, 2023 - Istanbul, Türkiye, <https://3dprintturkey.org/>

Organizer (together with G. Bekdaş and S. M. Niğdeli) of the research topic “Metaheuristics, Artificial Intelligence and Numerical Approaches in Structural Mechanics”, 2022, through Frontiers.org. < <https://www.frontiersin.org/research-topics/19457/metaheuristics-artificial-intelligence-and-numerical-approaches-in-structural-mechanics>>

Scientific Committee Member, 1st. Int. Congress on Artificial Intelligence and Data Science ICADA2021, 26-28 November 2021, Izmir, Turkey. <https://icada2021.com/bilimsel-kurul>

Organizer (together with G. Bekdaş and S. M. Niğdeli) of the mini symposium “Metaheuristics and Numerical Analysis in Engineering” within “19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM 2021), Rhodes, Greece, 20-26 September 2021” <<http://icnaam.org/>> <[http://icnaam.org/sessions\\_minisymposia.htm](http://icnaam.org/sessions_minisymposia.htm)>

Member of the Executive Board. 5th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry 2020. 04 - 06 JUNE 2020, KHARKIV, UKRAINE. <<http://3dprintturkey.org/>>. *CANCELED DUE TO CORONA PANDEMIC*

Scientific Committee Member. “6th International Conference on Harmony Search, Soft Computing and Applications (ICHSA 2020), 22-24 April 2020, Istanbul, Turkey” <https://ichsa.istanbulc.edu.tr/en/> .

Scientific Committee Member, ICADET 2019, 3rd International Conference on Advanced Engineering Technologies. 19-21 September 2019, Bayburt, Turkey, <http://www.icadet.org/w/>

Scientific Committee Member, Chair in 2 Sessions: Aerospace Structures-1, and Aerospace Structures-2. RAST2019. 9th International Conference on Recent Advances in Space Technologies, "Space for the Sustainable Development Goals", Istanbul, Turkey on 11-14 June 2019, <http://www.rast.org.tr/>

Chairman of the 7th International Conference on Earth Science, Climate Change & Space Technology. Rome, Italy on May 22-23, 2019.

Member of the Executive Committee, Member of the Scientific Committee; 4th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry 2019. 11-14 April 2019, Antalya, TR, <http://3dprintturkey.org/>

Organizer of the special session "Applications of bioinspired optimization methods to civil engineering problems" and Member of the Program Committee. 8th International Conference on Bioinspired Methods and Their Applications (BIOMA 2018) May 16-18, 2018, Paris, France <https://bioma2018.sciencesconf.org/>

Coorganizer of the mini symposium "Metaheuristic and Numerical Analysis in Engineering", in 15TH INTERNATIONAL CONFERENCE OF NUMERICAL ANALYSIS AND APPLIED MATHEMATICS (ICNAAM 2017), 25-30 September 2017, Thessaloniki, Greece, <http://icnaam.org/>

Scientific Committee Member, 4. Proje ve Yapım Yönetimi Kongresi PYYK 2016 [4th Congress on Project and Construction Management], 3 – 5 Kasım [November] 2016, Anadolu Üniversitesi / ESKİŞEHİR, <http://pyyk2016.anadolu.edu.tr/>

Scientific Committee Member, 4th International Symposium On Innovative Technologies in Engineering and Science (ISITES2016), University of Pécs, Hungary, 1-3 Sept 2016, <http://isites.info/>

Director of the mini-symposium: "MS-035 Application of metaheuristic algorithms to structural design and analysis", The 7th International Conference on Computational Methods (ICCM2016). Aug. 1-4, 2016, Berkeley, California, U.S.A.,

Scientific Committee Member, The 7th International Conference on Computational Methods (ICCM2016), Aug. 1-4, 2016, Berkeley, California, U.S.A.,

Scientific Committee Member, Tarihte ve günümüzde Bilecik ve çevresi - Uluslararası Sempozyum [International Symposium on Bilecik and surroundings, historically and currently], 20-21 Kasım [November] 2015, Bilecik, Turkey

Scientific Committee Member, 8th International Symposium on Steel Bridges: Innovation & New Challenges 2015 (SBIC-2015), 14-16 September 2015, Istanbul

International Scientific Committee Member, 6th International Conference on Computational Methods (ICCM2015), 14-17 July 2015, Auckland, New Zealand

Scientific Committee Member, RAST2015. 7th International Conference on Recent Advances in Space Technologies, Istanbul, Turkey on 16-19 June 2015

Scientific Committee Member, 3. Proje ve Yapım Yönetimi Kongresi, PYYK 2014 [3rd Congress on Project and Construction Management], 6 – 8 Kasım [November] 2014, Akdeniz Üniversitesi / ANTALYA

International Organization Committee Member, 5th International Conference on Computational Methods (ICCM2014), 28th-30th July 2014, Cambridge, England

Coordinator, “15th EU/ME (the european metaheuristics community) Workshop: Metaheuristics and Engineering, 24-25 March 2014, Istanbul, Turkey. <http://mh.bilecik.edu.tr/>

Co-organizer, “2nd Symposium on Metaheuristic and Numerical Analysis / Engineering Applications”, ICNAAM 2013, 21-27 September 2013, Rodos Palace Hotel, Rhodes, Greece

Co-Chair, 2nd UMKE (National Medical Life Saving Organization) Disaster Symposium, 27 February – 1 March 2013, Istanbul Governor, Istanbul

Scientific Co-Chair, WORLD FORUM – INTERNATIONAL CONGRESS “NATURAL CATAclysms AND GLOBAL PROBLEMS OF THE MODERN CIVILIZATION” - GEOcataclysm-2011 19-21 September 2011, Istanbul, Turkey

Co-Chair, 1st UMKE (National Medical Life Saving Organization) Disaster Symposium, Yeditepe University, 8 - 9 November 2010, Istanbul

10. Ulaştırma Şurası Karayolları Altyapı Çalıştay Üyesi, Ulaştırma Bakanlığı, Ankara, Türkiye, 27 Eylül – 1 Ekim 2009

Organization Committee; “4th International Conference on Recent Advances in Space Technologies - Space for Developing World”, RAST 2009, 14-16 June 2009, Istanbul, Turkey

Member, Scientific Advisory Council, 5th World Water Forum, Dünya Su Konseyi. 16-22 Mart 2009, Istanbul, Türkiye.

Organization Committee; “3rd International Conference on Recent Advances in Space Technologies - Space for a More Secure World”, RAST 2007, 14-16 June 2007, Istanbul, Turkey

Distinguished Advisory Committee; Rutgers Symposium on Lunar Settlements, 3-8 June 2007, New Brunswick, New Jersey, USA.

Chair person; eduCEE’06 International Workshop on Reform in Civil and Environmental Education, 4-7 October 2006, Bahcesehir University, Istanbul, Turkey

Organization Committee; Aeronautics and Space Education Workshop, ASEW2006, 22-24 June 2006, Istanbul, Turkey

Dr. Toklu was a member of the continuous advising committee of the series of International Congress on Advances in Civil Engineering (2000 – 2004).

ACE2000, 4th International Congress on Advances in Civil Engineering is chaired by Dr. Toklu.

## **SEMINARS ORGANIZED**

Seminars organized by Dr. Toklu at Science Center, Fulya, Istanbul, as the chairman of the Scientific Council of the Turkish Foundation of Science Centers.

27.03.2010 / Ersin Göğüş / Şişli'den Evrenin Derinliklerine Bakış <Looking into the depths of the universe from Şişli>

17.04.2010 / Gülden Yılmaz / Grip etkeni influenza virusları, salgınları ve korunmada alınacak önlemler <Influenza viruses, outbreaks and precautions against>

08.05.2010 / Metin Tulgar / Beyin pilleri ve tıptaki uygulamaları <Neuroimplants and their use in medicine>

09.10.2010 / Fikrettin Şahin / Genetik Yapısı Değiştirilmiş Organizma ve Gıdaların İnsan ve Çevre Sağlığı Üzerine Etkileri <Effects of genetically modified organisms and foods on human health and environment>

27.11.2010 / Fuat İnce / Öteki Uzay: Teknoloji Ve Politika <The other space: Technology and politics>

18.12.2010 / Ömür Akyüz / Rölativite, İzafiyet, Görelilik Ne Demektir? <The meaning of relativity>

15.01.2011 / Mustafa Özilgen / Endüstrileşme sürecinde bilgi birikiminin önemi <Importance of knowledge accumulation on the process of industrialization>

26.03.2011 / Fahir Borak / Nükleer Teknoloji : Nedir ve Ne Kadar Güvenliklidir? <Nuclear technology: What it is, and how safe it is>

30.04.2011 / Gülay Altay / Yeni Teknolojiler ve Mühendislikte Etik <New technologies and engineering ethics>

22.10.2011 / Ahmet Ercan / Türkiye'nin Yeraltı Kaynakları <Underground resources of Turkey>

26.11.2011 / Nesrin Yardımcı / Dünyada ve Türkiye'de Çelik Yapılar <Steel structures in Turkey and in the World>

17.12.2011 / Erhan Karaesmen / Sosyo-teknik Bir Olay Olarak Deprem <Earthquake as a socio-technological phenomenon>

17.03.2012 / Ali Nezihi Bilge / Nükleer Tekniklerin Endüstriye Uygulanması <Industrial applications of nuclear techniques>

14.04.2012 / Cengiz Toklu / Uzay Yapıları, Tasarım ve Yapımları <Structures in space, their design and construction>

06.10.2012 / Ahmet Samsunlu / Şehir – Çevre - Yaşam <Town - environment - life>

17.11.2012 / Şükrü Karataş / Yüksek Basınçla Gıdaların Sterilizasyonu <Sterilization of foods under hyperpressure>

08.12.2012 / Veysi Erkan Özcan / CERN ve Higgs'in 25 Asırlık Hikayesi <25-century-long history of CERN and Higgs>

19.01.2013 / Arsev Eraslan / Sayısal Bilim – Özgün Teknoloji Uygulamaları <Numerical science - Original applications of technology>

## **JOURNAL REFEREE DUTIES, EDITORSHIP**

- Guest editor to the Shock and Vibration journal (ISSN 1070-9622) for special issue "Novel time integration algorithms applied to structural dynamics nonlinear problems" together with professors Marcelo Greco (Brasil) and Jie Zhang (China).
- Member of the Editorial Board. Journal of Research in Science, Engineering and Technology
- Havacılık ve Uzay Teknolojileri Dergisi [Journal of Aeronautics and Space Technologies], Member of Editorial Board, Turkey
- The Open Construction & Building Technology Journal, Bentham Journals, Editorial Advisory Board
- Frontiers in Built Environment, Frontiers Media/News/Publishing, Member of Editorial Board
- Frontiers in Built Environment, Frontiers Media/News/Publishing, Editorship for the Research Topic: "Metaheuristics, Artificial Intelligence and Numerical Approaches in Structural Mechanics" <https://www.frontiersin.org/research-topics/19457/metaheuristics-artificial-intelligence-and-numerical-approaches-in-structural-mechanics>
- Challenge Journal of Structural Mechanics, Tulpar Academic Publishing, Member of Editorial Board,
- Journal of Non-Crystalline Solids, Editorial Manager
- Journal of Scheduling (Elsevier)
- Ocean Engineering (Elsevier)
- Computers & Structures (Elsevier)
- Computer-Aided Civil and Infrastructure Engineering (Blackwell)
- Teknik Dergi (Turkish Chamber of Civil Engineers)
- Journal of Structural Engineering (ASCE)
- Journal of Computing in Civil Engineering (ASCE)
- Journal of Architectural Engineering (ASCE)
- Scientia Iranica (Sharif University of Technology)
- Pamukkale University Journal of Engineering Sciences (TR)
- Asian Journal of Civil Engineering (Building and Housing) (Iran)
- Structural Engineering and Mechanics, Techno Press, South Korea
- Neural Computing and Applications (NCAA), Springer
- Turkish Journal Of Electrical Engineering & Computer Sciences, TUBITAK, Turkey
- KSCE Journal of Civil Engineering, Springer
- Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Dergisi

## PROJECTS

### International

Dr. Toklu was the leader of the workpackage “Construction” in the proposal “Towards the Ultimate Self-Sustainable Society: Manufacture System Design for In-Situ Resource Utilization in a Moon Colony (Moon-ISRU)” submitted to European Union 6<sup>th</sup> Framework Programme.

- Participants: 30 units from Europe Union, 9 units from US, 4 units from Canada, 1 unit from Japan, units being universities, research centers, national and international companies.
- Workpackages: 1) Production management and structuring, 2) Mining and processing, 3) Manufacture, 4) System integration, 5) Construction, 6) Software and simulations, 7) Dissemination and training, 8) Management.
- Total cost: 6 million €.

### National



Investigator/Expert in the TÜBİTAK 1001 project: Development of Construction Materials for the Lunar Environment: Performance of Lunar Regolith Simulant-Based Geopolymer Concrete under Vacuum-Thermal Cycling and Radiation Exposure (Ay Koşulları için Yapı Malzemesi Üretimi: Ay Regoliti Simülantı Esaslı Jeopolimer Betonun Vakum-Termal Döngü ve Radyasyon Ortamlarında Performansı). Project will be conducted in “Middle East Technical University, The Research and Application Center for Space and Accelerator Technologies (Orta Doğu Teknik Üniversitesi Uzay ve Hızlandırıcı Teknolojiler Uygulama ve Araştırma Merkezi (ODTÜ İVMER)). Budget: 2.395.500,00TL / 58,915 USD. Duration 24 months. Sept 2025 – Sept 2027

Principal Investigator of the project: “Dünya dışından getirilen tüm toprakların ileri düzeyde araştırmalara temel teşkil etmek üzere benzerlerinin dünyada üretilmesi” İstanbul Aydın University BAP Project, 100000TL, 12.02.2025 - Continuing

Principal Investigator of the project: “Enerji Enküçükleme Sonlu Elemanlar Yöntemi (EESEY) ile Yapı Analizinde Yeni Gelişmeler <Recent advances in structural analysis through finite element method with energy minimization (FEMO) Beykent University 2021-22-BAP-01, 266000 TL, 31.03.2022 – 31.03.2024> *Completed*

Principal Investigator of the project: “Türkiye Coğrafyasının Çeşitli Bölgelerinden Alınan Örneklerle Ay Toprağı Benzerinin Üretilmesi <Production of lunar soil simulant using soil samples taken from different regions in Turkey >” Beykent University 2018-19-BAP-01, 39688 TL, 01.04.2019 – 01.10.2021 *Completed*

Principal Investigator of the project “Research and production of Lunar Soil Simulant in Turkey”. *Bilecik Şeyh Edebali University, BAP 2015-01. BŞEÜ.03-09, 6373,97 TL. 10/11/2015-10/11/2016 Completed*

Investigator of the project: “Üç boyutlu kafes sistemlerin enerji prensipleri kullanılarak, geometri ve malzeme açısından doğrusal olmayan analizi <Geometrical and material nonlinear analysis of 3 dimensional trusses using energy principles >” Istanbul University BYP-2016-20565, 8.598,00 TL, 10.08.2018 – 10.08.2019 *Completed*

Investigator of the project: “Deprem Etkileri Altındaki Betonarme Konsol İstinat Duvarlarının En Düşük Maliyetli Tasarımı <Cost minimization of the design of reinforced concrete cantilever retaining walls under earthquake effect>” Istanbul University BYP-2018-31208, 8.598,00 TL, 12.09.2018 – 12.09.2019. *Completed*

## **HOBBIES, EXTRA-TECHNICAL ACTIVITIES AND MEDIA**

Reading,  
writing,  
driving,  
traveling,

space sciences (probably the first rocket maker and launcher in Turkey, 1960),  
mountaineering (climbed Hasan Dağ, Erciyes, Nemrut, Aladağ (\*)),  
playing football (played against Paris Saint-Germain winning a penalty (\*)).

(\*) Long time ago, of course.

Yeditepe University <https://www.dailymotion.com/video/xdve0a>  
Lunar Soil Simulant <https://247newsbulletin.com/technology/161496.html>  
Lunar Soil Simulant (tele 1) <https://youtu.be/dgcD3ELZNo4>  
Kessler syndrome <https://www.ih.com.tr/istanbul-haberleri/prof-toklu-135-milyona-yakin-uzay-copu-dunya-etrafinda-dolaniyor-42217909>  
Kessler syndrome Prof. Toklu - 135 milyona yakın uzay çöpi dünya etrafında dolanıyor - İhlas Haber Ajansı (2023-11-10 13\_32\_21.591).html  
Kessler syndrome <https://www.beykent.edu.tr/haberler/detay/2023/11/10/prof-toklu-135-milyona-yakin-uzay-copu-dunya-etrafinda-dolaniyor>

Moon Society talk <https://www.youtube.com/watch?v=Y5TceWBYyjY>

Seminar on Space Civil Engineering <https://www.youtube.com/watch?v=QLOcMmQYXBw>

Uzay yerleşkeleri (tele 1) <https://www.youtube.com/watch?v=ZUujXp1aHkA&t=2s>

## **RESEARCH SUBJECTS**

(With some exemplary publications)

- Space civil engineering (Production of lunar soil simulant in Turkey; Lunar concrete; space construction industry.

\*\*\*Toklu, Y. C., Akpınar, P. (2019). Lunar Soil Simulants– An Assessment. 9th International Conference on Recent Advances in Space Technologies “Space for the Sustainable Development Goals”, RAST 2019, 11-14 June 2019, İstanbul, Türkiye.

- Construction management (Scheduling; A new approach in scheduling computations based on start dates of activities, not their order; Novel relations between activities)

\*\*\*TOKLU, Y. C. (2002) "Application of Genetic Algorithms to Construction Scheduling With or Without Resource Constraints" Can. J. Civ. Eng./Rev. Can.Génie Civ. 29(3): 421-429) [SCIE]

- 3D printing in construction industry (Determination of materials to be used, Optimization in 3D applications)

\*\*\*Toklu, Y.C, Bekdaş, G., Geem, Z.W. (2020) Harmony Search Optimization of Nozzle Movement for Additive Manufacturing of Concrete Structures and Concrete Elements. Applied Sciences. 10(12), 4413 [SCIE] doi: 10.3390/app10124413

- Optimization in engineering and sciences (Highway design; Structural design and original applications in analysis; Multimodal optimization; Various applications of metaheuristic algorithms)

\*\*\*Bekdas, G., Kayabekir, A. E., Niğdeli, S. M., Toklu, Y. C. (2019). Advanced Energy Based Analyses of Trusses employing Hybrid Metaheuristics. The Structural Design of Tall and Special Buildings. 28(9) e1609 [SCIE] DOI: 10.1002/tal.1609 <http://dx.doi.org/10.1002/tal.1609> WOS:000468788000005

- Engineering mechanics (New approaches to nonlinear behavior of plates; FEMEM – Finite Element Method with Energy Minimization – originally forwarded as Total Potential Optimization using Metaheuristic Algorithms – TPO/MAs)

\*\*\*TOKLU, Y.C., "Nonlinear Analysis of Trusses Through Energy Minimization", Computers and Structures, Vol. 82, August 2004, pp.1581-1589. [SCI]

- AI in Civil Engineering (A general look from conception to design, analysis, site organization, procurements, finance, scheduling, construction, ... to maintenance with full automatization, robotics in Civil Engineering)

\*\*\*Toklu, Y.C, Bekdaş, G., Geem, Z.W. (2020) Harmony Search Optimization of Nozzle Movement for Additive Manufacturing of Concrete Structures and Concrete Elements. Applied Sciences. 10(12), 4413 [SCIE] doi: 10.3390/app10124413

- Smart structures (Structures changing their shapes in accordance with the applied loads)

\*\*\*Toklu, Y. C., Arditi, D. (2014). Smart trusses for space applications. 14th ASCE International Conference on Engineering, Science, Construction and Operations in Challenging Environments, Earth and Space 2014,"Engineering for Extreme Environments". October 27-29, 2014, St. Louis, Missouri, USA

- Universities, improving engineering education.

\*\*\*Toklu, Y. C. (2011) "21. yüzyıl ortaları için inşaat mühendisi yetiştirmek [Educating civil engineers for mid 21st century]" İnşaat Mühendisliği Eğitimi 2. Sempozyumu 23-24 Eylül 2011 Muğla, Bildiriler Kitabı, Sinan Altın (ed.), TMMOB İnşaat Mühendisleri Odası, pp. 225-231

## **PUBLICATIONS**

### **Peer reviewed journal papers, in (SCI / SCIE) indexed journals**

Toklu, Y.C., Kaya, Y. (June 2026) "FEMEM - Finite element method with energy minimization in structural analysis, state-of-the-art" *Challenge Journal of Structural Mechanics*, vol.12 no.2. *To be published*

Unsalan,O., Toklu,Y.C., Altunayar-Unsalan, C., Calis Acikbas, N., Acikbas, G., Cercevik, A.E. (2024) "Micro-Raman and FTIR spectroscopic characterization of the first Turkish lunar regolith simulant". *Astrophysics and Space Science*, 369:121. <https://doi.org/10.1007/s10509-024-04383-7>

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