

## Assoc. Prof. MEHMET BÜLENT ÖZER

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAX-7206-2020

ScopusID: 56370698300

Yoksis Researcher ID: 203366

### Education Information

Doctorate, University of Illinois at Chicago, United States Of America 1999 - 2004

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Makine Mühendisliği (YI) (Tezli), Turkey 1996 - 1999

Undergraduate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 1992 - 1996

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, New Techniques in the Design, Analysis and Optimization of Tuned Dynamic Vibration Absorbers, University Of Illinois At Chicago, 2004

Postgraduate, new Method on Identification of Symmetrical Non-linearities in Structures, Middle East Technical University, Graduate School of Natural and Applied Sciences, Makine Mühendisliği (YI) (Tezli), 1999

### Research Areas

Mechanical Engineering, Machine Theory and Dynamics

### Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2017 - Continues

Assistant Professor, Tobb University Of Economics And Technology, Faculty Of Engineering, Department Of Mechanical Engineering, 2011 - 2017

## Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty Of Engineering, Department Of Mechanical Engineering, 2024 - Continues

## Advising Theses

- ÖZER M. B., Nonlinear modeling of piezoelectric stack actuators with flexure based displacement amplifier mechanisms, Postgraduate, O.YURDAKUL(Student), 2022
- ÖZER M. B., MEMS based multi-mode multi-channel piezoelectric sensor for fully implantable cochlear implants, Postgraduate, F.PİRİM(Student), 2022
- ÖZER M. B., Numerical modeling and experimental investigation of cell manipulation using acoustophoresis, Postgraduate, A.KARAMAN(Student), 2022
- ÖZER M. B., Numerical investigation on the acoustic imaging of the human respiratory system and manufacturing of the synthetic experimental model, Postgraduate, F.GİNAZ(Student), 2022
- ÖZER M. B., The method of degree of freedom truncation for receptance calculation in structural systems, Postgraduate, B.ZAFER(Student), 2022
- ÖZER M. B., Jet uçağı ile taşınan bir faydalı yükün yapısal cevap kestirimi, Doctorate, E.METİN(Student), 2021
- ÖZER M. B., Numerical and experimental investigation of acoustophoretic microfluidic devices, Postgraduate, M.AKİF(Student), 2021
- ÖZER M. B., Hardening nonlinear stiffness behaviour of piezoelectric materials with passive nonlinear P-N junction capacitance shunt circuits, Postgraduate, M.ALİ(Student), 2021
- ÖZER M. B., Kapalı-çevrim glikoz seviyesi kontrolü için piezoelektrik pompa geliştirilmesi, Doctorate, A.KAÇAR(Student), 2021
- ÖZER M. B., Analysis and verification of a pyroshock test system, Postgraduate, A.İSMAİL(Student), 2021
- ÖZER M. B., Vibration and acoustic numerical analysis of gregorian type communication antenna planted on communication satellite, Postgraduate, O.Kaan(Student), 2020
- ÖZER M. B., Çalkalanan titreşim sönümleyicilerin performansının deneysel yöntemlerle incelenmesi, Postgraduate, U.TOSUN(Student), 2016
- ÖZER M. B., Ayarlanmış sıvılı titreşim sönümleyicili yapıların sayısal analizi, Postgraduate, İ.VURUŞKAN(Student), 2014
- ÖZER M. B., Mikro-kanallarda akustoforez ile parçacık manipülasyonu, Postgraduate, S.BÜYÜKKOÇAK(Student), 2014

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

- I. **Experimentally validated passive nonlinear capacitor in piezoelectric vibration applications**  
Ali Taşkıran M., ÖZER M. B.  
Smart Materials and Structures, vol.33, no.10, 2024 (SCI-Expanded)
- II. **Assessment of silicon, glass, FR4, PDMS and PMMA as a chip material for acoustic particle/cell manipulation in microfluidics**  
Açıkgöz H. N., KARAMAN A., Şahin M. A., Çaylan Ö. R., Büke G. C., YILDIRIM E., Eroğlu İ. C., ERSON BENSAN A. E., Çetin B., ÖZER M. B.  
Ultrasonics, vol.129, 2023 (SCI-Expanded)
- III. **Development of a method for maximum structural response prediction of a store externally carried by a jet fighter**  
Kaplan E. M., Acar E., Bülent Özer M. B.  
Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering, vol.236, no.4,

pp.777-788, 2022 (SCI-Expanded)

- IV. **Aerospace structure design using structural response of a payload carried by jet fighter Jet uçağı ile taşınan bir faydalı yükün yapısal cevabının havacılık yapıları tasarımındaki kullanımı**  
Kaplan E. M., Acar E., ÖZER M. B.  
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.37, no.3, pp.1341-1354, 2022 (SCI-Expanded)
- V. **An extended view for acoustofluidic particle manipulation: Scenarios for actuation modes and device resonance phenomenon for bulk-acoustic-wave devices**  
ÖZER M. B., Cetin B.  
JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, vol.149, no.4, pp.2802-2812, 2021 (SCI-Expanded)
- VI. **A Novel Artificial Pancreas: Energy Efficient Valveless Piezoelectric Actuated Closed-Loop Insulin Pump for T1DM**  
Kacar A., ÖZER M. B., Tascioglu Y.  
APPLIED SCIENCES-BASEL, vol.10, no.15, 2020 (SCI-Expanded)
- VII. **Investigation of effect of design and operating parameters on acoustophoretic particle separation via 3D device-level simulations**  
Sahin M. A., ÇETİN B., ÖZER M. B.  
MICROFLUIDICS AND NANOFUIDICS, vol.24, no.1, 2019 (SCI-Expanded)
- VIII. **Tracking free surface and estimating sloshing force using image processing**  
Tosun U., AGHAZADEH R., SERT C., Ozer M. B.  
EXPERIMENTAL THERMAL AND FLUID SCIENCE, vol.88, pp.423-433, 2017 (SCI-Expanded)
- IX. **An integrated acoustic and dielectrophoretic particle manipulation in a microfluidic device for particle wash and separation fabricated by mechanical machining**  
Cetin B., Ozer M. B., Cagatay E., Buyukkocak S.  
BIOMICROFLUIDICS, vol.10, no.1, 2016 (SCI-Expanded)
- X. **Closed form solutions of weakly nonlinear multi-degree of freedom systems with single nonlinear element**  
Ozer M. B.  
JOURNAL OF SOUND AND VIBRATION, vol.344, pp.345-362, 2015 (SCI-Expanded)
- XI. **Numerical modeling of ultrasonic particle manipulation for microfluidic applications**  
Buyukkocak S., Ozer M. B., Cetin B.  
MICROFLUIDICS AND NANOFUIDICS, vol.17, no.6, pp.1025-1037, 2014 (SCI-Expanded)
- XII. **Microfluidic bio-particle manipulation for biotechnology**  
Cetin B., Ozer M. B., Solmaz M. E.  
BIOCHEMICAL ENGINEERING JOURNAL, vol.92, pp.63-82, 2014 (SCI-Expanded)
- XIII. **Identification of structural non-linearities using describing functions and the Sherman-Morrison method**  
Ozer M. B., ÖZGÜVEN H. N., Royston T. J.  
MECHANICAL SYSTEMS AND SIGNAL PROCESSING, vol.23, no.1, pp.30-44, 2009 (SCI-Expanded)
- XIV. **Experimental and computational models for simulating sound propagation within the lungs**  
Acikgoz S., Ozer M. B., Royston T. J., Mansy H. A., Sandler R. H.  
JOURNAL OF VIBRATION AND ACOUSTICS-TRANSACTIONS OF THE ASME, vol.130, no.2, 2008 (SCI-Expanded)
- XV. **Boundary element model for simulating sound propagation and source localization within the lungs**  
Ozer M. B., Acikgoz S., Royston T. J., Mansy H. A., Sandler R. H.  
JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, vol.122, no.1, pp.657-671, 2007 (SCI-Expanded)
- XVI. **Extending Den Hartog's vibration absorber technique to multi-degree-of-freedom systems**  
Ozer M. B., Royston T.  
JOURNAL OF VIBRATION AND ACOUSTICS-TRANSACTIONS OF THE ASME, vol.127, no.4, pp.341-350, 2005 (SCI-Expanded)
- XVII. **Application of Sherman-Morrison matrix inversion formula to damped vibration absorbers attached to multi-degree of freedom systems**

- Ozer M. B., Royston T.  
JOURNAL OF SOUND AND VIBRATION, vol.283, pp.1235-1249, 2005 (SCI-Expanded)
- XVIII. **Passively minimizing structural sound radiation using shunted piezoelectric materials**  
Ozer M. B., Royston T.  
JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, vol.114, no.4, pp.1934-1946, 2003 (SCI-Expanded)
- XIX. **Piezoceramic hysteresis in the adaptive structural vibration control problem**  
Lee S., Ozer M. B., Royston T.  
JOURNAL OF INTELLIGENT MATERIAL SYSTEMS AND STRUCTURES, vol.13, pp.117-124, 2002 (SCI-Expanded)
- XX. **Hysteresis models for piezoceramic transducers**  
Lee S., Ozer M. B., Royston T.  
JOURNAL OF MATERIALS PROCESSING & MANUFACTURING SCIENCE, vol.9, no.1, pp.33-52, 2000 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Multichannel multimodal piezoelectric middle ear implant concept based on MEMS technology for next-generation fully implantable cochlear implant applications**  
Pirim F., Atik A. C., YÜKSEL M. B., Yılmaz A. M., UĞUR M. B., Tunali S., BATU A., ASLAN M. K., ÖZER M. B., KÜLAH H.  
Biosensors and Bioelectronics: X, vol.18, 2024 (Scopus)

## Books & Book Chapters

- I. **Application of Ultrasonic Waves in Bioparticle Manipulation and Separation**  
Özer M. B., Çetin B.  
in: Application of Ultrasonic Waves in Bioparticle Manipulation and Separation, Adem Özçelik, Ryan Becker, Tony Jun huang, Editor, John Wiley & Sons, West Sussex, UK , Mannheim, pp.243-304, 2023

## Refereed Congress / Symposium Publications in Proceedings

- I. **A Novel Approach for Local Structural Modification of Nonlinear Structures**  
Ceren Ekinci E., Bülent Özer M. B., ÖZGÜVEN H. N.  
41st IMAC, A Conference and Exposition on Structural Dynamics, 2023, Austin, United States Of America, 13 - 16 February 2023, pp.155-160
- II. **Bypassing the Repeatability Issue in Nonlinear Experimental Modal Analysis of Jointed Structures by Using the RCT-HFS Framework**  
Gürbüz M. F., Karaağaçlı T., ÖZER M. B., ÖZGÜVEN H. N.  
41st IMAC, A Conference and Exposition on Structural Dynamics, 2023, Austin, United States Of America, 13 - 16 February 2023, pp.75-80
- III. **Extension and Experimental Verification of an Efficient Re-analysis Method for Modified Nonlinear Structures**  
Ekinci E. C., Karaağaçlı T., Çelik F. K., ÖZER M. B., ÖZGÜVEN H. N.  
42nd IMAC, A Conference and Exposition on Structural Dynamics, IMAC 2024, Florida, United States Of America, 29 January - 01 February 2024, pp.89-94
- IV. **Computational fluid dynamics and proper orthogonal decomposition based control of flow over supersonic cavities**  
Gelisli K. A., Aradag S., Tascioglu Y., ÖZER M. B.  
25th AIAA/CEAS Aeroacoustics Conference, 2019, Delft, Netherlands, 20 - 23 May 2019
- V. **EXPERIMENTAL INVESTIGATION OF FLIGHT AND PHYSICAL PARAMETERS AFFECTING THE VIBRATION RESPONSE SEVERITY OF SUBSYSTEM CARRIED BY JET AIRCRAFT**

kaplan e. m., ÖZER M. B.

9th Ankara International Aerospace Conference, Ankara, Turkey, 20 - 22 September 2017

- VI. **Experimental setup design for liquid sloshing**  
Tosun U., Aghazadeh R., ÖZER M. B.  
23rd International Conference on Vibroengineering, İstanbul, Turkey, 7 - 09 October 2016, vol.9, pp.39-43
- VII. **3d modeling of on-chip acoustophoretic particle manipulation in a polymer microfluidic device**  
Çağatay E., ÖZER M. B., Çetin B.  
20th International Conference on Miniaturized Systems for Chemistry and Life Sciences, MicroTAS 2016, Dublin, Ireland, 9 - 13 October 2016, pp.1549-1550
- VIII. **Finite element modeling of micro particle separation using ultrasonic standing waves**  
SÜLEYMAN B., ÇETİN B., ÖZER M. B.  
ASME 2014 4th Joint US-European Fluids Engineering Division Summer Meeting and 11th International Conference on Nanochannels, Microchannels and Minichannels, 3 - 07 August 2014
- IX. **Fabrication of microfluidic devices for dielectrophoretic and acoustophoretic applications using high precision machining**  
SOHEİLA Z., ÇETİN B., ÖZER M. B., SÜLEYMAN B.  
16th International Conference on Machine Design and Production, 30 June - 03 July 2014
- X. **Mekanum tekerlekli araç tasarımı ve üretimi**  
SERİN G., MUSTAFA ANIL S., ECEVİT M., AKAY A. N., TAŞCIOĞLU Y., ÖZER M. B.  
5. Ulusal Mekatronik Mühendisliği Öğrenci Kongresi, Turkey, 24 May 2014
- XI. **Medikal şırınga pompası**  
ONUR G., AHMET BAHADIR A., KARA S., EREN CAN E., TAŞCIOĞLU Y., ÖZER M. B.  
5. Ulusal Mekatronik Mühendisliği Öğrenci Kongresi, Turkey, 24 May 2014
- XII. **SIMULATION OF FLUID SLOSHING FOR DECREASING THE RESPONSE OF STRUCTURAL SYSTEMS**  
VURUSKAN I., SERT C., OZER M. B.  
12th ASME Biennial Conference on Engineering Systems Design and Analysis (ESDA2014), Copenhagen, Denmark, 25 - 27 June 2014
- XIII. **Simulation of an integrated microfluidic device for bioparticle wash separation and concentration**  
ÇETİN B., SÜLEYMAN B., SOHEİLA Z., ÖZER M. B.  
ASME 2013 4th Micro/Nanoscale Heat & Mass Transfer International Conference, 11 - 14 December 2013
- XIV. **Chatter detection using vibrational and acoustic emissions in turning process**  
SÜLEYMAN B., KILIÇ Ş., ÖZER M. B., ÜNVER H. Ö.  
20th Int. Conf. on Mechatronics and Machine Vision in Practice- M2ViP, 18 - 20 September 2013
- XV. **Design and testing of an earthquake simulation system**  
SÜLEYMAN B., KOÇ Ç., ŞEYMA NUR Ç., ÇAĞRI G., ÖZER M. B.  
20th Int. Conf. on Mechatronics and Machine Vision in Practice- M2ViP, 18 - 20 September 2013
- XVI. **Piezoelektrik medikal pompa**  
YILMAZ M., UFUK T., BİLAL BURAK D., TAŞCIOĞLU Y., ÖZER M. B.  
4. Ulusal Mekatronik Mühendisliği Öğrenci Kongresi, Turkey, 08 June 2013
- XVII. **A numerically efficient frequency domain method for analysis of non linear multi degree of freedom systems**  
ÖZER M. B.  
ASME 2012 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE, 12 - 15 August 2012
- XVIII. **Experimental and computational models for simulating sound propagation and acoustic source localization within the lungs**  
SERHAN A., ÖZER M. B., THOMAS J R., HANSON A M., SANDLER R. H.  
ASME 2006 International Mechanical Engineering Congress and Exposition, 5 - 10 November 2006
- XIX. **Radiation force of ultrasound as shear wave source in Microscopic Magnetic Resonance Elastography**  
ÖZER M. B., Othman S., XU H., MERAL C., ROYSTON T. J., MAGIN R. L.

150th Meeting of the Acoustical Society of America, 17 - 21 October 2005

- XX. **Computational and experimental models for sound transmission in the pulmonary system and chest to aid in medical diagnostics**  
AÇIKGÖZ S., ROYSTON T. J., ÖZER M. B., MANSY H. A., SANDLER R. H.  
149th Meeting of the Acoustical Society of America, 16 - 20 May 2005
- XXI. **Identification of structural non linearities using describing functions and Sherman Morrison matrix inversion method**  
ÖZER M. B., ÖZGÜVEN H. N., ROYSTON T. J.  
IMAC-XXIII: Conference & Exposition on Structural Dynamics, 31 January - 03 February 2005
- XXII. **A new method for localization and identification of non linearities in structures**  
ÖZER M. B., ÖZGÜVEN H. N.  
6th Biennial Conference on Engineering Systems Design Analysis, ASME, 08 July 2002 - 11 September 2003
- XXIII. **Applications of Sherman Morrison matrix inversion formula in linear and non linear vibrations controls and acoustics**  
ÖZER M. B., ROYSTON T. J.  
ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conferences, 2 - 06 September 2003
- XXIV. **Active passive single and multi modal control of structural sound using piezoceramics and the effects of PZT hysteresis**  
ÖZER M. B., ROYSTON T. J.  
143rd Meeting of the Acoustical Society of America, 3 - 07 June 2002
- XXV. **Optimal passive and hybrid control of vibrations and sound radiation from linear and non linear PZT based smart structures**  
ÖZER M. B., ROYSTON T. J.  
SPIE's 9th Annual Symposium on Smart Structures and Materials, 17 - 21 March 2002
- XXVI. **Optimal passive and hybrid control of vibration and sound radiation from linear and nonlinear PZT-based smart structures**  
Ozer M. B., Royston T.  
Smart Structures and Materials 2002 Conference, California, United States Of America, 18 - 21 March 2002, vol.4693, pp.69-80
- XXVII. **Effect of piezoceramic hysteresis in passive and hybrid structural acoustic control**  
ÖZER M. B., ROYSTON T. J.  
ASME 2001 Design Engineering Technical Conferences and Computers and Information in Engineering Conference, 9 - 12 September 2001
- XXVIII. **Modeling the effect of piezoceramic hysteresis in structural vibration control**  
Ozer M. B., Royston T.  
Smart Structures and Materials 2001 Conference, California, United States Of America, 5 - 08 March 2001, vol.4326, pp.89-100

## **Metrics**

Publication: 51

Citation (WoS): 431

Citation (Scopus): 517

H-Index (WoS): 12

H-Index (Scopus): 13

## **Non Academic Experience**

Baxter Healthcare (Illinois, ABD)  
University of Illinois at Chicago