

## Dr. Öğr. Üyesi ALTUĞ ÖZÇELİKKALE

### Kişisel Bilgiler

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Posta Adresi: Orta Doğu Teknik Üniversitesi Makina Mühendisliği Bölümü  
Dumlupınar Caddesi No: 1 06800 Çankaya/Ankara

### Uluslararası Araştırmacı ID'leri

ScholarID: QsvfXE4AAAAJ

ORCID: 0000-0002-1783-4445

Publons / Web Of Science ResearcherID: ABA-2198-2020

ScopusID: 54972309800

Yoksis Araştırmacı ID: 317066



### Eğitim Bilgileri

|             |   |
|-------------|---|
| 2010 - 2015 | Doktora, Purdue University, Amerika Birleşik Devletleri               |
| 2008 - 2010 | Yüksek Lisans, Orta Doğu Teknik Üniversitesi, Türkiye                 |
| 2004 - 2008 | Lisans, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Türkiye |

### Yabancı Diller

İngilizce, C2 Ustalık

### Yaptığı Tezler

|      |   |
|------|---|
| 2015 | Freezing-Induced Deformation of Biomaterials in Cryomedicine, Purdue University, Doktora  |
| 2010 | Development of an incompressible, laminar flow solver based on least squares spectral element method with P-type adaptive refinement capabilities, Orta Doğu Teknik Üniversitesi, Yüksek Lisans |

### Araştırma Alanları

Biyoenstrümantasyon ve MEMS, Biyoenstrümantasyon ve MEMS, Biyomedikal Görüntü İşleme, Biyomekanik, Yapay Organlar ve Biyomateryaller, Geleneksel olmayan imalat yöntemleri, Biyomekanik, Isı ve Madde Transferi

### Akademik Unvanlar / Görevler

|                     |  |
|---------------------|--|
| 2021 - Devam Ediyor | Dr. Öğr. Üyesi, Orta Doğu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Biyomedikal Mühendisliği Anabilim Dalı |
| 2020 - Devam Ediyor | Dr. Öğr. Üyesi, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendisliği Bölümü               |

|             |   |
|-------------|---|
| 2017 - 2019 | Arařtırmacı, University of Maryland, College Park, Institute for Physical Science and Technology, Department of Physics |
| 2016 - 2017 | Arařtırmacı, Johns Hopkins University, School of Engineering, Department of Mechanical Engineering                      |
| 2015 - 2016 | Arařtırmacı, Purdue University, College of Engineering, School of Mechanical Engineering                                |
| 2010 - 2015 | Arařtırma Görevlisi, Purdue University, College of Engineering, School of Mechanical Engineering                        |

## Akademik İdari Deneyim

|                     |   |
|---------------------|---|
| 2022 - Devam Ediyor | Publicity and Communication Committee Member, Orta Doęu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendislięi Bölümü                                  |
| 2022 - Devam Ediyor | Biomechanics Track Representative, Orta Doęu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Biyomedikal Mühendislięi Anabilim Dalı                               |
| 2020 - Devam Ediyor | ODTÜ Uzaktan Eęitim Uygulama ve Arařtırma Merkezi (ÜZEM) Danıřma Kurulu Üyesi, Orta Doęu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendislięi Bölümü |
| 2020 - Devam Ediyor | Distance Education Coordinator, Orta Doęu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendislięi Bölümü  |

## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Exploiting Matrix Stiffness to Overcome Drug Resistance**  
Aydin H. B., ÖZÇELİKKALE A., ACAR A.  
ACS BIOMATERIALS SCIENCE & ENGINEERING, cilt.10, sa.8, ss.4682-4700, 2024 (SCI-Expanded)
- II. **Predictive Design and Analysis of Drug Transport by MultiScale Computational Models Under Uncertainty**  
AKALIN A. A., DEDEKARGINOęLU B., Choi S. R., Han B., ÖZÇELİKKALE A.  
Pharmaceutical Research, cilt.40, sa.2, ss.501-523, 2023 (SCI-Expanded)
- III. **Migration and 3D Traction Force Measurements inside Compliant Microchannels**  
Afthinos A., Bera K., Chen J., Ozcelikkale A., Amitrano A., Choudhury M. I., Huang R., Pachidis P., Mistriotis P., Chen Y., et al.  
NANO LETTERS, cilt.22, sa.18, ss.7318-7327, 2022 (SCI-Expanded)
- IV. **Cytotoxic T Lymphocyte Activation Signals Modulate Cytoskeletal Dynamics and Mechanical Force Generation**  
Pathni A., Ozcelikkale A., Rey-Suarez I., Li L., Davis S., Rogers N., Xiao Z., Upadhyaya A.  
FRONTIERS IN IMMUNOLOGY, cilt.13, 2022 (SCI-Expanded)
- V. **An engineered pancreatic cancer model with intra-tumoral heterogeneity of driver mutations**  
Moon H., Ozcelikkale A., Yang Y., Elzey B. D., Konieczny S. F., Han B.  
LAB ON A CHIP, cilt.20, sa.20, ss.3720-3732, 2020 (SCI-Expanded)
- VI. **Differential response to doxorubicin in breast cancer subtypes simulated by a microfluidic tumor model**  
Ozcelikkale A., Shin K., Noe-Kim V., Elzey B. D., Dong Z., Zhang J., Kim K., Kwon I. C., Park K., Han B.  
JOURNAL OF CONTROLLED RELEASE, cilt.266, ss.129-139, 2017 (SCI-Expanded)
- VII. **Effects of dynamic matrix remodelling on en masse migration of fibroblasts on collagen matrices**  
Ozcelikkale A., Dutton J. C., Grinnell F., Han B.  
JOURNAL OF THE ROYAL SOCIETY INTERFACE, cilt.14, sa.135, 2017 (SCI-Expanded)
- VIII. **Enzyme-Induced Matrix Softening Regulates Hepatocarcinoma Cancer Cell Phenotypes**  
Liang Y., Clay N. E., Sullivan K. M., Leong J., Ozcelikkale A., Rich M. H., Lee M. K., Lai M., Jeon H., Han B., et al.  
MACROMOLECULAR BIOSCIENCE, cilt.17, sa.9, 2017 (SCI-Expanded)
- IX. **In vitro microfluidic models of tumor microenvironment to screen transport of drugs and**

## **nanoparticles**

Ozcelikkale A., Moon H., Linnes M., Han B.

WILEY INTERDISCIPLINARY REVIEWS-NANOMEDICINE AND NANOBIO TECHNOLOGY, cilt.9, sa.5, 2017 (SCI-Expanded)

- X. **Subcellular domain-dependent molecular hierarchy of SFK and FAK in mechanotransduction and cytokine signaling**  
Wan Q., ThucNhi TruongVo T. T., Steele H. E., Ozcelikkale A., Han B., Wang Y., Oh J., Yokota H., Na S.  
SCIENTIFIC REPORTS, cilt.7, 2017 (SCI-Expanded)
- XI. **Modulation of Matrix Softness and Interstitial Flow for 3D Cell Culture Using a Cell-Microenvironment-on-a-Chip System**  
Clay N. E., Shin K., Ozcelikkale A., Lee M. K., Rich M. H., Kim D. H., Han B., Kong H.  
ACS BIOMATERIALS SCIENCE & ENGINEERING, cilt.2, sa.11, ss.1968-1975, 2016 (SCI-Expanded)
- XII. **Role of intracellular poroelasticity on freezing-induced deformation of cells in engineered tissues**  
Ghosh S., Ozcelikkale A., Dutton J. C., Han B.  
JOURNAL OF THE ROYAL SOCIETY INTERFACE, cilt.13, sa.123, 2016 (SCI-Expanded)
- XIII. **DNA Walker-Regulated Cancer Cell Growth Inhibition**  
Li F., Cha T., Pan J., Ozcelikkale A., Han B., Choi J. H.  
CHEMBIOCHEM, cilt.17, sa.12, ss.1138-1141, 2016 (SCI-Expanded)
- XIV. **Thermal Destabilization of Collagen Matrix Hierarchical Structure by Freeze/Thaw**  
Ozcelikkale A., Han B.  
PLOS ONE, cilt.11, sa.1, 2016 (SCI-Expanded)
- XV. **Simulation of complex transport of nanoparticles around a tumor using tumor-microenvironment-on-chip**  
Kwak B., Ozcelikkale A., Shin C. S., Park K., Han B.  
JOURNAL OF CONTROLLED RELEASE, cilt.194, ss.157-167, 2014 (SCI-Expanded)
- XVI. **Role of Cells in Freezing-Induced Cell-Fluid-Matrix Interactions Within Engineered Tissues**  
Seawright A., Ozcelikkale A., Dutton C., Han B.  
JOURNAL OF BIOMECHANICAL ENGINEERING-TRANSACTIONS OF THE ASME, cilt.135, sa.9, 2013 (SCI-Expanded)
- XVII. **Multifaceted Transport Characteristics of Nanomedicine: Needs for Characterization in Dynamic Environment**  
Ozcelikkale A., Ghosh S., Han B.  
MOLECULAR PHARMACEUTICS, cilt.10, sa.6, ss.2111-2126, 2013 (SCI-Expanded)
- XVIII. **Least-squares spectral element solution of incompressible Navier-Stokes equations with adaptive refinement**  
Ozcelikkale A., SERT C.  
JOURNAL OF COMPUTATIONAL PHYSICS, cilt.231, sa.9, ss.3755-3769, 2012 (SCI-Expanded)

## **Diğer Dergilerde Yayınlanan Makaleler**

- I. **Tumor-Microenvironment-on-Chip Platform for Assessing Drug Response in 3D Dynamic Culture**  
Aydin H. B., Moon H., Han B., ÖZÇELİKKALE A., ACAR A.  
Methods in molecular biology (Clifton, N.J.), cilt.2764, ss.265-278, 2024 (Scopus)
- II. **Spatiotemporal characterization of extracellular matrix microstructures in engineered tissue: A whole-field spectroscopic imaging approach**  
Xu Z., ÖZÇELİKKALE A., Kim Y. L., Han B.  
Journal of Nanotechnology in Engineering and Medicine, cilt.4, sa.1, 2013 (Scopus)

## **Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar**

- I. **Rapid prototyping of microfluidic co-culture platform based on a 3D printing workflow for systematic investigation of tumor stromal interactions**  
Dedekargınođlu B., Ildız C., Acar A., Özçelikkale A.  
The 2nd Microphysiological Systems World Summit, Berlin, Almanya, 26 - 30 Haziran 2023, cilt.11, sa.1, ss.200
- II. **Parametric design and manufacturing of mammary carcinoma chip by stereolithography for simulating drug transport around the tumor**  
Fathi M., Dedekargınođlu B., Akalın A. A., Özçelikkale A.  
The 2nd Microphysiological Systems World Summit, Berlin, Almanya, 26 - 30 Haziran 2023, cilt.11, sa.1, ss.235-236
- III. **Capillary pressure barriers for spatial confinement in organ-on-a-chip devices**  
Açıkğöz B. C., Dirmenciođlu U., Farahani S., Özçelikkale A., Yildirim E.  
5th NOVEL FLUIDIC TECHNOLOGIES WORKSHOP WITH AN EMPHASIS ON TISSUE ENGINEERING, İzmir, Türkiye, 4 - 05 Mayıs 2023, ss.29-31
- IV. **Modeling and Characterization of Nanomedicine Transport within Tumor Microenvironment across Scales**  
Akalın A. A., Özçelikkale A.  
16th Nanoscience and Nanotechnology Conference, Ankara, Türkiye, 5 - 08 Eylül 2022, ss.338
- V. **Rapid Low-Cost Prototyping of Organ-on-Chip Platforms by 3D-Printed Microfluidics**  
Dedekargınođlu B., Akalın A. A., Özçelikkale A.  
3rd Annual European Organ-on-Chip Society Meeting, Uppsala, İsveç, 01 Temmuz 2021
- VI. **Regulation of Cytoskeletal Dynamics during T Cell Activation by Substrate Stiffness**  
Özçelikkale A., Upadhyaya A.  
American Physical Society March Meeting, California, Amerika Birleşik Devletleri, 07 Mart 2018, ss.1
- VII. **NANOSCALE FLUID-STRUCTURE INTERACTIONS IN CYTOPLASM DURING FREEZING**  
Ozcelikkale A., Han B.  
ASME International Mechanical Engineering Congress and Exposition, Texas, Amerika Birleşik Devletleri, 9 - 15 Kasım 2012, ss.711-716
- VIII. **EFFECTS OF FREEZING ON COLLAGEN NANOSCALE STRUCTURE IN ENGINEERED TISSUES**  
Ozcelikkale A., Li Y., Xu X., Han B.  
2nd ASME Global Congress on NanoEngineering for Medicine and Biology, Massachusetts, Amerika Birleşik Devletleri, 4 - 06 Şubat 2013, ss.29-30
- IX. **FUNCTIONAL IMAGING OF MATRIX STRUCTURE OF CRYOPRESERVED ENGINEERED TISSUES USING BACK-DIRECTIONAL GATED MESOSCOPIC IMAGING**  
Kim Y. L., Xu Z., Ozcelikkale A., Han B.  
ASME Summer Bioengineering Conference (SBC), Fajardo, Porto Riko, 20 - 23 Haziran 2012, ss.259-260
- X. **ROLE OF CELLS IN FREEZING-INDUCED CELL-FLUID MATRIX INTERACTIONS WITHIN ENGINEERED TISSUES**  
Seawright A., Ozcelikkale A., Dutton J. C., Han B.  
ASME Summer Bioengineering Conference (SBC), Fajardo, Porto Riko, 20 - 23 Haziran 2012, ss.409-410
- XI. **h- and p-Adaptive Incompressible Flow Solutions on Cartesian Grids Using Least Squares Spectral Element Method**  
Özçelikkale A., Sert C.  
5th European Conf. on CFD (ECCOMAS CFD), Lisbon, Portekiz, 14 - 17 Haziran 2010, ss.1-16

## Bilimsel Hakemlikler

Ağustos 2023

Türkiye Sağlık Enstitüleri Başkanlığı (TÜSEB) Araştırma Projesi, Orta Dođu Teknik Üniversitesi, Türkiye

Haziran 2023

Yükseköğretim Kurumları Destekli Proje, BAP Araştırma Projesi, Orta Dođu Teknik Üniversitesi, Türkiye

## **Metrikler**

Yayın: 31

Atıf (WoS): 455

Atıf (Scopus): 498

H-İndeks (WoS): 11

H-İndeks (Scopus): 12

## **Burslar**

2020 - Devam Ediyor 2232 International Fellowship for Outstanding Researchers , TÜBİTAK

2010 - 2011 Ross Graduate Fellowship, Üniversite

2008 - 2010 National Scholarship for M.S. Students, TÜBİTAK