ALTUĞ ÖZÇELİKKALE
ASST. PROF.

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Biography

Dr. Altuğ Özçelikkale holds a B.S (2008) and an M.S (2010) degree in Mechanical Engineering from Middle East Technical University and a Ph.D. (2015) degree from Purdue University. He pursued his Ph.D. studies at Biotransport Phenomena Laboratory in the School of Mechanical Engineering. Before he joined METU, he was a Postdoctoral Research Associate in the Department of Physics and Institute for Physical Science and Technology at the University of Maryland College Park. He was also a Visiting Scholar at Johns Hopkins University.

Learning Knowledge

Doctorate 2010 - 2015	Purdue University, United States Of America
Postgraduate 2008 - 2010	Middle East Technical University, Turkey
Undergraduate 2004 - 2008	Middle East Technical University, Faculty Of Engineering, Turkey

Foreign Languages

English, C2 Mastery

Dissertations

Doctorate, Freezing-Induced Deformation of Biomaterials in Cryomedicine, Purdue University, Faculty of Engineering, School of Mechanical Engineering, 2015
Postgraduate, Development of an incompressible, laminar flow solver based on least squares spectral element method with P-type adaptive refinement capabilities, Middle East Technical University, 2010

Academic Titles / Tasks

Assistant Professor 2020 - Continues	Middle East Technical University, Faculty Of Engineering, Department Of Mechanical Engineering
Researcher 2017 - 2019	University of Maryland, College Park, Institute for Physical Science and Technology, Department of Physics
Researcher 2016 - 2017	Johns Hopkins University, School of Engineering, Department of Mechanical Engineering
Researcher 2015 - 2016	Purdue University, College of Engineering, School of Mechanical Engineering
Research Assistant 2010 - 2015	Purdue University, College of Engineering, School of Mechanical Engineering

Scholarships

Ross Graduate Fellowship, University, 2010 - 2011
National Scholarship for M.S. Students, TUBITAK, 2008 - 2010

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

1. **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, vol.13, 2022 (Journal Indexed in SCI)
2. **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, vol.20, no.20, pp.3720-3732, 2020 (Journal Indexed in SCI)
3. **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, vol.266, pp.129-139, 2017 (Journal Indexed in SCI)
4. **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, vol.14, no.135, 2017 (Journal Indexed in SCI)
5. **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 NANOBIOTECHNOLOGY, vol.9, no.5, 2017 (Journal Indexed in SCI)
6. **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, vol.17, no.9, 2017 (Journal Indexed in SCI)
7. **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, vol.7, 2017 (Journal Indexed in SCI)

8. **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, vol.2, no.11, pp.1968-1975, 2016 (Journal Indexed in SCI)
9. **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, vol.13, no.123, 2016 (Journal Indexed in SCI)
10. **DNA Walker-Regulated Cancer Cell Growth Inhibition**
    Li F., Cha T., Pan J., Ozcelikkale A., Han B., Choi J. H.
    CHEMBIOCHEM, vol.17, no.12, pp.1138-1141, 2016 (Journal Indexed in SCI)
11. **Thermal Destabilization of Collagen Matrix Hierarchical Structure by Freeze/Thaw**
    Ozcelikkale A., Han B.
    PLOS ONE, vol.11, no.1, 2016 (Journal Indexed in SCI)
12. **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, vol.194, pp.157-167, 2014 (Journal Indexed in SCI)
13. **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, vol.135, no.9, 2013 (Journal Indexed in SCI)
14. **Multifaceted Transport Characteristics of Nanomedicine: Needs for Characterization in Dynamic Environment**
    Ozcelikkale A., Ghosh S., Han B.
    MOLECULAR PHARMACEUTICS, vol.10, no.6, pp.2111-2126, 2013 (Journal Indexed in SCI)
15. **Least-squares spectral element solution of incompressible Navier-Stokes equations with adaptive refinement**
    Ozcelikkale A., SERT C.
    JOURNAL OF COMPUTATIONAL PHYSICS, vol.231, no.9, pp.3755-3769, 2012 (Journal Indexed in SCI)

Articles Published in Other Journals

1. **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, vol.4, no.1, 2013 (Refereed Journals of Other Institutions)

Refereed Congress / Symposium Publications in Proceedings

1. **Rapid Low-Cost Prototyping of Organ-on-Chip Platforms by 3D-Printed Microfluidics**
   Dedekargınoğlu B., Akalın A. A. , Özçelikkale A.
   3rd Annual European Organ-on-Chip Society Meeting, Uppsala, Sweden, 01 July 2021
2. **Regulation of Cytoskeletal Dynamics during T Cell Activation by Substrate Stiffness**
   Özçelikkale A., Upadhyaya A.
   American Physical Society March Meeting, California, United States Of America, 07 March 2018, pp.1
3. **NANOSCALE FLUID-STRUCTURE INTERACTIONS IN CYTOPLASM DURING FREEZING**
   Ozcelikkale A., Han B.
   ASME International Mechanical Engineering Congress and Exposition, Texas, United States Of America, 9 - 15

November 2012, pp.711-716

4. **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, United States Of America, 4 - 06 February 2013, pp.29-30
5. **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, Puerto Rico, 20 - 23 June 2012, pp.259-260
6. **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, Puerto Rico, 20 - 23 June 2012, pp.409-410
7. **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, Portugal, 14 - 17 June 2010, pp.1-16

Citations

Total Citations (WOS):294
h-index (WOS):9

Research Areas

Bioengineering and MEMS, Bioinstrumentation and Microelectromechanical Systems (MEMS), Biomedical Image Processing, Biomechanics, Artificial Organs and Biomaterials, Non-traditional manufacturing methods, Biomechanics, Heat and Mass Transfer