Stanford

Gozde Durmus

Assistant Professor (Research) of Radiology (Molecular Imaging Program at Stanford)

Radiology - Rad/Molecular Imaging Program at Stanford

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Dr. Gozde Durmus is an Assistant Professor of Radiology at Stanford University School of Medicine. She conducted her postdoctoral research at Stanford; working with Prof. Ronald W. Davis and Prof. Lars Steinmetz at the Stanford Genome Technology Center. She received her Ph.D. degree in Biomedical Engineering from Brown University in May 2013, with a minor in Innovation Management and Entrepreneurship. She is also an alumna of the Ignite Program at the Stanford University Graduate School of Business. She was a Fulbright Scholar at Boston University and received her M.Eng. degree in Biomedical Engineering as a College of Engineering Fellow in 2009. She received her B.S. degree in Molecular Biology and Genetics from Middle East Technical University (METU) in 2007. She has been recently recognized among the "Top Innovators Under 35" (TR35) by the MIT Technology Review. She received the Career Award at Scientific Interface from Burroughs Wellcome Fund (BWF-CASI) in 2018. She has been named as a "Rising Star in Biomedicine" by Broad Institute of MIT and Harvard. Recently, Dr. Durmus has received major research awards, such as the Moore Inventor Fellow, Baxter Faculty Scholar Award and Koret Foundation Catalyst Award.

Dr. Durmus has authored papers in journals including Nature Materials, PNAS, Advanced Materials. Her work was highlighted in Science, New Scientist, Popular Mechanics, American Institute of Physics (AIP) News, Tech Times. Her research achievements have been recognized with ITI Young Investigator Award from Stanford University, STAR Award Honorable Mention by the Society for Biomaterials, Graduate Student Recognition Award from Brown University, Entrepreneurial Fellowship from National Science Foundation (NSF) & Slater Technology Fund and Fulbright Scholarship. She was also a finalist for the national CIMIT Student Technology Prize for Primary Healthcare in 2012.

ACADEMIC APPOINTMENTS

- Assistant Professor (Research), Radiology - Rad/Molecular Imaging Program at Stanford
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Moore Inventor Fellow, Gordon and Betty Moore Foundation (2021)

- Baxter Faculty Scholar Award, Donald E. and Delia B. Baxter Foundation (2020)
- Catalyst Award, Koret Foundation (2020-2021)
- Ten Outstanding Young Persons of the World (TOYP), Medical Innovation Category, Junior Chamber International (JCI) (2019)
- "40 under 40" List, Fortune Turkey (2019, 2020, 2021, 2022)
- McCormick-Gabilan Faculty Fellow, Stanford University School of Medicine (2019-2021)
- Career Award at the Scientific Interface (CASI), Burroughs Wellcome Fund (BWF) (2018-2023)
- Rising Star in Biomedicine, Broad Institute of MIT and Harvard (2018)
- Fellow, World Summit on Innovation and Entrepreneurship (2017)
- Presidential Alumni Achievement and Recognition Award, METU (2017)
- 3rd Place, Bay Area Global Healthcare Challenge, UC Berkeley and Stanford University (2017)
- Finalist for Scientist of The Year, Avon-Elele Magazine Women Awards (2016)
- Innovators Under 35 (TR35), MIT Technology Review (2015)
- Young Investigator Award, Institute for Immunity, Transplantation and Infection (ITI), Stanford University School of Medicine (2015)
- Student Technology Prize in Primary Healthcare (finalist), CIMIT and MGH (2012)
- STAR Award, Society for Biomaterials (2012)
- International Affairs Travel Award, Brown University (2012)
- Graduate Student Recognition Award, Graduate School and Division of Biology and Medicine, Brown University (2012)
- NSF Fellowship, 9th International Summer School on Biocomplexity from Gene to System (2010)
- NSF Entrepreneurial Fellowship, NSF RI-EPSCoR and Slater Technology Fund (2010)
- Fulbright Scholarship (ranked 1st in arts-sciences field in Turkey), Fulbright and US Department of State (2007-2009)
- Outstanding Fulbright Scholars in Europe, selected by McKinsey& Company (2008)
- College of Engineering Fellowship, Boston University (2007-2009)
- President’s High Honor Circle, METU (2003-2007)
- Ranked in the top 0.01% out of 2 million candidates, in the National University Exam (2003)
- 3rd Place (in physics, chemistry and biology), National Science Olympics in Turkey (2001)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Co-founder and Scientific Advisor, Levitas Bio, Inc (2017 - present)

LINKS

- My Personal Website: https://people.stanford.edu/gdurmus/
- My Lab Website: https://durmuslab.stanford.edu/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Durmus' research focuses on applying micro/nano-technologies to investigate cellular heterogeneity for single-cell analysis and personalized medicine. At Stanford, she is developing platform technologies for sorting and monitoring cells at the single-cell resolution. This magnetic levitation-based technology is used for wide range of applications in medicine, such as, label-free detection of circulating tumor cells (CTCs) from blood; high-throughput drug screening; and rapid detection and monitoring of antibiotic resistance in real-time. During her PhD, she has engineered nanoparticles and nanostructured surfaces to decrease antibiotic-resistant infections.

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Suraj Pavagada, Sena Yaman

Publications

PUBLICATIONS

- **Label-Free Detection of Lipid Accumulation in Cells Using Magnetic Levitation.** *Advanced biology*
  Moncal, K. K., Najmi, L. A., Gupta, R., Ramarao, M., Knowles, J. W., Park, C. Y., Durmus, N. G.
  2025: e2200142
- **EV-Lev: extracellular vesicle isolation from human plasma using microfluidic magnetic levitation device.** *Lab on a chip*
  Yaman, S., Devoe, T., Aygun, U., Parlatan, U., Bobbili, M. R., Karim, A. H., Grillari, J., Durmus, N. G.
  2025
- **The Hallmarks of Circulating Hybrid Cells.** *Results and problems in cell differentiation*
  Patel, R. K., Parappilly, M., Rahman, S., Schwantes, I. R., Sewell, M., Giske, N. R., Whalen, R. M., Durmus, N. G., Wong, M. H.
  2024; 71: 467-485
- **Automated Image Analysis for Characterization of Circulating Tumor Cells and Clusters Sorted by Magnetic Levitation.** *Advanced biology*
  Ogut, M. G., Ma, P., Gupta, R., Hoerner, C. R., Fan, A. C., El-Kaffas, A. N., Durmus, N. G.
  2023: e2300109
- **Levitational 3D Bioassembly and Density-Based Spatial Coding of Levitoids** *ADVANCED FUNCTIONAL MATERIALS*
  Moncal, K., Yaman, S., Durmus, N.
  2022
- **Size and density measurements of single sickle red blood cells using microfluidic magnetic levitation.** *Lab on a chip*
  Goreke, U., Bode, A., Yaman, S., Gurkan, U. A., Durmus, N. G.
  1800
- **Multiparametric biophysical profiling of red blood cells in malaria infection.** *Communications biology*
  Deshmukh, S. S., Shakya, B., Chen, A., Durmus, N. G., Greenhouse, B., Egan, E. S., Demirci, U.
  2021; 4 (1): 697
- **Levitational Cell Cytometry for Forensics** *Advanced Biology*
  Urey, D. Y., Chan, H., Durmus, N.
  2021
- **Levitating Cells to Sort the Fit and the Fat.** *Advanced biosystems*
  Puluca, N. n., Durmus, N. G., Lee, S. n., Belbachir, N. n., Galdos, F. X., Ogut, M. G., Gupta, R. n., Hirano, K. I., Krane, M. n., Lange, R. n., Wu, J. C., Wu, S. M., Demirci, et al
  2020: e1900300
- **CelLEVITAS: Label-free rapid sorting and enrichment of live cells via magnetic levitation** *Biorxiv*
  Chin, E. K., Grant, C. A., Ogut, M. G., Cai, B., Durmus, N.
  2020
- **Label-free imaging of exosomes using depth scanning correlation (DSC) interferometric microscopy**
  Aygun, U., Ozkumur, A., Durmus, N., Demirci, U., Urey, H.
  edited by Shaked, N. T., Hayden, O.
  SPIE-INT SOC OPTICAL ENGINEERING.2020
- **MICROSCALE MAGNETIC LEVITATION FOR MULTIPLEXED ANALYSIS OF MALARIA-INFECTED BLOOD SAMPLES IN RESOURCE-LIMITED SETTINGS**

Deshmukh, S. S., Durmus, N., Greenhouse, B., Egan, E., Demirci, U.
AMER SOC TROP MED & HYGIENE.2019: 130–31

- **A Novel On-Chip Method for Differential Extraction of Sperm in Forensic Cases** *ADVANCED SCIENCE*
  Inci, F., Ozen, M. O., Saylan, Y., Miansari, M., Cimen, D., Dhara, R., Chinnasamy, T., Yuksekkaya, M., Filippini, C., Kumar, D., Calamak, S., Yesil, Y., Durmus, et al
  2018; 5 (9): 1800121

- **A MAGNETIC LEVITATION PLATFORM FOR THE ISOLATION OF MATURE SPERM FROM TESE/TESA SAMPLES**
  Durmus, G., Gupta, R., Badamjav, O., Reddy, V., Eisenberg, M. L., Behr, B., Demirci, U.
  ELSEVIER SCIENCE INC.2018: E26–E27

- **Monitoring Neutropenia for Cancer Patients at the Point of Care.** *Small methods*
  Inan, H., Kingsley, J. L., Ozen, M. O., Tekin, H. C., Hoerner, C. R., Imae, Y., Metzner, T. J., Preiss, J. S., Durmus, N. G., Ozsoz, M., Wakelee, H., Fan, A. C., Tüzel, et al
  2017; 1 (9)

- **A Magnetic Levitation System to Study the Impact of Donor Gender, Age and Blood Storage Conditions on Red Blood Cell Density Profile**
  Durmus, G., Tocchio, A., Howell, A., Sridhar, K., Acker, J. P., Demirci, U.
  WILEY.2017: 32A

- **Multifunctional, inexpensive, and reusable nanoparticle-printed biochip for cell manipulation and diagnosis.** *Proceedings of the National Academy of Sciences of the United States of America*
  Esfandyarpour, R., DiDonato, M. J., Yang, Y., Durmus, N. G., Harris, J. S., Davis, R. W.
  2017; 114 (8): E1306-E1315

- **Monitoring Neutropenia for Cancer Patients at the Point of Care** *Small Methods*
  Inan, H., et al
  2017

- **Magnetically Guided Self-Assembly and Coding of 3D Living Architectures.** *Advanced materials (Deerfield Beach, Fla.)*
  Tocchio, A. n., Durmus, N. G., Sridhar, K. n., Mani, V. n., Coskun, B. n., El Assal, R. n., Demirci, U. n.
  2017

- **Integrating Cell Phone Imaging with Magnetic Levitation (i-LEV) for Label-Free Blood Analysis at the Point-of-Living.** *Small*
  Baday, M., Calamak, S., Durmus, N. G., Davis, R. W., Steinmetz, L. M., Demirci, U.
  2016; 12 (9): 1222-1229

- **Multitarget, quantitative nanoplasmonic electrical field-enhanced resonating device (NE2RD) for diagnostics.** *Proceedings of the National Academy of Sciences of the United States of America*
  Inci, F., Filippini, C., Baday, M., Ozen, M. O., Calamak, S., Durmus, N. G., Wang, S., Hanhauser, E., Hobbs, K. S., Juillard, F., Kuang, P. P., Vetter, M. L., Carocci, et al
  2015; 112 (32): E4354-63

- **Multitarget, quantitative nanoplasmonic electrical field-enhanced resonating device ((NERD)-R-2) for diagnostics** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Inci, F., Filippini, C., Baday, M., Ozen, M. O., Calamak, S., Durmus, N. G., Wang, S., Hanhauser, E., Hobbs, K. S., Juillard, F., Kuang, P. P., Vetter, M. L., Carocci, et al
  2015; 112 (32): E4354-E4363

- **Magnetic levitation of single cells.** *Proceedings of the National Academy of Sciences of the United States of America*
  Durmus, N. G., Tekin, H. C., Guven, S., Sridhar, K., Arslan Yildiz, A., Calibasi, G., Ghiran, I., Davis, R. W., Steinmetz, L. M., Demirci, U.
  2015; 112 (28): E3661-8

- **Magnetic levitation of single cells.** *Proceedings of the National Academy of Sciences of the United States of America*
  Durmus, N. G., Tekin, H. C., Guven, S., Sridhar, K., Arslan Yildiz, A., Calibasi, G., Ghiran, I., Davis, R. W., Steinmetz, L. M., Demirci, U.
  2015; 112 (28): E3661-8

- **Portable Microfluidic Integrated Plasmonic Platform for Pathogen Detection** *SCIENTIFIC REPORTS*
  Tokel, O., Yildiz, U. H., Inci, F., Durmus, N. G., Ekiz, O. O., Turker, B., Cetin, C., Rao, S., Sridhar, K., Natarajan, N., Shafiee, H., Dana, A., Demirci, et al

2015; 5

- **Paper and flexible substrates as materials for biosensing platforms to detect multiple biotargets.** *Scientific reports*
  Shafiee, H., Asghar, W., Inci, F., Yuksekkaya, M., Jahangir, M., Zhang, M. H., Durmus, N. G., Gurkan, U. A., Kuritzkes, D. R., Demirci, U.
  2015; 5: 8719-?

- **Paper and flexible substrates as materials for biosensing platforms to detect multiple biotargets.** *Scientific reports*
  Shafiee, H., Asghar, W., Inci, F., Yuksekkaya, M., Jahangir, M., Zhang, M. H., Durmus, N. G., Gurkan, U. A., Kuritzkes, D. R., Demirci, U.
  2015; 5: 8719-?

- **Enhanced Efficacy of Superparamagnetic Iron Oxide Nanoparticles Against Antibiotic-Resistant Biofilms in the Presence of Metabolites** *ADVANCED MATERIALS*
  Durmus, N. G., Taylor, E. N., Kummer, K. M., Webster, T. J.
  2013; 25 (40): 5706-?

- **Effects of different sterilization techniques and varying anodized TiO2 nanotube dimensions on bacteria growth** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS*
  Kummer, K. M., Taylor, E. N., Durmas, N. G., Tarquinio, K. M., Ercan, B., Webster, T. J.
  2013; 101B (5): 677-688

- **BIOPRINTING Functional droplet networks** *NATURE MATERIALS*
  Durmus, N. G., Tasoglu, S., Demirci, U.
  2013; 12 (6): 478-479

- **Eradicating Antibiotic-Resistant Biofilms with Silver-Conjugated Superparamagnetic Iron Oxide Nanoparticles** *ADVANCED HEALTHCARE MATERIALS*
  Durmus, N. G., Webster, T. J.
  2013; 2 (1): 165-171

- **Short communication: carboxylate functionalized superparamagnetic iron oxide nanoparticles (SPION) for the reduction of S. aureus growth post biofilm formation** *INTERNATIONAL JOURNAL OF NANOMEDICINE*
  Leuba, K. D., Durmus, N. G., Taylor, E. N., Webster, T. J.
  2013; 8: 731-736

- **Superparamagnetic Iron Oxide Nanoparticles (SPION) for the Treatment of Antibiotic-Resistant Biofilms** *SMALL*
  Taylor, E. N., Kummer, K. M., Durmus, N. G., Leuba, K., Tarquinio, K. M., Webster, T. J.
  2012; 8 (19): 3016-3027

- **Nanostructured titanium: the ideal material for improving orthopedic implant efficacy?** *NANOMEDICINE*
  Durmus, N. G., Webster, T. J.
  2012; 7 (6): 791-793

- **Fructose-enhanced reduction of bacterial growth on nanorough surfaces** *INTERNATIONAL JOURNAL OF NANOMEDICINE*
  Durmus, N. G., Taylor, E. N., Inci, F., Kummer, K. M., Tarquinio, K. M., Webster, T. J.
  2012; 7: 537-545

- **Microengineering methods for cell-based microarrays and high-throughput drug-screening applications** *BIOFABRICATION*
  Xu, F., Wu, J., Wang, S., Durmus, N. G., Gurkan, U. A., Demirci, U.
  2011; 3 (3)

- **Living Bacterial Sacrificial Porogens to Engineer Decellularized Porous Scaffolds** *PLOS ONE*
  Xu, F., Sridharan, B., Durmus, N. G., Wang, S., Yavuz, A. S., Gurkan, U. A., Demirci, U.
  2011; 6 (4)

- **Microporous Cell-Laden Hydrogels for Engineered Tissue Constructs** *BIOTECHNOLOGY AND BIOENGINEERING*
  Park, J. H., Chung, B. G., Lee, W. G., Kim, J., Brigham, M. D., Shim, J., Lee, S., Hwang, C. M., Durmus, N. G., Demirci, U., Khademhosseini, A.
  2010; 106 (1): 138-148

- **Engineered 3D tissue models for cell-laden microfluidic channels** *ANALYTICAL AND BIOANALYTICAL CHEMISTRY*
  Song, Y. S., Lin, R. L., Montesano, G., Durmus, N. G., Lee, G., Yoo, S., Kayaalp, E., Haeggstrom, E., Khademhosseini, A., Demirci, U.
  2009; 395 (1): 185-193