

Arzu Ozbey, PhD

Name: Arzu Ozbey
Home Address:
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Place of Birth: Istanbul/Turkey

Education

Sabanci University **09/2012 – 08/2017**
Doctor of Philosophy. Faculty of Engineering and Natural Sciences, Mechatronics Engineering Program, Istanbul, Turkey.

Istanbul Technical University **09/2009 – 11/2011**
Master of Science. Faculty of Mechanical Engineering, Materials and Manufacturing Program, Istanbul, Turkey.

Sakarya University **09/2001 – 02/2004**
09/2006 – 08/2008
Bachelor of Science. Faculty of Engineering, Mechanical Engineering Program, Sakarya, Turkey.
(Program Frozen for 3 semesters for work in UK)

Professional Experience

Massachusetts General Hospital, Harvard Medical School **04/2019 – 02/2020**
Postdoctoral Researcher. Department of Surgery, Faculty of Center for Engineering in Medicine, Cancer Center, Boston, USA.

Sabanci University **09/2017 – 10/2018**
Postdoctoral Researcher. Faculty of Engineering and Natural Sciences, Mechatronics Engineering, Micro-Nano Scale Heat Transfer and Microfluidics Research Group, Sabanci University Nanotechnology and Application Center (SUNUM), Istanbul, Turkey.

The University of Edinburgh **02/2016 – 07/2016**
Exchange Researcher. Institute for Materials and Processes, School of Engineering, Multiphase Flows and Heat Transfer Laboratory, Edinburgh, Scotland, UK.

- Researcher for “Multiphase Flows and Heat Transfer in Microscale” a 1-year project supported by Newton Research Collaboration Programme. (2016-2017)

Sabanci University **09/2012 – 08/2017**
Project Assistant and Clean Room Specialist. Faculty of Engineering and Natural Science, Mechatronics Engineering, Micro-Nano Scale Heat Transfer and Microfluidics Research Group, Sabanci University Nanotechnology and Application Center (SUNUM), Istanbul, Turkey.

- Researcher for “Isolation of rare cancer cells using inertial microfluidics in curvilinear microchannels” a 2-year project supported by Sabanci University. (2015-2017)
- Researcher for “Manipulation of Magnetic Nanoparticle Based Nanofluids and its Application” a 3-year project supported by The Scientific and Technological Research Council of Turkey (TUBITAK). (2013-2016)

Istanbul Technical University**09/2009 – 11/2011****Project Assistant**, Faculty of Mechanical Engineering, ITU-MEMS Laboratory, Istanbul, Turkey.

- Researcher for “Low-cost design, production and characterization of microfluidics systems for Biologic Cell Separation Applications” a 2-year project supported by The Scientific and Technological Research Council of Turkey (TUBITAK). (2009-2011)

Sakarya University**09/2001-02/2004****09/2006-08/2008****Student Assistant**, Faculty of Engineering, Department of Mechanical Engineering, Sakarya, Turkey

- Fluid Mechanics Laboratory (2007-2008)
- CNC Laboratory (2003-2004)
- Hydraulic and Pneumatic Laboratory (2002-2003)
- Researcher for “Fluid Flow and Heat Transfer in Microchannels” a 3-year project supported by State Planning Organization of Turkey (DPT) (2005-2008)

Teaching Experience

Sabancı University**09/2012 – 06/2017****Teaching Assistant**, Faculty of Engineering and Natural Science, Mechatronics Engineering.

09/2012 – 06/2013	Mechanics 2 nd year of Mechatronics Eng. Students	Faculty of Engineering and Natural Sciences 2-hr sessions per week for 28 weeks
09/2013 – 06/2014	Energy Politics 3 rd and 4 th year of Industrial Eng. Students	Faculty of Engineering and Natural Sciences 2-hr sessions per week for 28 weeks
09/2014 – 06/2016	The Foundations of Microsystems 4 th year of Mechatronics Eng. Students	Faculty of Engineering and Natural Sciences 2-hr sessions per week for 42 weeks
09/2016 – 06/2017	Computer Aided Drafting & Solid Modeling 1 st year of Mechatronics Eng. Students	Faculty of Engineering and Natural Sciences 2-hr sessions per week for 14 weeks

Research Interests

Inertial Microfluidics, Cancer Diagnostics, Liquid Biopsy, CTC isolation, Lab-on-a chip Systems, Microfabrication, Micromixing, Cell-Cell Adhesion, Bubble Dynamics

Skills

Software: Comsol Multiphysics, Solidworks, Layout Editor, AutoCAD, ImageJ, Matlab

Scientific: Lithography, e-beam deposition, thermal deposition, wet silicon etching (anisotropic), dry silicon etching (Oxford Plasma Etching, Reactive Ion Etching and Deep Reactive Ion Etching), Oxygen Plasma Cleaner (bonding PDMS to glass), Physical Vapor Deposition (PVD) - magnetron sputtering, Profilometer, micro PIV (beginner), Thermal Camera, High Speed Camera, Power supply, Dynamic Light Scattering (DLS), Fluorescence Microscopy, Confocal Microscopy, Fluorescent Activated Cell Sorting (FACS), Hemocytometer, Real Time Cell Analysis, Culturing and staining of Cells (Cancer Cell Lines), Microfluidics (Chip Design and Fabrication), Particle and Cell Separation in microfluidics.

Language: English (Advance), Japanese (Beginner), Turkish (Native)

Peer Reviewed Scholarships in Print or Other Media

1. Mutlu, B. R., Dubash, T., Dietsche, C., Mishra, Ozbey, A., A., Keim, K., Edd, E., Haber, D., Maheswaran, S., Toner, M. (2020) In-flow measurement of cell–cell adhesion using oscillatory inertial microfluidics. *Lab on a Chip*, 20(9), 1612-1620. doi: 10.1039/D0LC00089B. Citation: 4
2. Alijani, H., Özbey, A., Karimzadehkhoei, M., Koşar, A. (2019) The Effect of Curvature Angle on Micromixing in Curvilinear Microchannels. *Fluids*, 4(4), 204. doi: 10.3390/fluids4040204. Citation: 0
3. Karimzadehkhoei, M., Özbey, A., Christy, J., Koşar, A. and Sefiane, K. (2019) Investigation of Single Air Bubble Dynamics and the Effect of Nanoparticles in Rectangular Minichannels. *Journal of Molecular Liquids*, 279, 510-517. doi: 10.1016/j.molliq.2019.01.098. Citation: 0.
4. Özbey, A., Karimzadehkhoei, M., Kocaturk, N., Erbil-Bilir, S., Kutlu, Ö., Gozuacik, D. and Koşar, A. (2019) Inertial Focusing of Cancer Cells in Curvilinear Microchannels. *Micro and Nanoengineering*, 2, 53-63. doi: 10.1016/j.mne.2019.01.002. Citation: 8.
5. Karimzadehkhoei, M., Sadaghiani, A., K., Motezakker, A. R., Akgönül, S., Özbey, A., Şendur, K., Mengüç, M., P. and Koşar, A. Experimental and Numerical Investigation of Inlet Temperature Effect on Convective Heat Transfer of γ -Al₂O₃/Water Nanofluid in Microtubes. *Heat Transfer Engineering, Special Issue*, 2018;1-15. doi: 10.1080/01457632.2018.1442305. Citation: 7
6. Özbey, A., Karimzadehkhoei, M., Christy, J., Koşar, A. and Sefiane, K. (2019) On Bubble Dynamics in Subcooled Nucleate Boiling on a Platinum Wire. *International Journal of Thermal Sciences*, 137, 1-12. doi: 10.1016/j.ijthermalsci.2018.11.007. Citation: 1.
7. Özbey, A., Karimzadehkhoei, M., Alijani, H., and Koşar, A. (2018) Microparticle Inertial Focusing in an Asymmetric Curved Microchannel. *Fluids*, 3(3), p.57. doi: 10.3390/fluids3030057. Citation: 1.
8. Özbey, A., Karimzadehkhoei, M., Bayrak, Ö. and Koşar, A. (2018) Inertial Focusing of Microparticles in Curvilinear Microchannels with Different Curvature Angles. *Microfluidics and Nanofluidics*, 22, 6, 62. doi: 10.1007/s10404-018-2082-0. Citation: 6.
9. Karimzadehkhoei, M., Özbey, A., Sefiane, K. and Koşar, A. (2017) Stick and Oscillatory Behavior of Bubbles Due to TiO₂ Nanoparticle Coating in Subcooled Pool Boiling on a Wire. *Applied Physics Letters*, 111, 061601. doi: 10.1063/1.4986559. Citation: 2.
10. Özbey, A., Karimzadehkhoei, M., Sefiane, K. and Koşar, A. (2017) Changing Bubble Dynamics in Subcooled Boiling with TiO₂ Nanoparticles on a Platinum Wire. *Journal of Molecular Liquids*, 242, 456-470. doi: 10.1016/j.molliq.2017.07.061. Citation: 2.
11. Akgönül, S., Özbey, A., Karimzadehkhoei, M., Gozuacik, D. and Koşar, A. (2017) The Effect of Asymmetry on Micromixing in Curvilinear Microchannels. *Microfluidics and Nanofluidics*, 21, 7, 118. doi: 10.1007/s1040. Citation: 9.
12. Özbey, A., Karimzadehkhoei, M., Akgönül, S., Gozuacik, D. and Koşar, A. (2016) Inertial Focusing of Microparticles in Curvilinear Microchannels. *Scientific Reports*, 6. doi: 10.1038/srep38809. Citation: 28.
13. Özbey, A., Karimzadehkhoei, M., Yalcin, S. E., Gözüaçık, D. and Koşar, A. (2015) Modeling of ferrofluid magnetic actuation with dynamic magnetic fields in small channels. *Microfluidics and Nanofluidics*, 1-14. doi:10.1007/s10404-014-1442-7. Citation: 15.
14. Trabzon, L., Kizil, H., Yobas, L., Ozbey, A., Yilmaz, M., Cengiz, M., Trabzon, M., Ordu, M. and Kaygusuz, N. (2012) The Effect of Asymmetry on Particle Focusing in Microchannels. *Advanced Materials Research*, Vol. 403 – 408, 482 – 485. doi: 10.4028/www.scientific.net/AMR.403-408.482. Citation: 0.

Non-Peer Reviewed Scholarships in Print or Other Media

1. Özbey, A., Karimzadehkhoei, M., Kurtoglu, E., and Koşar, A. Simulation of Magnetic Actuation of Ferrofluids in Microtubes. 2013, ICNMM 11, Proceedings of the ASME 2013 11th International Conference on Nanochannels, Microchannels and Minichannels, Japan, Sapporo, June 10-13 2013.

2. Yilmaz, M., Cengiz, M., Kizil, H., Ozbey, A., Trabzon, L. Geometry Induced Microparticle Separation in Passive Contraction Expansion Straight Channels. 2011, ICQNM 2011, Proceeding of 5th International Conference on Quantum, Nano and Micro Technologies, Nice, France, August 21-27 2011.
3. Kizil, H., Trabzon, L. Yobas, L., Yilmaz, M., Özbey, A. Computational Analysis of Microparticle Separation in Straight Channels. 2010, MME 2010, 21th Micromechanics and Micro System Europe Workshop, Enschede, The Netherlands, September 26-29, 2010.
4. Parlak, N., Engin, T., Özbey, A. Fluid Flow in Microchannels. 2004, 10. Denizli Materials Proceeding and Exhibition, 65-70, Denizli, Turkey, April 14-16 2004.

Presentations/Attendance in Conferences

1. Özbey, A., Karimzadehkhoei, M., Akgönül, S., Gozuacik, D. and Koşar, A. Focusing Behaviour of Microparticles by Means of Inertial Microfluidics in a Symmetrical Curvilinear Microchannel. 2016, MicroTAS 2016, The 20th Global Conference on Miniaturized Systems for Chemistry and Life Sciences, Dublin, Ireland, October 9-13 2016.
2. Karimzadehkhoei, M., Özbey, A., Akgönül, S., Mohammadi, A., Şendur, K., Mengüç, M.P., and Koşar, A. Effect of Inlet Temperature on Convective Heat Transfer of gamma-Al₂O₃/Water Nanofluids in a Microtube. 2016, MNF2016, The 5th Micro and Nano Flows Conference, Milan, Italy, September 10-14 2016.
3. Akgönül, S., Özbey, A., Karimzadehkhoei, M., and Koşar, A., The Effect of Asymmetry on Micromixing in Curvilinear Microchannels. 2016, MNF2016, The 5th Micro and Nano Flows Conference, Milan, Italy, September 10-14 2016.
4. Ozbey, A., Akgönül, S., Avşar, Z., A., Zuvın, M., Oral, Ö., Gözüaçık, D. and Koşar, A. Inertial Microfluidics for Size Based Focusing of Tumor Cells and Fibroblasts. 2015, InterpackICNMM2015, Proceedings of the ASME 2015 13th International Conference on Nanochannels, Microchannels, and Minichannels, USA, San Francisco, CA, July 6-9 2015.
5. Ozbey, A., Akgönül, S., Avşar, Z., A., Zuvın, M., Oral, Ö., Gözüaçık, D. and Koşar, A. Rare Cell Sorting Using Inertial Microfluidics in Curved Channels. 2015, NEMB 2015, Asme 2015, 4th Global Conference on Nanoengineering for Medicine and Biology, USA, Minneapolis, MN, April 19-22 2015.
6. Özbey, A., Karimzadehkhoei, M., Kurtoğlu, E., and Koşar, A. (2013) Simulation of Magnetic Actuation of Ferrofluids in Microtubes. ICNMM 11, Proceedings of the ASME 2013 11th International Conference on Nanochannels, Microchannels and Minichannels, Japan, Sapporo, June 10-13 2013.
7. Yilmaz, M., Cengiz, M., Kizil, H., Ozbey, A., Trabzon, L. (2011) Geometry Induced Microparticle Separation in Passive Contraction Expansion Straight Channels. ICQNM 2011, Proceeding of 5th International Conference on Quantum, Nano and Micro Technologies, Nice, France, August 21-27 2011.
8. Kizil, H., Trabzon, L. Yobas, L., Yilmaz, M., Özbey, A. (2010) Computational Analysis of Microparticle Separation in Straight Channels. MME 2010, 21th Micromechanics and Micro System Europe Workshop, Enschede, The Netherlands, September 26-29, 2010.
9. Parlak, N., Engin, T., Özbey, A. (2004) Fluid Flow in Microchannels. 10. Denizli Materials Proceeding and Exhibition, 65-70, Denizli, Turkey, April 14-16 2004.

Thesis

1. Özbey, A., Inertial Focusing in Curvilinear Channels, PhD, 2017, Sabanci University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey.
2. Özbey, A., Creating and Characterizing Microfluidic Platforms Using PDMS, 2011, MSc, Istanbul Technical University, Graduate School of Science Engineering and Technology, Istanbul, Turkey.

Awards, Scholarships and Grants

02/2019	Marie Skłodowska-Curie European Fellowships Seal of Excellence
09/2018	The Scientific and Technological Research Council of Turkey (TUBITAK) International Post-Doctoral Scholarship
09/2017	Sabancı University Personal Research Funding
08/2016	CBMS Student/Young Researcher Travel Grant, MicroTAS 2016, The 20th Global Conference on Miniaturized Systems for Chemistry and Life Sciences.
01/2016	Newton Research Collaboration Programme, Exchange Academic Visitor Funding, in a project titled “Multiphase Flows and Heat Transfer in Microscale” (5 Months)
09/2015	Sabancı University, Research Assistant Scholarship in a project titled “Isolation of rare cancer cells using inertial microfluidics in curvilinear microchannels” (2 years)
04/2015	Award of Merit (poster session), NEMB 2015, Asme 2015, 4th Global Conference on Nanoengineering for Medicine and Biology.
02/2013	Sabancı University Travel Grant, ICNMM 11, Proceedings of the ASME 2013 11th International Conference on Nanochannels, Microchannels and Minichannels.
09/2012	The Scientific and Technological Research Council of Turkey (TUBITAK), Research Assistant Scholarship in a project titled “Manipulation of Magnetic Nanoparticle Based Nanofluids and its Application” (3 Years)
09/2012	Sabancı University, full scholarship (100% tuition and dorm free) (4 years)
08/2011	The Best Paper Award, ICQNM 2011, Proceeding of 5th International Conference on Quantum, Nano and Micro Technologies.
09/2009	The Scientific and Technological Research Council of Turkey (TUBITAK), Research Assistant Scholarship in a project titled “Low-cost design, production and characterization of microfluidics systems for Biologic Cell Separation Applications”