

## Lect. PhD ÇAĞRI YILMAZ

### Personal Information

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### International Researcher IDs

ScholarID: nBQDb1gAAAAJ

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Publons / Web Of Science ResearcherID: I-7047-2017

ScopusID: 57226302299

Yoksis Researcher ID: 246319

### Education Information

Doctorate, Akdeniz University, Faculty Of Engineering, Department of Mechanical Engineering, Turkey 2016 - 2022

Postgraduate, Universitaet Duisburg Essen, Faculty of Engineering, Makine Mühendisliği, Germany 2008 - 2010

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Mechanical Engineering, Turkey 2002 - 2007

### Biography

I received my undergraduate degree in Mechanical Engineering from Middle East Technical University (METU) in 2007 with a high honor certificate. In the last year of my undergraduate education, I worked as a student assistant in the modeling simulation department at TÜBİTAK-SAGE in Ankara. I completed my master's degree in Mechanical Engineering at Duisburg-Essen University in Germany in 2010. I worked for a while in the "Intellisipline" project at the mechanic department during my master's degree. Afterward, I worked in the manufacturing department as an intern at ThyssenKrupp MillServices & Systems in Duisburg. I completed my master's thesis named "Adaptation of T-Data data management software package to Microsoft .Net Framework Technology" in 2010 in Trützchler Spinning firm in Mönchengladbach, Germany, under the T-Data project. Later, I worked as a research assistant in the Distributed Artificial Intelligence Laboratory (Dai-Labor) of the Technical University of Berlin between 2011-2014. I worked on robot systems and smart grids at Dai-Labor. I have been working as a lecturer in the Mechatronics Department of Akdeniz University Vocational School of Technical Sciences since February 2016. I completed my doctoral study in the field of Acoustics and Vibration at Akdeniz University Mechanical Engineering Department in May 2022. My doctoral thesis is about the investigation on acoustic force sensitivity using the theory of Multi-Frequency Atomic Force Microscopy (MF-AFM). Nowadays, I have been conducting theoretical studies on measurement of acoustic forces and tip-sample interaction forces using AFM.

### Foreign Languages

English, C1 Advanced

German, B1 Intermediate

## Certificates, Courses and Trainings

Vocational Course, IOP Publishing Peer Review Certificate , IOP Publishing , 2024

Vocational Training, D1 Temel Bina Akustiği Uzmanlığı , TMMOB Fizik Mühendisleri Odası , 2023

IT, Certificate of Participation, Seminar on ICT Policies and Future Trends in Networking, Distributed Artificial Intelligence Laboratory, Technische Universtaet Berlin, 2013

IT, Certificate of Participation, Seminar on ICT Policies, Trends and Challenges, Distributed Artificial Intelligence Laboratory, Technische Universitaet Berlin, 2013

Education Management and Planning, Yüksek Onur Belgesi, ODTÜ Makine Mühendisliği, 2007

Education Management and Planning, Eğitim Programı, TAI - Tusaş Havacılık ve Uzay Sanayii A.Ş., 2006

Education Management and Planning, Eğitim Programı, Türk Traktör, 2005

## Dissertations

Doctorate, Çoklu Frekanslı Atomik Kuvvet Mikroskopi Teorisinin Akustik Kuvvetin Hassas Ölçümü için Uygulanması, Akdeniz University, Faculty Of Engineering, Department of Mechanical Engineering, 2022

Postgraduate, T-Data data yönetim yazılım paketinin Microsoft .Net Framework Teknolojisine uyarlanması, Universitaet Duisburg Essen, Makine Mühendisliği, Mekatronik, 2010

## Research Areas

Acoustics and Noise Control, Modeling and Simulation of Dynamic Systems, Mechanical Vibrations, Differential Equations

## Academic Titles / Tasks

Lecturer PhD, Akdeniz University, Technical Sciences Vocational School, Department of Electronics and Automation, 2022 - Continues

Lecturer, Akdeniz University, Technical Sciences Vocational School, Department of Electronics and Automation, 2016 - 2022

Research Assistant, Technische Universitaet Berlin, Distributed Artificial Intelligence Laboratory (Dai-Labor), Agent Core Technologies, Distributed Artificial Intelligence Laboratory (Dai-Labor) Mekatronik, 2011 - 2014

## Courses

### Undergraduate

Mekanizma Tekniği, Undergraduate, 2024 - 2025

Makine Dinamiği , Undergraduate, 2023 - 2024

Dinamik, Undergraduate, 2023 - 2024

Mekanizma Tekniği , Undergraduate, 2023 - 2024

### Associate Degree

Bilgisayar Destekli Çizim II, Associate Degree, 2023 - 2024

Mekatroniğin Temelleri, Associate Degree, 2024 - 2025

Endüstriyel Robotlar, Associate Degree, 2023 - 2024

Makine Elemanları , Associate Degree, 2023 - 2024

Temel İmalat İşlemleri, Associate Degree, 2023 - 2024

Malzeme Teknolojisi, Associate Degree, 2024 - 2025  
Bilgisayar Destekli Çizim I , Associate Degree, 2023 - 2024  
CNC Teknolojisi, Associate Degree, 2024 - 2025  
Bilgisayar Destekli Üretim , Associate Degree, 2023 - 2024  
Sistem Analizi ve Tasarımı I, Associate Degree, 2024 - 2025  
Bilgisayar Destekli Çizim I , Associate Degree, 2024 - 2025  
Sistem Analizi ve Tasarımı I , Associate Degree, 2023 - 2024  
Bilgisayar Donanımı, Associate Degree, 2023 - 2024  
Mesleki Bilgi Teknolojileri, Associate Degree, 2023 - 2024  
Bilgisayar Destekli Çizim I, Associate Degree, 2023 - 2024  
CNC Teknolojisi, Associate Degree, 2023 - 2024  
Endüstriyel Robotlar, Associate Degree, 2022 - 2023  
Kalite Güvence ve Standartlar, Associate Degree, 2022 - 2023  
Kalite Güvence ve Standartları, Associate Degree, 2018 - 2019  
Sistem Analizi ve Tasarımı II, Associate Degree, 2018 - 2019

## Supervised Theses

Koçyiğit F. B., Yılmaz Ç., Kentsel ısı ve gürültü adası kapsamında kaplamalı yapı kabuğu yüzeylerinin performanslarının incelenmesi, Doctorate, M.Sarul(Student), Continues

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

- I. **Utilizing a Forced Van der Pol-Rayleigh-Helmholtz Oscillator under Heptamodal-frequency Operations in Casimir Force Measurement**  
Yılmaz Ç.  
INDIAN JOURNAL OF PHYSICS, vol.99, no.3, pp.1077-1089, 2025 (SCI-Expanded)
- II. **Theoretical and experimental approaches for fluidic AFM operations and rheological measurements using micro-cantilevers**  
Yılmaz Ç.  
JOURNAL OF THE BRAZILIAN SOCIETY OF MECHANICAL SCIENCES AND ENGINEERING, vol.46, no.398, pp.1-26, 2024 (SCI-Expanded)
- III. **Observable responses of micro-cantilever array to dynamic acoustic forces at higher mode in the broadband frequency window**  
Yılmaz Ç., Sahin R., Topal E. S.  
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS, PART E: JOURNAL OF PROCESS MECHANICAL ENGINEERING, vol.238, no.6, pp.2568-2576, 2022 (SCI-Expanded)
- IV. **Exploring the static acoustic force sensitivity using AFM micro-cantilever under single- and bimodal-frequency excitation**  
YILMAZ Ç., ŞAHİN R., TOPAL E. S.  
MEASUREMENT SCIENCE AND TECHNOLOGY, vol.32, no.11, 2021 (SCI-Expanded)

## Articles Published in Other Journals

- I. **A multi-modal nonlinear dynamic model to investigate time-domain responses of a micro-cantilever in fluids**  
Yılmaz Ç.  
Engineering Research Express, vol.6, no.2, pp.1-14, 2024 (ESCI)

- II. **Virial and Energy Dissipation in Measurement of Dynamic Acoustic Forces Using Bimodal-frequency Excitation of Micro-cantilever Array**  
Yilmaz C., Topal E. S.  
Academic Perspective Procedia , vol.4, no.1, pp.332-340, 2021 (Conference Book)
- III. **Theoretical study on the sensitivity of dynamic acoustic force measurement through monomodal and bimodal excitations of rectangular micro-cantilever**  
Yilmaz Ç., Şahin R., Topal E. S.  
ENGINEERING RESEARCH EXPRESS, vol.3, no.4, 2021 (ESCI)
- IV. **Amplitude Responses at Flexural Eigenmodes in Dynamic Acoustic Force Measurement Using Multimodal Excitation Schemes**  
YILMAZ Ç., TOPAL E. S.  
European Journal of Science and Technology, no.28, pp.120-125, 2021 (Peer-Reviewed Journal)

## Books

- I. **A Numerical Analysis of Single-Frequency Responses of the Resonant Micro-Cantilever to Dynamic Acoustic Forces Based on the Forced Van Der Pol-Rayleigh-Mathieu Oscillator**  
Yilmaz Ç.  
in: Acoustical Engineering - The Intricate World of Sound Technology, Jiangyi Zhang, Editor, IntechOpen, London, pp.1-16, 2025

## Papers Published in Refereed Scientific Meetings

- I. **Natural Solutions to Combat Urban Heat and Noise Islands: Investigation of Earth-Sheltered Buildings, Green Roofs and Urban Plantations (Accepted)**  
Sarul M., Bal Koçyiğit F., Yilmaz Ç.  
8th International Conference of Contemporary Affairs in Architecture and Urbanism, Antalya, Turkey, 8 - 09 May 2025, pp.1
- II. **An investigation on in-fluid AFM techniques for characterization of soft samples**  
Yilmaz Ç.  
7th Edition of Advanced Materials Science World Congress, London, England, 24 - 25 March 2025, pp.1
- III. **Coated building envelope materials in the context of urban heat and noise islands**  
Sarul M., Koçyiğit F. B., Yilmaz Ç.  
14. International Congress on Engineering, Architecture and Design, İstanbul, Turkey, 28 - 29 December 2024, pp.1
- IV. **An investigation on coated building envelope forms considering the effects of urban heat and noise islands**  
Sarul M., Koçyiğit F. B., Yilmaz Ç.  
10. International Congress on Architecture and Design, İstanbul, Turkey, 23 - 24 November 2024, pp.1
- V. **Performance comparisons of different numerical methods for obtaining out-of-plane deflections of a resonant AFM micro-cantilever under acoustic emissions**  
Yilmaz Ç.  
1st IFToMM Young Faculty Group Symposium on Emerging Fields in Mechanism and Machine Science, Duisburg, Germany, 19 - 21 November 2024, pp.1-2
- VI. **Mathieu-type nonlinear responses of the resonantly excited micro-cantilever to viscous loads for varying elastic stiffness and quality factors**  
Yilmaz Ç.  
Global Summit on Advanced Materials Science and Nanotechnology, Dubai, United Arab Emirates, 22 - 23 November 2024, pp.1
- VII. **Considering the tip radius effect in investigation of observable sensitivity to Van der Waals force**

**under heptamodal-frequency excitation**

Yılmaz Ç.

The Fourth Global Conference on Advanced Nanotechnology and Nanomaterials , Barcelona, Spain, 19 - 20 September 2024, vol.1, no.1, pp.1

- VIII. **Energy harvesting methods using vibrating piezoelectric structures subject to acoustic emissions**  
Yılmaz Ç.  
Annual International Congress on Renewable Energy, Oxford, England, 3 - 05 September 2024, pp.1
- IX. **Exploiting a Multifrequency Duffing-Mathieu Oscillator to Explore the Effect of Driving Force Strength on Hydrodynamic Sensitivity of a Micro-cantilever**  
Yılmaz Ç.  
The Third International Conference on Applied Mathematics in Engineering (ICAME'24), Balıkesir, Turkey, 26 - 28 June 2024, pp.1
- X. **Observing the Static Responses of the Carbon Nanotube under Electrostatic Forces based on the Forced Rayleigh-Lienard Oscillator**  
Yılmaz Ç.  
13th International Congress On Engineering, Architecture And Design, İstanbul, Turkey, 8 - 09 June 2024, pp.1
- XI. **Implementation of a Forced Helmholtz-Duffing Oscillator to Monitor Energy Dissipation Process under Van Der Waals Forces**  
Yılmaz Ç.  
VI. International Conference On Natural Sciences and Technologies, Antalya, Turkey, 30 May - 01 June 2024, pp.1
- XII. **A nonlinear analysis of rotating micro-cantilever dynamics based on Van der Pol-Rayleigh-Duffing oscillator considering Coriolis effect**  
Yılmaz Ç.  
The Fifth International Engineering Research Symposium, Düzce, Turkey, 7 - 09 March 2024, pp.1
- XIII. **A Laplace transformation-based analytical approach to investigate dynamic acoustic force sensitivity by utilizing resonant micro-cantilevers in monomodal and bimodal operations.**  
Yılmaz Ç.  
10th International Conference On Computational And Experimental Science And Engineering (ICCESEN-2023), Antalya, Turkey, 27 - 30 October 2023, pp.1
- XIV. **Utilizing a forced Van der Pol-Rayleigh-Helmholtz oscillator under heptamodal-frequency operations in casimir force measurement**  
Yılmaz Ç.  
10th International Conference On Computational And Experimental Science And Engineering (ICCESEN-2023), Antalya, Turkey, 27 - 30 October 2023, pp.1
- XV. **Investigating the time-domain sensitivities to nonlinear hydrodynamic interactions of a resonant micro-cantilever with glycerol-water solutions in multi-frequency operations**  
Yılmaz Ç.  
9th IFS and Contemporary Mathematics and Engineering Conference, Mersin, Turkey, 8 - 11 July 2023, pp.1-4
- XVI. **Observable responses of micro-cantilever array to dynamic acoustic forces at higher mode in the broadband frequency window**  
Yılmaz Ç., Şahin R., Topal E. S.  
Fourth International Engineering Research Symposium (INERS'22), Düzce, Turkey, 4 - 06 March 2022, pp.60
- XVII. **Amplitude Responses at Flexural Eigenmodes in Dynamic Acoustic Force Measurement Using Multimodal Excitation Schemes**  
Yılmaz Ç., Topal E. S.  
1 st International Conference on Applied Engineering and Natural Sciences (ICAENS2021), Konya, Turkey, 1 - 03 November 2021, pp.150
- XVIII. **Influence of Driving Force Ratio on Oscillation Observables at Flexural Eigenmodes in Static Acoustic Force Measurement**  
Yılmaz Ç., Topal E. S.  
6th International Mediterranean Science and Engineering Congress (IMSEC 2021), Antalya, Turkey, 25 - 27

October 2021, pp.54-58

**XIX. Virial and Energy Dissipation in Measurement of Dynamic Acoustic Forces Using Bimodal-frequency Excitation of Micro-cantilever Array**

Yılmaz Ç., Topal E. S.

9th International Symposium on Innovative Technologies in Engineering and Science (ISITES2021), Sakarya, Turkey, 15 - 17 October 2021, pp.1-7

**XX. Smart Grid Architectures and the Multi-Agent System Paradigm**

Yılmaz Ç., Albayrak S., Lutzenberger M.

ENERGY 2014, The Fourth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies, Hautes-Alpes, France, 20 - 25 April 2014, pp.90-95

## Activities in Scientific Journals

SENSORS AND TRANSDUCERS, Committee Member, 2024 - Continues

MEASUREMENT AND CONTROL, Special Issue Editor, 2023 - 2024

## Memberships / Tasks in Scientific Organizations

IFToMM Young Faculty Group, Duisburg-Essen University, Member, 2024 - Continues, Germany

Makine Teorisi Derneği (MAKTED), Member, 2024 - Continues, Turkey

Mühendisler ve Mimarlar Derneği (MVM), Member, 2024 - Continues, Turkey

Türk Akustik Derneği (TAKDER), Member, 2024 - Continues, Turkey

TMMOB Makina Mühendisleri Odası, Member, 2024 - Continues, Turkey

## Peer Reviews in Scientific Publications

The 8th International Conference on Material Strength and Applied Mechanics (MSAM2025), Conference Paper (Full Text), April 2025

NANOTECHNOLOGY, SCI Journal, March 2025

SOUND AND VIBRATION, Journal Indexed in ESCI, March 2025

SOUND AND VIBRATION, Journal Indexed in ESCI, March 2025

The 8th International Conference on Material Strength and Applied Mechanics (MSAM2025), Conference Paper (Full Text), February 2025

SOUND AND VIBRATION, Journal Indexed in ESCI, February 2025

The 8th International Conference on Material Strength and Applied Mechanics (MSAM2025), Conference Paper (Full Text), February 2025

2025 16th International Conference on Materials and Manufacturing Technologies (ICMMT 2025), Conference Paper (Full Text), January 2025

2025 16th International Conference on Materials and Manufacturing Technologies (ICMMT 2025), Conference Paper (Full Text), January 2025

2025 16th International Conference on Materials and Manufacturing Technologies (ICMMT 2025), Conference Paper (Full Text), January 2025

The 8th International Conference on Material Strength and Applied Mechanics (MSAM2025), Conference Paper (Full Text), January 2025

SOUND AND VIBRATION, Journal Indexed in ESCI, January 2025

IEEE SENSORS JOURNAL, SCI Journal, December 2024

International Advanced Researches and Engineering Journal, Other Indexed Journal, October 2024

SOUND AND VIBRATION, Journal Indexed in ESCI, September 2024

The Second International Conference On Recent Trends In Microelectronics, Automation, Computing And Communications Systems (ICMACC 2024), Conference Paper (Full Text), July 2024

The Second International Conference on recent trends in Microelectronics, Automation, Computing and Communications Systems (ICMACC 2024), Conference Paper (Full Text), July 2024

The Second International Conference on recent trends in Microelectronics, Automation, Computing and Communications Systems (ICMACC 2024), Conference Paper (Full Text), July 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), June 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), May 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), May 2024

MEASUREMENT SCIENCE AND TECHNOLOGY, SCI Journal, May 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), May 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), April 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), April 2024

MEASUREMENT SCIENCE AND TECHNOLOGY, SCI Journal, April 2024

NONLINEAR DYNAMICS, SCI Journal, April 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), March 2024

The 7th International Conference on Material Strength and Applied Mechanics (MSAM 2024), Conference Paper (Full Text), March 2024

NONLINEAR DYNAMICS, SCI Journal, March 2024

NONLINEAR DYNAMICS, SCI Journal, January 2024

NONLINEAR DYNAMICS, SCI Journal, November 2023

JOURNAL OF LOW FREQUENCY NOISE VIBRATION AND ACTIVE CONTROL, SCI Journal, January 2023

JOURNAL OF LOW FREQUENCY NOISE VIBRATION AND ACTIVE CONTROL, SCI Journal, November 2021

JOURNAL OF LOW FREQUENCY NOISE VIBRATION AND ACTIVE CONTROL, SCI Journal, August 2021

## **Tasks In Event Organizations**

Yılmaz Ç., The Fourth International Conference on Mechanical Automation and Engineering Materials, Technical Committee Member , Scientific Congress, Shanghai, China, Kasım 2025

Yılmaz Ç., 2025 International Conference on Advanced Materials, Mechanical Engineering, and Manufacturing (AMMEM 2025), Technical Program Committee Member, Scientific Congress, Klang, Malaysia, Kasım 2025

Yılmaz Ç., International Conference on Advanced Nanomaterials and Nanotechnology, Organizing Committee Member, Scientific Congress, Dubai, United Arab Emirates, Kasım 2025

Yılmaz Ç., 11th International Conference on Sensors and Electronic Instrumentation Advances (SEIA' 2025), International Programme Committee Member, Scientific Congress, Ponta-Delgada, Portugal, Eylül 2025

Yılmaz Ç., 8th World Conference on Mechanical Engineering and Intelligent Manufacturing (WCMEIM 2025), Organizing Committee Member, Scientific Congress, Guiyang, China, Eylül 2025

Yılmaz Ç., The 4th International Conference on Renewable Energy and Electrical Technology (ICREET 2025), Organizing Committee Member, Scientific Congress, Dalian, China, Ağustos 2025

Yılmaz Ç., Global Summit on Catalysis, Chemical Engineering and Technology, Organizing Committee Member , Scientific Congress, Frankfurt, Germany, Ağustos 2025

Yılmaz Ç., The 3rd International Conference on Applied Mechanics, Materials Physics, and Engineering Structures (MMPES 2025), Technical Committee Member, Scientific Congress, Wuhan, China, Temmuz 2025



Yılmaz Ç., The 8th International Conference on Material Strength and Applied Mechanics (MSAM2025), Review Committee Member, Scientific Congress, Shenzhen, China, Temmuz 2025

Yılmaz Ç., The 13th Asia Conference on Mechanical and Materials Engineering, Technical Committee Member, Scientific Congress, Tokyo, Japan, Haziran 2025

Yılmaz Ç., 2025 9th International Conference on Civil Construction and Structural Engineering (I3CSE 2025), Technical Committee Member, Scientific Congress, Guangzhou, China, Mayıs 2025

Yılmaz Ç., 2025 International Conference on Smart Energy and Control Engineering (SECE 2025), Organizing Committee Member, Scientific Congress, Kunming, China, Nisan 2025

Yılmaz Ç., International Conference on Industrial and Manufacturing Engineering (ICIME2025), Organizing Committee Member, Scientific Congress, Rome, Italy, Nisan 2025

Yılmaz Ç., The Second Annual International Congress on Renewable Energy, Scientific Committee Member , Scientific Congress, Oxford, England, Mart 2025

Yılmaz Ç., 16th International Conference on Materials and Manufacturing Technologies (ICMMT 2025), Technical Committee Member, Scientific Congress, Sendai, Japan, Mart 2025

Yılmaz Ç., The Second International Conference on recent trends in Microelectronics, Automation, Computing and Communications Systems, Technical Committee Member, Scientific Congress, Haidarabad, India, Aralık 2024

Yılmaz Ç., 2024 International Conference on Logistics Technology, Equipment and Mechanical Engineering, Technical Committee Member, Scientific Congress, Wuhan, China, Mart 2024

## Metrics

Publication: 29  
Citation (WoS): 13  
Citation (Scopus): 12  
H-Index (WoS): 2  
H-Index (Scopus): 2

## Congress and Symposium Activities

7th Edition of Advanced Materials Science World Congress, Invited Speaker, London, England, 2025

Global Summit on Advanced Materials Science and Nanotechnology, Invited Speaker, Dubai, United Arab Emirates, 2024

The Fourth Global Conference on Advanced Nanotechnology and Nanomaterials , Invited Speaker, Barcelona, Spain, 2024

Annual International Congress on Renewable Energy, Invited Speaker, Oxford, England, 2024

## Awards

Yılmaz Ç., 1. Sınıf Bölüm Üçüncüsü Plaketi , Ortadoğu Teknik Üniversitesi , June 2004

## Non Academic Experience

Business Organization (private), Trützschler Spinning, Software Development Department, Mönchengladbach, Germany, T-Data Database Development

Business Organization (private), Thyssenkrupp Millservices & Systems, Production Department, Duisburg, Germany, Shelf Design and Construction

University, Universität Duisburg-Essen, Institute of Mechatronics and System Dynamics, Duisburg, Germany, Development of "Mobile" Simulation Framework for Mechanical Systems

Business Establishment Private, Sanko Makina, Product Development Department, Gaziantep, Forklift Design



