Curriculum Vitae

Barbaros Çetin

Professor
Mechanical Engineering Department
İ.D. Bilkent University

PERSONAL DATA

Date & Place of Birth: Bursa, Türkiye (1979)

Address:	Mechanical Engineering Department	Phone	:	+90-312-290-2108
	İhsan Doğramacı Bilkent University	Fax	:	+90-312-266-4126
	06800 Çankaya, Ankara Türkiye	Email	:	barbaros.cetin@bilkent.edu.tr
	Türkiye	Url	:	http://me.bilkent.edu.tr

ACADEMIC DEGREES

2014	*Doçent (YÖK)*	Associate Professor Degree from the Turkish Higher Education Council
2009	*Ph.D.*	in Mechanical Engineering, Vanderbilt University (Nashville, TN, USA)
2005	*M.S.*	in Mechanical Engineering, Middle East Technical Uni. (Ankara, Türkiye)
2002	*B.S.*	in Mechanical Engineering, Middle East Technical Uni. (Ankara, Türkiye)

EMPLOYMENT HISTORY

2023 (July) – Present	*Associate Dean* Engineering Faculty İ.D. Bilkent University (Ankara, Türkiye)
2020 (March) – 2023 (June)	*Vice Chair* Mechanical Engineering Department İ.D. Bilkent University (Ankara, Türkiye)
2024 (July) – Present	*Professor* Mechanical Engineering Department İ.D. Bilkent University (Ankara, Türkiye)
2018 (March) – 2024 (March)	*Associate Professor* Mechanical Engineering Department İ.D. Bilkent University (Ankara, Türkiye)
2018 (Aug.) – 2019 (May)	*Visiting Scholar (Sabbatical)* Mechanical Engineering Department Southern Methodist University (Dallas, TX, USA)
2011 (Sept.) – 2018 (Feb.)	*Assistant Professor* Mechanical Engineering Department İ.D. Bilkent University (Ankara, Türkiye)

2010 (Dec.) – 2011 (July)	*Assistant Professor* Mechanical Engineering Program Middle East Technical University-Northern Cyprus Campus Güzelyurt, T.R.N.C. Mersin 10 Türkiye
2009 (Sept.) – 2010 (Nov.)	*Instructor Dr.* Mechanical Engineering Program Middle East Technical University-Northern Cyprus Campus Güzelyurt, T.R.N.C. Mersin 10 Türkiye
2006 (Sept.) – 2009 (Aug.)	*Research Assistant* Dept. Mechanical Engineering Vanderbilt University, Nashville, TN USA
2008 (Jan.) – 2008 (Dec.)	*Teaching Assistant* Dept. Mechanical Engineering Vanderbilt University, Nashville, TN USA
Summer 2007, 2008, 2009	*Graduate Student Supervisor* Sarah Shannon Stevenson Science & Engineering Library Vanderbilt University, Nashville, TN USA
2002 (Sep.) – 2006 (Aug.)	*Research & Teaching Assistant* Dept. Mechanical Engineering Middle East Technical University, Ankara Türkiye

HONORS AND AWARDS

2018	*Most Inspiring Professor Award* by İ.D. Bilkent University Class of ME'2018
2018	*Distinguished Young Scientist Award* of the The Science Academy, Türkiye (BAGEP)
2017	*Research Incentive Award* of the METU Prof. Dr. Mustafa Parlar Foundation
2017	*Outstanding Young Scientist Award* of the Turkish Academy of Sciences (TÜBA-GEBİP)
2016	*Travel grant* through Newton-Katip Çelebi Fund Researcher Link Program
2016	*Travel grant* through 2015 Gateway Faculty Associates Program by Uni. Neb.–Lincoln
2015	*Distinguished Teaching Award* by İ.D. Bilkent University
2014	*TÜBİTAK Threshold Award* for the EU proposal PHOTONGUE
2012	*TÜBİTAK Career Program Award*
2002	Graduated from METU with *High-honor standing*
1997–2002	*Turkish Education Foundation Scholarship*
1991–1997	Scholarship throughout the secondary education for the outstanding academic standing

PUBLICATIONS

Book Chapters

- Supervised and co-supervised names are underlined.
- Corresponding author is indicated by (*).

[The following works are with İ.D. Bilkent University affiliation.]

21. M. B. Özer*, **B. Çetin** (2023). Application of ultrasonic waves in bioparticle manipulation and separation. *Acoustic Technologies in Biology and Medicine* (Editor: A. Özçelik, R. Becker, T. J. Huang), Wiley-VCH, Berlin [ISBN: 978-3-527-35062-9 (Print), 978-3-527-84132-5 (Online)], 243–304

20. **B. Çetin***, B. Çetin, K. D. Cole (2020). Semi-analytical source (SAS) method for heat conduction problems with moving heat source. *Mathematical Methods in Engineering and Applied Sciences* (Editor: Hemen Dutta), CRC Press [ISBN: 978-0-367-35977-5 (Print), 978-0-429-34353-7 (Online)], 1–18

19. Reza Rasooli, **B. Çetin*** (2019). An extended Langhaar's solution for two-dimensional entry microchannel flows with high-order slip. *Mathematics Applied to Engineering, Modelling, and Social Issues* (Editors: Frank Smith, Hemen Dutta and John N. Mordeson), Springer [ISBN: 978-3-030-12231-7 (Print), 978-3-030-12232-4 (Online)], 189–212 (Downloaded 106 times since March 2019)

18. **B. Çetin***, K. G. Güler, M. H. Aksel (2017). Computational modeling of vehicle radiators using porous medium approach. *Heat Exchangers – Design, Experiment and Simulation* (Edited by Prof. S. M. Sohel Murshed), InTechOpen [ISBN: 978-953-51-3094-9], 243–262 (Downloaded 1665 times since April 2017)

    o Three book chapters for *Mikroakışkan Teknolojilerin Temelleri ve Uygulamaları (Fundamentals and Applications of Microfluidic Technologies)* (Edited by Assoc. Prof. Ö. Yeşil-Çeliktaş), Ege University Press, Engineering Faculty, Print No: 63 [ISBN: 978-605-338-195-2] (In Turkish)

17. **B. Çetin***, E. Yıldırım, Ş. Akay (2016). Mikroakışkan Sistemlerin Üretimi (Fabrication of Microfluidic Systems), 27–51

16. C. Yavuz, **B. Çetin**, Ö. Yeşil-Çeliktaş (2016). Mikroakışkan Sistemlerin Sterilizasyonu (Sterilization of Microfluidic Systems), 115–137

15. Ö. Yeşil-Çeliktaş, **B. Çetin**, E. Yıldırım (2016). Mikroakışkan Sistemlere Yönelik Gelecek Tahminleri (Future Directions for Microfluidic Systems), 199–204

    o Eight entries for *Encyclopedia of Micro and Nanofluidics, 2nd Ed.* (Edited by Prof. Dongqing Li), Springer [ISBN: 978-1-4614-5488-5 (Print), 978-1-4614-5491-5 (Online)]

14. **B. Çetin***, B. Baranoğlu (2015). Boundary-Element Method in Microfluidics, 202–213

13. **B. Çetin***, S. Zeinali, D. Li (2015). Magnetic Pumps, 1690–1695

12. **B. Çetin***, S. Zeinali, D. Li (2015). Microfluidic Optical Devices, 1980–1984

11. **B. Çetin***, R. Salemmilani, D. Li (2015). Microfluidic Rotary Pump, 2000–2004

10. S. Büyükkoçak, M. B. Özer, **B. Çetin*** (2015). Microscale Acoustofluidics, 2149–2158

9. **B. Çetin***, S. Taze, D. Li (2015). Pressure Measurements, Methods, 2828–2834

8. **B. Çetin***, D. Li (2015). Temperature Gradient Generation and Control, 3225–3227

7. **B. Çetin***, R. Salemmilani, D. Li (2015). Ultrasonic pumps, 3394–3397

[The following works were completed prior to İ.D. Bilkent University affiliation.]

- Six entries for *Encyclopedia of Micro and Nanofluidics, 1st Ed.* (Edited by Prof. Dongqing Li), Springer [ISBN: 978-0-387-32468-5 (print), 978-0-387-48998-8 (online)]

6. **B. Çetin**, D. Li* (2008). Magnetic Pumps, 1040–1043

5. **B. Çetin**, D. Li* (2008). Microfluidic Optical Devices, 1186–1187

4. **B. Çetin**, D. Li* (2008). Microfluidic Rotary Pump, 1188–1189

3. **B. Çetin**, D. Li* (2008). Methods for Pressure Measurements, 1743–1745

2. **B. Çetin**, D. Li* (2008). Temperature Gradient Generation and Control, 1993–1994

1. **B. Çetin**, D. Li* (2008). Ultrasonic Pumps, 2128–2129

Refereed Journal Articles

- Supervised and co-supervised names are underlined.
- Corresponding author is indicated by (*).
- h-index: 23 in Google Scholar, 19 in Web of Science
- Citations: 2900 in Google Scholar, 1780 in Web of Science

[In Progress]

(1) Z. Babaie, G. Kibar, H. Yeşilkaya, Y. Amrani, S. Doğan, B. G. Tuna, V. C. Özalp, **B. Çetin***. Microfluidic rapid isolation and electrochemical detection of *S. pneumonia via* aptamer decorated surfaces, *In preparation*

(2) Ö. C. Gümüş, G. Kabacaoğlu, **B. Çetin***. Stabilization algorithms for isogeometric boundary element formulation to simulate three-dimensional droplets, *In preparation*

(3) H. N. Açıkgöz, A. Atay, A. Karaman, M. B. Özer, **B. Çetin***. Multilayer integrated acoustofluidic device for multi-stage particle manipulation, *In preparation*

(4) G. Odabaşı, **B. Çetin**, Z. Dursunkaya. Assessment of thermal performance of a flat grooved heat pipe *via* comprehensive modeling, *In preparation*

(5) B. Kılınçlı, D. Çınar, **B. Çetin**, G. Kibar*. Microfluidic vs. batch synthesis of fluorescent poly(GMA-co-EGDMA) micro/nanoparticles for biomedical applications, *Under review*

[The following works are with İ.D. Bilkent University affiliation.]

64. G. Gökçe*, **B. Çetin**, Z. Dursunkaya (2024). Accelerated 3D CFD modeling of multichannel flat grooved heat pipes, *Energy* (In press)

63. M. Kavruk. Z. Babaie, G. Kibar, **B. Çetin**, H. Yeşilkaya, Y. Amrani, A. D. Dursun, V. C. Özalp* (2024). Aptamer decorated PDA@magnetic silica microparticles for bacteria purification. *Microchim. Acta*, 191, 285

62. O. Balcı*, A. Kürekçi, V. C. Özalp, **B. Çetin** (2024). Performance comparison of aptamer and antibody-based fluorescent biosensors for bacteria on glass surfaces. *Anal. Lett.* (Available online)

61. G. Kibar, O. Berkay Şahinoğlu, B. Kılınçlı, E. Y. Erdem, **B. Çetin**, V. C. Özalp* (2024). Biosensor for ATP detection *via* aptamer decorated PDA@POSS nanoparticles synthesized in a microfluidic reactor. *Microchim. Acta*, 191(3), 153

60. G. Kibar, B. Sarıarslan, S. Doğanay, G. Yıldız, B.Usta, **B. Çetin*** (2024). Novel 3D-printed microfluidic magnetic platform for rapid DNA isolation. *Anal. Chem.*, 96(5), 1985–1992

59. Ö. C. Gümüş, K. Atak, B. Çetin, B. Baranoğlu, **B. Çetin*** (2024). Isogeometric boundary element formulation for cathodic protection problems of amphibious vehicles. *Eng. Anal. Bound. Elem.*, 158, 85–96

58. F. Bonyadi, M. Kavruk, S. Uçak, **B. Çetin**, G. Bayramoğlu, A. D. Dursun, Y. Arıca, V. C. Özalp* (2023). Real-time biosensing bacteria and virus with quartz crystal microbalance: Recent advances, opportunities, and challenges. *Crit. Rev. Anal. Chem.*, 1–12

57. G. Gökçe, C. Kurt, G. Odabaşı, Z. Dursunkaya, **B. Çetin*** (2023). Comprehensive three-dimensional hydrodynamic and thermal modeling of steady-state operation of a flat grooved heat pipe. *Int. J. Multiphase Flow*, 160, 104370

56. H. N. Açıkgöz, A. Karaman, M. A. Şahin, Ö. R. Çaylan, G. C. Büke, E. Yıldırım, İ. Eroğlu, A. E. E. Benson, **B. Çetin**, M. B. Özer* (2023). Assessment of silicon, glass, acrylic, PDMS and FR4 as a chip material on acoustic particle manipulation in microfluidics. *Ultrasonics*, 129, 106911

55. Ö. C. Gümüş, B. Baranoğlu, **B. Çetin*** (2022). Isogeometric and NURBS-enhanced boundary element formulations for steady-state heat conduction with volumetric heat source and nonlinear boundary conditions. *Eng. Anal. Bound. Elem.*, 145, 299–309

54. S. Saygan, Y. Akkuş, Z. Dursunkaya, **B. Çetin*** (2022). Capillary boosting for enhanced heat pipe performance through bifurcation of grooves: numerical assessment and experimental validation. *Int. Comm. Heat Mass Transf.*, 137, 106162

53. S. Saygan, Y. Akkuş, Z. Dursunkaya, **B. Çetin*** (2022). Fast and predictive heat pipe design and analysis toolbox: H-PAT. *Isi Bilim Tek. Derg.-J. Therm. Sci. Tech.*, 42(1), 141-156

52. A. Atay, A. Beşkök, **B. Çetin*** (2022). DC-electrokinetic behavior of colloidal cylinder(s) in the vicinity of a conducting wall. *Electrophoresis, Special Issue on Dielectrophoresis*, 43(12), 1263–1274

51. E. Atasoy, **B. Çetin**, Ö. Bayer* (2022). Experiment-based optimization of an energy-efficient heat pump integrated water heater operating for household appliances. *Energy*, 245, 123308

50. A. Topuz, B. Baranoğlu, **B. Çetin*** (2021). A multi-domain direct boundary element formulation for particulate flow in microchannels. *Eng. Anal. Bound. Elem.*, 132 (1), 221–230

49. O. Akdağ, Y. Akkuş, **B. Çetin**, Z. Dursunkaya* (2021). Interplay of transport mechanisms during the evaporation of a pinned sessile water droplet. *Phys. Rev. Fluids*, 6 (7), 073605

48. M. B. Özer*, **B. Çetin** (2021). An extended view for acoustofluidic particle manipulation: Scenarios for actuation modes and device resonance phenomenon for bulk-acoustic-wave devices. *J. Acoust. Soc. Am.*, 149 (4), 2802–2812

47. M. D. Aşık*, M. Kaplan, **B. Çetin**, N. Sağlam (2021). Synthesis of iron oxide core chitosan nanoparticles in a 3D printed microfluidic channel. *J. Nanopart. Res.*, 23 (3), 62

46. A. C. Sabuncu*, **B. Çetin**, O. B. Usta, N. Aubry (2021). β-dispersion of blood during sedimentation. *Scientific Reports*, 11 (1), 2642

45. A. Atay, A. Topuz, B. Sarıarslan, E. Yıldırım, J. Charmet, K. Couling, **B. Çetin*** (2021). A flow rate controlled pipetting for microfluidics: Second Generation Flexible Hydraulic Reservoir (FHRv2). *Microfluid. Nanofluid.*, 25 (3), 1–10

44. **B. Çetin***, Y. F. Kuşcu, B. Çetin, Ö. Tümüklü, K. D. Cole (2021). Semi-analytical source (SAS) method for 3-D transient heat conduction problems with moving heat source. *Int. J. Heat Mass Trans.*, 165, 120692

43. Y. Akkuş, **B. Çetin**, Z. Dursunkaya* (2020). A theoretical framework for comprehensive modeling of steadily fed evaporating droplets and the validity of common assumptions. *Int. J. Thermal Sciences*, 158, 106529

42. M. A. Şahin, **B. Çetin**, M. B. Özer* (2020). Investigation of effect of design and operating parameters on acoustophoretic particle separation via 3D device-level simulations. *Microfluid. Nanofluid.*, 24 (8), 1–18

41. A. T. Çelebi, **B. Çetin***, A. Beşkök (2019). Molecular and continuum perspectives on intermediate and flow reversal regimes in electroosmotic transport. *J. Physical Chemistry C*, 123 (22), 14024–14035

40. G. Düven, **B. Çetin***, H. Kurtuldu, G. T. Gündüz, Ş. Tavman, D. Kışla (2019). A portable microfluidic platform for rapid determination of microbial load and somatic cell count. *Biomed. Microdev.*, 21 (3), 49

39. G. Kibar, U. Çalışkan, Y. Erdem, **B. Çetin*** (2019). One-pot synthesis of polyhedral oligomeric silsesquioxane (POSS) microparticles in a microfluidic chip. *J. Polym. Sci. A: Polym. Chem.*, 57: 1396–1403

38. A. Atay, B. Sarıarslan, Y. F. Kuşçu, Y. Akkuş, S. Saygan, A. T. Gürer, **B. Çetin**, Z. Dursunkaya* (2019). Performance assessment of commercial heat pipes with sintered and grooved wicks under natural convection. *Isi Bilim Tek. Derg.-J. Therm. Sci. Tech.*, 39(2), 101–110

37. Y. Akkuş, **B. Çetin**, Z. Dursunkaya* (2019). An iterative solution approach to coupled heat and mass transfer in a steadily fed evaporating water droplet. *J. Heat Trans.*, 141(2), 031501

36. H. A. Alijanvand, **B. Çetin***, Y. Akkuş, Z. Dursunkaya (2019). Experimental thermal performance characterization of flat grooved heat pipes. *Heat Transfer Eng.*, 40 (9-10), 784–793

35. R. Rasooli, **B. Çetin*** (2018). Assessment of Lagrangian modeling of particle motion in a spiral microchannel for inertial microfluidics. *Micromachines*, 9 (9), 433

34. U. Hatipoğlu, **B. Çetin***, E. Yıldırım (2018). A novel zero-dead-volume sample loading interface for microfluidic devices: Flexible Hydraulic Reservoir (FHR). *J. Micromech. Microeng.*, 28 (9), 097001

33. Y. Oskay, **B. Çetin**, N. Şerifoğlu, A. A. Ergül, M. Adams* (2018). A novel, low-cost injection and anesthesia system for zebrafish researchers. *Zebrafish*, 15 (2), 85–95

32. K. Cole*, **B. Çetin**, Y. Demirel (2018). Semi-analytical source method for reaction-diffusion problem. *J. Heat Trans.*, 140 (6), 061301

31. G. Düven, **B. Çetin**, D. Kışla* (2018). Çip-üstü-laboratuvar teknolojisinin gıda mikrobiyolojisindeki uygulamaları (Lab-on-a-chip technology in food microbiology). *Akademik Gıda (Academic Food)*, 16 (1), 78–87 (In Turkish)

30. H. A. Alijanvand, **B. Çetin***, Y. Akkuş, Z. Dursunkaya (2018). Effect of design and operating parameters on the thermal performance of flat grooved heat pipes. *Applied Thermal Eng.*, 132, 174–187

29. İ. N. Yıldıran, İ. Temizer*, **B. Çetin** (2017). Homogenization in hydrodynamic lubrication: Microscopic regimes and non-conventional textures. *J. Tribology*, 140 (1), 011701

28. Y. Akkuş, H. I. Tarman, **B. Çetin**, Z. Dursunkaya* (2017). Two-dimensional computational modeling of thin-film evaporation. *Int. J. Thermal Sciences*, 121, 237–248

27. K. Cole, **B. Çetin*** (2017). Modeling of Joule heating and convective cooling in a thick-walled micro-tube. *Int. J. Thermal Sciences*, 119, 24–36

26. **B. Çetin***, S. D. Öner, B. Baranoğlu (2017). Modeling of dielectrophoretic particle motion: Point particle vs finite-sized particle. *Electrophoresis, Special Issue on Dielectrophoresis*, 38, 1407–1418

25. C. Kerse, H. Kalaycıoğlu, P. Elahi, **B. Çetin**, S. Yavaş, D. K. Kesim, Ö. Akçaalan, M. D. Aşık, B. Öktem, H. Hoogland, R. Holzwarth, F. Ö. İlday* (2016). Ablation-cooled material removal with ultrafast bursts of pulses. *Nature*, 537, 84–88

24. **B. Çetin***, M. B. Özer, E. Çağatay, S. Büyükkoçak (2016). An integrated acoustic and dielectrophoretic particle manipulation in a microfluidic device for particle wash and separation fabricated by mechanical machining. *Biomicrofluidics*, 10(1), 014112

23. C. Yavuz, S. N. B. Oliaei, **B. Çetin**, Ö. Yeşil-Çeliktaş* (2016). Sterilization of PMMA microfluidic chips by various techniques and investigation of material characteristics. *J. Supercritical Fluids*, 107, 114–121

22. M. Barışık*, A. G. Yazıcıoğlu, **B. Çetin**, S. Kakaç (2015). Analytical solution of thermally developing microtube heat transfer including axial conduction, viscous dissipation and rarefaction effects. *Int. Commun. Heat Mass*, 67, 81–88

21. S. Zeinali, **B. Çetin***, S. N. B. Oliaei, Y. Karpat (2015). Fabrication of continuous flow microfluidics device with 3D electrode structures for high throughput DEP applications using mechanical machining. *Electrophoresis, Special Issue on Dielectrophoresis*, 36 (13), 1432–1442

20. Z. Karakaya, B. Baranoğlu*, **B. Çetin**, A. Yazıcı (2015). A parallel boundary element formulation for tracking multiple particle trajectories in Stoke's flow for microfluidic applications. *CMES–Comp. Model. Eng. Sci.*, 104 (3), 227–249

19. **B. Çetin***, A. K. Koska, M. Erdal (2015). Warpage characterization of microchannels fabricated by injection molding. *J. Micro Nano-Manuf.*, 3 (2), 021005

18. S. Büyükkoçak, M. B. Özer, **B. Çetin*** (2014). Numerical modeling of acoustophoretic particle separation for microfluidics. *Microfluid. Nanofluid.*, 17 (6), 1025–1037

17. **B. Çetin***, S. Zeinali (2014). Analysis of heat transfer for a low Peclet number microtube flow using second-order slip model: An extended–Graetz problem. *J. Eng. Math.*, 89 (1), 13–25

16. **B. Çetin***, M. B. Özer, M. Solmaz (2014). Microfluidic bio-particle manipulation for biotechnology. *Biochem. Eng. J.*, 92, 63–82

15. K. Cole*, **B. Çetin**, L. Brettmann (2014). Microchannel heat transfer with slip flow and wall effects. *J. Thermophys. Heat Tr.*, 28 (3), 455–462

14. **B. Çetin***, M. Aşık, S. Taze (2014). Design and Fabrication of a microfluidic device for synthesis of chitosan nanoparticles. *J. Nanotech. Eng. Medicine*, 4 (3), 031004

13. **B. Çetin** (2013). Effect of thermal creep on heat transfer for a 2D microchannel flow: An analytical approach. *J. Heat Trans.*, 135 (10), 101007

12. **B. Çetin***, D. Li (2011). Dielectrophoresis in Microfluidics Technology. *Electrophoresis, Special Issue on Dielectrophoresis*, 32, 2410–2427

[The following works were prior to İ.D. Bilkent University affiliation.]

11. K. Cole*, **B. Çetin** (2011). The effect of axial conduction on heat transfer in a liquid microchannel flow. *Int. J. Heat Mass Trans.*, 54, 2542–2549

10. **B. Çetin***, Ö. Bayer (2011). Evaluation of Nusselt number for a flow in a microtube using second–order slip model. *Therm. Sci.*, 15 (Suppl. 1), 103–109

[The following works were during M.S./Ph.D. research.]

9. **B. Çetin**, D. Li* (2010). Lab-on-a-chip device for continuous particle and cell separation based on electrical properties via AC-dielectrophoresis. *Electrophoresis*, 31, 2010, 3035–3043

8. **B. Çetin**, D. Li* (2009). Continuous particle separation based on electrical properties using AC-DEP, *Electrophoresis.* 30, 3124–3133

7. **B. Çetin**, Y. Kang, Z. Wu, D. Li* (2009). Continuous particle separation by size via AC-DEP using a lab-on-a-chip device with 3D electrodes. *Electrophoresis*, 30, 766–772

6. Y. Kang, **B. Çetin**, Z. Wu, D. Li* (2009). Continuous particle separation with localized AC-DEP using embedded electrodes and an insulating hurdle. *Electrochim. Acta*, 54, 1715–1720

5. **B. Çetin***, A. G. Yazıcıoğlu, S. Kakaç (2009). Slip-flow heat transfer in microtubes with axial conduction and viscous dissipation–An extended Graetz problem. *Int. J. Thermal Sciences*, 48, 1673–1678

4. **B. Çetin**, B.E. Travis, D. Li* (2008). Analysis of the electro-viscous effects on pressure-driven liquid flow in a two-section heterogeneous microchannel. *Electrochim. Acta*, 54, 660–664

3. **B. Çetin**, D. Li* (2008). Effect of Joule heating on electrokinetic transport. *Electrophoresis*, 29 (5), 994–1005

2. **B. Çetin***, A. G. Yazıcıoğlu, S. Kakaç (2008). Fluid flow in microtubes with axial conduction including rarefaction and viscous dissipation. *Int. Commun. Heat Mass*, 35, 535–544

1. **B. Çetin***, H. Yüncü, S. Kakaç (2006). Gaseous flow in microconduits with viscous dissipation. *Int. J. Transport Phenomena*, 8 (4), 297–315

Dissertations

2. **B. Çetin** (2009), Microfluidic Continuous Separation of Particles and Cells by using AC-Dielectrophoresis. Ph.D. Thesis, Vanderbilt University (TN, USA) (Supervisor: Prof. Dr. Dongqing Li)

1. **B. Çetin** (2005), Analysis of Single Phase Convective Heat Transfer in Microtubes and Microchannels. M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Hafit Yüncü, Co-super-visor: Prof. Dr. Sadık Kakaç, Uni. Miami, ME)

Patent Applications

15. H. N. Açıkgöz, A. Atay, M. A. Şahin, A. Karaman, M. B. Özer, **B. Çetin** (2022). Multilayer integrated acoustophoretic microfluidic device for multi-stage micro and biological particle manipulation, International Patent Application No: PCT/TR2022/051223 (01-November-2022)

14. G. Gökçe, **B. Çetin**, Z. Dursunkaya (2022). Isı borusu performansını arttırmaya yönelik yenilikçi oluk şekillerine sahip ısı boruları (Innovative groove geometries for improved thermal performance of heat pipes), Turkish Patent Application No: 2022/014105 (12-September-2022, Granted)

13. **B. Çetin**, B. Baytekin, İ. Doğan, A. A. Mekikoğlu, S. Akyeli, H. Çakın, A. Özel, B. Köfön, E. Sel, E. Mutlu, İ. Akyeli, T. E. Aslantürk (2022). Multi-layer composite panel composed of organic/inorganic materials and providing thermal insulation and protection against ionizing radiation, International Patent Application No: PCT/TR2022/050266 (25-March-2022, Granted)

12. A. C. Gözükara, M. Ocak, M. Karakoç, A. Özdemir, **B. Çetin** (2022). Phase change driven thin flat plate heat spreader with groove instigated, capillary induced, liquid transport for thermal management of conduction cooled electronics, Turkish Patent Application No: TR2022/003424 (08-March-2022)

11. G. Gökçe, **B. Çetin**, Z. Dursunkaya (2021). Isı borularının 3-boyutlu olarak modellenebilmesi için ticari hesaplamalı akışkanlar dinamiği programı ile çözüm yöntemi (Solution methodology for 3D modeling of heat pipes *via* commercial CFD software), Turkish Patent Application No: TR2021/018989 (02-December-2021, Granted)

10. H. N. Açıkgöz, A. Atay, M. A. Şahin, A. Karaman, M. B. Özer, **B. Çetin** (2021). Çok aşamalı mikro ve biyolojik parçacık manipülasyonu için çok katmanlı entegre akustoforetik mikro akışkan cihaz (A sandwiched integrated acoustophoretic microfluidic device for multi-stage manipulation of micro and biological particles), Turkish Patent Application No: TR2021/018663 (29-November-2021)

9. S. Saygan, Y. Akkuş, **B. Çetin**, Z. Dursunkaya (2021). A fast, predictive heat pipe design and analysis toolbox, International Patent Application No: PCT/TR2021/051071 (19-October-2021, Granted)
    - o US Patent and Trademark Office, No: 18/250,546 (26-April-2023, Granted)
    - o China Patent Application, No: CN202180007832A (30-June-2022)
    - o European Patent Application, No: EP21805685 (10-June-2022)
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43. O. Akdağ*, Y. Akkuş, **B. Çetin**, Z. Dursunkaya (2021). Onset of Deegan flow in drying droplets with buoyancy driven convection. *23th Nat. Conf. Thermal Sci. (ULIBTK'21)*, Sept. 08–10, Gaziantep, Türkiye

42. G. Gökçe*, **B. Çetin**, Z. Dursunkaya (2021). Dryout performance assessment of grooved heat pipes using a 3D computational model. *23th Nat. Conf. Thermal Sci. (ULIBTK'21)*, Sept. 08–10, Gaziantep, Türkiye

41. R. A. Sezmen*, **B. Çetin**, Z. Dursunkaya (2021). Thermal performance analysis of multichannel flat grooved heat pipe. *23th Nat. Conf. Thermal Sci. (ULIBTK'21)*, Sept. 08–10, Gaziantep, Türkiye

40. A. Atay, **B. Çetin*** (2021). Effect of DEP on colloidal cylinders near a planar boundary. *4th Int. Conf. Dielectrophoresis (DEP 2021)*, July 26–28, Flagstaff, AZ, USA

39. G. Kibar, B. Sarıaslan, M. Yıldız, B. Usta, **B. Çetin*** (2021). Microfluidic DNA isolation with a magnetic platform. *7th Micro and Nano Flows Conf.*, May 24–26, London, UK

38. H. N. Açıkgöz, A. Atay, M. A. Şahin, M. B. Özer*, **B. Çetin** (2021). Particle focusing via low and high frequency acoustic waves in a microfluidic chip. *7th Micro Nano Flows Conf.*, May 24–26, London, UK

37. H. N. Açıkgöz, A. Atay, **B. Çetin**, M. B. Özer* (2021). Numerical simulation of acoustophoresis with acoustic and hydrodynamic interactions. *7th Micro Nano Flows Conf.*, May 24–26, London, UK

36. A. Atay, A. Beşkök, **B. Çetin*** (2021). DC-electrokinetic behavior of colloidal cylinders in the vicinity of a non-conducting wall. *7th Micro Nano Flows Conf.* , May 24–26, London, UK

35. A. Topuz*, **B. Çetin** (2019). Subdomain boundary element formulation for particulate flow. *4th Int. Porous Powder Materials Symp. & Exh. (PPM 2019)*, Oct. 9–11, Marmaris, Türkiye

34. A. Atay*, **B. Çetin**, A. Beşkök (2019). Modeling of electrokinetic motion of Janus particles using Boundary Element Method. *4th Int. Porous Powder Materials Symp. & Exh. (PPM 2019)*, Oct. 9–11, Marmaris, Türkiye

33. U. Çalışkan, G. Kibar, **B. Çetin*** (2019). One-pot synthesis of epoxy functional POSS micro/nano particles in temperature controlled continuous flow microfluidic reactor. *4th Int. Porous Powder Materials Symp. & Exh. (PPM 2019)*, Oct. 9–11, Marmaris, Türkiye

32. Y. Akkuş, **B. Çetin**, Z. Dursunkaya* (2019). Continuously fed evaporating cylindrical water blocks for electronics cooling applications. *6th Int. Conf. Themorphysical and Mechanical Properties of Advanced Materials (THERMAM 2019)*, Sept. 22–24, İzmir, Türkiye

31. A. Topuz, B. Baranoğlu, **B. Çetin*** (2019). A ghost subdomain boundary element formulation for particulate flow in microchannels. *ASME 17th Int. Conf. Nano/Micro/Mini-channels (ICNMM 2019)*, June 23–26, St. John's, Newfoundland, Canada

30. A. Atay, **B. Çetin***, A. Beşkök (2019). Modeling of direct current electrokinetic motion of Janus particles and droplets. *13th Int. Symp. Electrokinetics*, June 12–14, MIT, Boston, MA, USA

29. A. Köklü, A. T. Çelebi, **B. Çetin***, A. Beşkök (2019). Theoretical and experimental investigations of electroosmotic flow beyond Debye-Hückel regime. *13th Int. Symp. Electrokinetics*, June 12–14, MIT, Boston, MA, USA

28. A. Atay, **B. Çetin***, A. Beşkök (2019). Simulation of electrokinetic motion of Janus particles. *3rd Bluebonnet Thermo-Fluids Symposium*, April 26, Dallas, TX, USA

27. A. Köklü, A. T. Çelebi, **B. Çetin***, A. Beşkök (2019). Understanding of electroosmotic flow in micro/nanochannels beyond Debye-Hückel regime. *3rd Bluebonnet Thermo-Fluids Symposium*, April 26, Dallas, TX, USA

26. M. Çam, S. D. Önder, **B. Çetin***, B. Baranoğlu (2018). Modeling of dielectrophoretic motion of flagellar microorganisms. *ASME 16th Int. Conf. Nano/Micro/Mini-channels (ICNMM 2018)*, June 10–13, Dubrovnik, Croatia

25. M. A. Şahin, M. B. Özer, **B. Çetin*** (2018). Effect of generated heat on acoustophoresis in micro and minichannels. *ASME 16th Int. Conf. Nano/Micro/Mini-channels (ICNMM 2018)*, June 10–13, Dubrovnik, Croatia

24. C. Kurt, G. Odabaşı, **B. Çetin***, Y. Akkuş, Z. Dursunkaya (2018). Experimental investigation of thermal performance of a silicon flat plate grooved heat pipe with an integrated heater and cooler. *ASME 16th Int. Conf. Nano/Micro/Mini-channels (ICNMM 2018)*, June 10–13, Dubrovnik, Croatia

23. O. Altunkaş*, B. Durmuş, **B. Çetin**, O. Akgöz (2017). Improvement of a geothermal power plant with multiple Organic Rankine Cycles. *15th UK Heat Transfer Conf. (UKHTC 2017)*, Sept. 04–05, Cambridge, London, UK

22. H. Alijani, **B. Çetin***, Y. Akkuş, Z. Dursunkaya (2017). Experimental investigation of thermal performance of an aluminum flat-grooved heat pipe. *ASME 15th Int. Conf. Nano/Micro/Mini-channels (ICNMM 2017)*, Aug. 27–31, Cambridge, MA, USA

21. S. D. Öner, **B. Çetin**, B. Baranoğlu* (2017). 2D Simulation of dielectrophoretic multi-particle motion using Boundary Element Method. *ECCOMAS Thematic Conf.–VII Int. Conf. Coupled Problems Sci. Eng.*, June 12–14, 2017, Rhodes Island, Greece

20. **B. Çetin***, H. Kaplan, G. Durkaya, H. Kurtuldu (2016). Low cost, ultra high throughput particle counting using inertial microfluidics. *20*th *Int. Conf. Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2016)*, Oct. 09–13, Dublin, Ireland

19. E. Çağatay, M. B. Özer, **B. Çetin*** (2016). 3D Modeling of on-chip acoustophoretic particle manipulation in a polymer microfluidic device. *20*th *Int. Conf. Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2016)*, Oct. 09–13, Dublin, Ireland

18. M. D. Aşık, **B. Çetin***, M. Kaplan, Y. Erdem, N. Sağlam (2016). 3D printed microfluidic reactor for high throughput chitosan nanoparticle synthesis. *20*th *Int. Conf. Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2016)*, Oct. 09–13, Dublin, Ireland

17. R. Rasooli*, O. K. Karaoğlu, **B. Çetin** (2016). Simulation of particle flow in a spiral microchannel for inertial microfluidics. *5*th *Micro Nano Flows Conf.*, Sept.11–14, Milan, Italy

16. H. A. Alijanvand*, **B. Çetin**, Z. Dursunkaya (2016). Experimental investigation of thermal performance of aluminum-grooved micro heat pipe. *5*th *Micro Nano Flows Conf.*, Sept. 11–14, Milan, Italy

15. H. D. Uslu, O. D. Yılmaz, Ç. Canpolat*, **B. Çetin** (2016). Experimental characterization of electrokinetic based mixing in a pressure driven flow, *ASME 14*th *Int. Conf. Nano/Micro/Mini-channels (ICNMM 2016)*, July 10–14, Washington, DC, USA

14. **B. Çetin** (2016). Fabrication of 3D structures for microfluidic applications. *Int. Conf. Microfluidics, Nanofluidics and Lab-on-a-chip*, June 10–12, Dalian, China

13. S. D. Öner, A. Karakuş, **B. Çetin**, B. Baranoğlu* (2016). Parallel boundary element formulation for 2D microfluidic particulate flow for multi-threaded architectures. *ECCOMAS Cong.*, June 05–10, Crete Island, Greece

12. K. D. Cole*, Y. S. Doğrusöz, **B. Çetin** (2016). Forward models for the electrocardiography problem: Voltage sources versus current sources. *2016 Inverse Problems Symp.*, June 05–07, Virginia Military Institute, Lexington, VA, USA

11. C. Kerse*, H. Kalaycıoğlu, P. Elahi, Ö Akçaalan, S. Yavaş, M.D. Aşık, D. K. Kesim, K. Yavuz, **B. Çetin**, F. Ö İlday (2015). Ablation-cooled material removal at high speed with femtosecond pulse bursts. *Advanced Solid State Lasers Conference and Exhibition (ASSL 2015)*, Oct. 04–09, Berlin, Germany

10. İ. Karakurt*†, **B. Çetin** (2015). Continuous flow microfluidic PCR reactor. 2nd *Novel Fluidic Technol. Appl. Workshop*, April 09–10, İzmir, Türkiye
    †İlbey Karakurt received the first place in the *"Young Researcher Excelling in Novel Fluidics"* awards.

9. E. Çağatay*†, **B. Çetin**, M. B. Özer (2015). An integrated microfluidic device for particle wash and particle separation. 2nd *Novel Fluidic Technol. Appl. Workshop*, April 09–10, İzmir, Türkiye
    †Erdem Çağatay received the second place in the *"Young Researcher Excelling in Novel Fluidics"* awards.

8. R. Rasooli*, **B. Çetin**, B. Baranoğlu (2015). Assessment of different element orders for Boundary Element formulation of particulate flow in microchannels. 2nd *Novel Fluidic Technol. Appl. Workshop*, April 09–10, İzmir, Türkiye

7. C. Yavuz*, **B. Çetin**, Ö. Yeşil-Çeliktaş (2015). Sterilization of microchips for biomedical applications. 2nd *Novel Fluidic Technol. Appl. Workshop*, April 09–10, İzmir, Türkiye

6. D. Karabulut*, S. Akay, A. Kazan, S. Sargın, **B. Çetin**, Ö. Yeşil-Çeliktaş (2015). A miniaturized device for hydrolysis of ginseng RB1. 2nd *Novel Fluidic Technol. Appl. Workshop*, April 09–10, İzmir, Türkiye

5. B. Baranoğlu, **B. Çetin*** (2014). Parallel implementation of 2-D boundary element formulation for a microfluidic particulate flow. *11th World Cong. Comput. Mech. / 6th Europ. Conf. Comput. Fluid Dynamics*, July 20–25, Barcelona, Spain

4. **B. Çetin** (2012). Microfluidics and Lab-on-a-chip Technology. *Innovation and Collaboration in Engineering Research (INCER'2012)*, July 02–04, Bucharest, Romania

[The following presentations were prior to İ.D. Bilkent University affiliation.]

3. **B. Çetin***, D. Li (2010). Lab-on-a-chip device for continuous particle and cell separation based on electrical properties via AC-dielectrophoresis. *17th Int. Symp. Capillary Electroseparation Techniques (ITP 2010)*, Aug. 29–Sept. 01, Baltimore, MD, USA

2. **B. Çetin** (2009). Microfluidic continuous separation of particles and cells by AC-DEP. *NATO ASI Summer School on Microsystems for Security–Fundamentals and Applications*, Aug. 23–Sept. 04, Çesme, Türkiye

1. **B. Çetin**, H. Yüncü, S. Kakaç (2004). Single-phase convective heat transfer in microchannels. *NATO ASI Summer School on Microscale Heat Transfer–Fundamentals and Applications in Biological and MEMS*, July 18–30, Çesme, Türkiye

KEYNOTE LECTURES AND INVITED TALKS

Keynote Lectures

7. **B. Çetin** (2023). Grooved Heat Pipes: Modeling, Experimentation and Applications.
   *14*th *Int. Conf. Thermal Eng.: Theory and Applications (ICTEA 2023)*, May 25–27, Yalova, Türkiye

6. **B. Çetin** (2021). Modeling of Bio-particle Motion in Microchannels.
   *13*th *Int. Conf. Comput. Heat Mass & Momen. Transf. (ICCHMT 2021)*, May 18–21, Paris, France (Online)

5. **B. Çetin** (2021). Grooved Heat Pipes: Modeling, Experimentation and Applications.
   *5*th *Int. Anatolian Energy Symposium (AES 2021)*, March 24–26, Trabzon, Türkiye (Online)

4. **B. Çetin** (2019). Modeling of Particle Motion for Microfluidic Applications.
   *4*th *Int. Porous Powder Materials Symp. & Exh. (PPM 2019)*, Oct. 9–11, Marmaris, Türkiye

3. **B. Çetin** (2019). Grooved Heat Pipes: Modeling, Experimentation and Applications.
   *6*th *Int. Conf. Thermophy. Mech. Proper. Adv. Mat. (THERMAM 2019)*, Sept. 22–24, İzmir, Türkiye

2. **B. Çetin** (2019). Modeling of Bio-particle Motion in Microchannels.
   *ASME 17*th *Int. Conf. Nano/Micro/Mini-channels (ICNMM 2019)*, June 23–26, St. John's, NL, Canada

1. **B. Çetin** (2015). Microfluidics and Lab-on-a-chip Technology for Biomedical Applications.
   *20*th *Nat. Conf. Thermal Sci. (ULIBTK'15)*, Sept. 2–5, Balıkesir, Türkiye

Invited Talks

44. **B. Çetin** (2024). Microfluidic Systems for Bio-particle Manipulation. *TranslaTUM - Center for Translational Cancer Research, Technical Univbersity of Munich*, July 04, Munich, Germany

43. **B. Çetin** (2023). Modeling of Cathodic Protection Problem *via* Isogeometric Boundary Element Formulation. *FNSS Defense Systems Inc.*, August 22, Ankara, Türkiye

42. **B. Çetin** (2022). Grooved Heat Pipes: Modeling, Fabrication, Experimentation and Applications. *Uni. Nebraska at Lincoln, Mechanical and Materials Engineering Dept.*, Aug. 30, Lincoln, NB, USA

41. **B. Çetin** (2022). Microfluidic Systems for Biotechnology. *Gebze Technical University, Biotechnology Institute*, May 25, İstanbul, Türkiye

40. **B. Çetin** (2022). Grooved Heat Pipes: Modeling, Fabrication, Experimentation and Applications. *İzmir Institute of Technology, Energy Systems Engineering Department*, April 15, Manisa, Türkiye

39. **B. Çetin** (2022). Microfluidic Systems for Biotechnology. *Celal Bayar University, Food Engineering Department*, April 14, İzmir, Türkiye

38. **B. Çetin** (2022). Microfluidic Systems for Bio-particle Manipulation. *Eskişehir Osmangazi University, Fabrication of Microfluidic Chips and Separation Applications Workshop*, March 1, Eskişehir, Türkiye

37. **B. Çetin** (2021). Microfluidic Systems for Bio-particle Manipulation. *Middle East Technical University, Mechanical Engineering Department*, Nov. 12, Ankara, Türkiye

36. **B. Çetin** (2021). Microfluidic Systems for Biotechnology. *3rd Int. Cancer and Ion Channels Congress*, September 16–18, Medipol University, İstanbul, Türkiye

35. **B. Çetin** (2021). Grooved Heat Pipes: Modeling, Fabrication, Experimentation and Applications. *Hitit University, R&D and Innovation in Machine and Manufacturing Tech. Workshop*, July 1–2, Çorum, Türkiye

34. **B. Çetin** (2021). Microfluidic Systems for Biotechnology. *Katip Çelebi University, Mechatronics Engineering Dept.*, June 02, İzmir, Türkiye

33. **B. Çetin** (2021). Microfluidic System for the Determination of Bacterial Load from Patients with Blood Stream Infection. *Dokuz Eylül University, BioİzmirInitiative Microfluidic Systems in Health Technologies Workshop*, May 21, İzmir, Türkiye

32. **B. Çetin** (2021). Microfluidic System for the Determination of Bacterial Load from Patients with Blood Stream Infection. *METU–MEMS Center Bio-MEMS & Microfluidic Technologies Workshop*, February 26, Ankara, Türkiye

31. **B. Çetin** (2019). Microfluidic Systems for Biotechnology. *Başkent University, Biomedical Engineering Dept.*, December 12, Ankara, Türkiye

30. **B. Çetin** (2019). Microfluidic Systems for Bio-particle Manipulation. *Yeditepe University, Mechanical Engineering Dept.*, November 07, İstanbul, Türkiye

29. **B. Çetin** (2019). Microfluidic Systems for Bio-particle Manipulation. *Utah State University, Mechanical Engineering Dept.*, March 29, Logan, UT, USA

28. **B. Çetin** (2019). Microfluidic Systems for Bio-particle Manipulation. *Southern Methodist University, Mechanical Engineering Dept.*, Feb. 06, Dallas, TX, USA

27. **B. Çetin** (2018). Microfluidic Systems for Bio-particle Manipulation. *University of California, Merced, Mechanical Engineering Dept.*, Aug. 31, Merced, CA, USA

26. **B. Çetin** (2018). Boundary Element Modeling of Particle Motion inside Microchannels. *2018 Symposium on Advances in Thermal & Fluid Sciences*, June 28–29, İzmir Institute of Technology, İzmir, Türkiye

25. **B. Çetin** (2018). Microfluidic Systems for Bio-particle Manipulation. 3rd *Novel Fluidic Technologies & Applications Workshop with an Emphasis on Tissue Engineering*, June 21–22, İzmir, Türkiye

24. **B. Çetin**, M. B. Özer (2018). Microfluidics for Biotechnology. *TÜBİTAK Informatics & Information Security Research Center*, April 04, İstanbul, Türkiye

23. **B. Çetin** (2017). Microfluidic Systems for Bio-particle Manipulation. *Adana A. T. Science & Techn. University, Mechanical Engineering Dept.*, Nov. 09, Adana, Türkiye

22. **B. Çetin** (2017). Fabrication of 3D Structures for Microfluidic Applications. *Boston University, Mech. Eng. Dept.*, Aug. 29, Boston, MA, USA

21. **B. Çetin** (2017). Microfluidic Systems for Bio-particle Manipulation, Workshop on New Techniques on Cell Death Research, Feb. 09–11, Gebze Technical University, İstanbul, Türkiye

20. **B. Çetin** (2017). Microfluidic Bio-particle Manipulation. *Ministry of Health Marmara University Pendik Research and Application Hospital*, Feb. 09, İstanbul, Türkiye

19. **B. Çetin** (2017). Microfluidic Bio-particle Manipulation. *Medipol University Regenerative and Restorative Medicine Research Center*, Feb. 09, İstanbul, Türkiye

18. **B. Çetin** (2016). Simulation of Particle Motion for Microfluidic Applications. *Workshop on Fluid Mechanics Research*, Oct. 28, METU–Northern Cyprus Campus, TRNC

17. **B. Çetin** (2016). Fabrication of 3D Structures for Microfluidic Applications. *Sabancı University, Mechatronics Eng. Dept.*, Oct.19, İstanbul, Türkiye

16. **B. Çetin** (2016). Multi-physics Modeling and Fabrication of Silicon Micro-grooved Heat Pipes. *Heat Pipe and High-Heat Flux Techn. & Appl. Symp.*, Oct. 07, İ.D. Bilkent University, Ankara, Türkiye

15. **B. Çetin** (2016). Microfluidics & Lab-on-a-chip Research Group: Research Overview. *UK-Türkiye Researcher Links Workshop on Electrochem. Nucleic Acid Based Biosensors / Microfluidic Devices for Healthcare Appl.*, Sept. 5–08, Bath, UK

14. **B. Çetin** (2016). Microfluidic Bio-particle Manipulation: Challenges and Future Prospects. *Uni. Nebraska at Lincoln, Mechanical and Materials Engineering Dept.*, Aug. 30, Lincoln, NB, USA

13. **B. Çetin** (2016). Fabrication of 3D Structures for Microfluidic Applications. *Southern Methodist University, Mechanical Engineering Dept.*, Aug. 23, Dallas, TX, USA

12. **B. Çetin** (2016). Microfluidic bio-particle manipulation: Challenges and future prospects. *2016 Int. Conf. Microfluidics, Nanofluidics and Lab-on-a-chip*, June 10–12, Dalian, China

11. **B. Çetin** (2015). Microfluidics in Biotechnology. *Controlling of Cancer and Cancer Stem Cells Workshop (International Participant)*, Oct. 08–10, Manisa, Türkiye

10. **B. Çetin** (2015). Machining-based Fabrication of Microfluidic Devices for Biotechnology. 2$^{\text{nd}}$ *Novel Fluidic Technol. & Appl. Workshop*, April 09-10, İzmir, Türkiye

9. **B. Çetin** (2014). Microfluidic bio-particle manipulation. Workshop on Detection of Pathogenic Microorganism: Probes, Platforms, and Detectors, Aug. 29-30, *NanoBacterhageSERS 2014*, August 27–29, 2014, Köyceğiz, Türkiye

8. **B. Çetin** (2014). Microfluidic Bio-particle Manipulation. *Novel Fluidic Technologies and Applications with an Emphasis on Collaboration Workshop*, April 21-22, İzmir, Türkiye

7. **B. Çetin** (2014). Microfluidics and Lab-on-a-chip Technology. *İzmir Institute of Technology, Mechanical Engineering Department*, Jan. 20, İzmir, Türkiye

6. **B. Çetin** (2014). Microfluidics and Lab-on-a-chip Technology for Biomedical Applications. *TÜBİTAK Informatics & Information Security Research Center*, Jan. 6, İstanbul, Türkiye

5. **B. Çetin** (2013). Microfluidics and Lab-on-a-chip Technology for Biomedical Applications. *Hacettepe Uni., Inst. Graduate Studies, Bioengineering Division*, Dec. 5, Ankara, Türkiye

4. **B. Çetin** (2013). Microfluidics and Lab-on-a-chip Technology for Biomedical Applications. *Şişli Memorial Hospital*, Dec. 3, İstanbul, Türkiye

3. **B. Çetin** (2013). Microfluidics and Lab-on-a-chip Technology for Bioengineering: Applications and Challenges. *VI. Bioeng. Cong. "Human Welfare" (BEC2013)*, Nov. 12–15, Kuşadası, Türkiye

2. **B. Çetin** (2013). Microfluidics and Lab-on-a-chip Technology for Biomedical Applications. *Ege University Food Eng. Dept.*, April 4, İzmir, Türkiye

1. **B. Çetin** (2012). Dielectrophoresis in Microfluidics Technology & Novel Fabrication Strategies for DEP-based Microfuidic Platforms. *Bilkent Uni. National Nanotechnol. Research Center*, Jan. 6 Ankara, Türkiye

RESEARCH GRANTS

[The following grants are obtained with İ.D. Bilkent University affiliation.]

23. *Project Title:* Development of rapid prototyping and high-volume manufacturing methods of anisotropic polymer composites
Funding Agency: TÜBİTAK–DAAD Bilateral Cooperation Travel Support Program: 123N548
PI: Assoc. Prof. Dr. Bülent Özer (METU–ME) *PI:* Dr. Ghulam Destgeer (Technical University of Munich) *Co-PI:* Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Assoc. Prof. Dr. Ender Yıldırım (METU–ME)
Project Period: January 2024 – December 2025 (24 months)
Total Budget: ₺525,000

22. *Project Title:* Development of next-generation dynamic cell culture model: 3-Dimensional microfluidic magnetic cell culture
Funding Agency: TÜBİTAK–1001: 123M943
PI: Asst. Prof. Dr. Güneş Kibar (Adana A. T. Sci. & Tech. Uni.)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Assoc. Prof. Dr. Mustafa Akyol (Adana A. T. Sci. & Tech. Uni.)
Consultant: Prof. Dr. Cengiz V. Özalp (Atılım Uni.–Medical School)
Project Period: December 2023-June 2026 (30 months)
Total Budget: ₺1,649,910

21. *Project Title:* Enhancement of the cooling performance of electronic device chassis and VPX card modules via liquid-flow-through (LFT) method and channel optimization
Funding Agency: TÜBİTAK–1501: 1170524
PI: HARP Savunma Sistemleri A.Ş.
Consultant: Assoc. Prof. Dr. Barbaros Çetin
Project Period: December 2023-May 2025 (18 months)
Total Budget: ₺2,140,000

20. *Project Title:* Microfluidic synthesis and application of aptamer decorated fluorescence hybrid particles
Funding Agency: TÜBİTAK–2218: 122C228
PI: Asst. Prof. Dr. Güneş Kibar (Adana A. T. Sci. & Tech. Uni.)
Academic Advisor: Assoc. Prof. Dr. Barbaros Çetin
Project Period: August 2023-July 2025 (24 months)
Total Budget: ₺224,400

19. *Project Title:* Development of flat-grooved heat pipe based cooling system for the thermal management of lithium-ion batteryies
Funding Agency: TÜBİTAK–2218: 122C176
PI: Asst. Prof. Dr. Vahit Çorumlu (Celal Bayar University)
Academic Advisor: Assoc. Prof. Dr. Barbaros Çetin
Project Period: July 2023-June 2025 (24 months)
Total Budget: ₺159,615

18. *Project Title:* Development of a organic total carbon module with an integrated electrical conductivity sensor *Funding Agency:* ATOMİKA Teknik A.Ş.
PI: Assoc. Prof. Dr. Barbaros Çetin
Project Period: June 2023 – September 2023
Total Budget: ₺80,000

17. *Project Title:* Development of rapid prototyping and high-volume manufacturing methods of anisotropic polymer composites
Funding Agency: Middle East Technical University
PI: Assoc. Prof. Dr. Ender Yıldırım (METU–ME)
Co-PI: Assoc. Prof. Dr. Bülent Özer (METU–ME)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Project Period: May 2023 – April 2025 (24 months)
Total Budget: ₺1,300,000

16. *Project Title:* MAESTRO - Micro Medical Technologies Platform
Funding Agency: TÜBİTAK–1004: 22AG008
PI: Prof. Dr.Haluk Külah (METU–EE)
Sub project: Design of a bimodal sensor for diagnosis of body fluids
PI: Assoc. Prof. Dr. Ender Yıldırım (METU–ME)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Assoc. Prof. Dr. Arif Engin Çetin (9 Eylül Uni.–IBG)
Co-PI: Prof. Dr. Uğur Tamer (Gazi Uni.–Medical School)
Project Period: February 2023 – January 2027 (48 months)
Total Budget: ₺1,300,000

15. *Project Title:* Anthocyanin-based rapid and cost effective phenotypic antibiotic susceptibility test for detection of antibiotic-resistant microorganisms
Funding Agency: TÜBİTAK–1005: 122S090
PI: Assoc. Prof. Dr. İsmail Öçsoy (Erciyes Uni.–Faculty of Pharmacy)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Prof. Dr. Mustafa Altay Atalay (Erciyes Uni.–Medical School)
Co-PI: Assoc. Prof. Dr. Nilay Yıldız (Erciyes Uni.–Faculty of Pharmacy)
Co-PI: Assoc. Prof. Dr. Pınar Sağıroğlu (Erciyes Uni.–Medical School)
Co-PI: Dr. Gülten Can Sezgin (Erciyes Uni.–Medical School)
Project Period: August 2022 – February 2024 (18 months)
Total Budget: ₺331.800

14. *Project Title:* Microfluidic device for rapid, low-cost detection of Streptococcus pneumoniae
Funding Agency: TÜBİTAK–Royal Academy Eng. Bilateral Project: 220N316
PI: Prof. Dr. Cengiz V. Özalp (Atılım Uni.–Medical School)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Assoc. Prof. Dr. Soner Doğan (Yeditepe Uni.–Medical School)
Co-PI: Dr. Bilge G. Tuna (Yeditepe Uni.–Medical School)
Co-PI: Prof. Yassine Amrani (Uni. Leicester–Dept. Respiratory Sciences)
Co-PI: Dr. Hasan Yeşilkaya (Uni. Leicester–Dept. Respiratory Sciences)
Co-PI: Mr. Halil Urun (Ligant Ltd. Şti.)
Project Period: Jluy 2021 – June 2023 (24 months)
Total Budget: £79,905

13. *Project Title:* Numerical simulation of acoustophoresis for its application on biological systems and investigation of new acoustophoretic device architectures
Funding Agency: TÜBİTAK–1001: 220M010
PI: Assoc. Prof. Dr. Bülent Özer (METU–ME)
Co-PI: Assoc. Prof. Dr. Barbaros Çetin
Consultant: Prof. Dr. Ayşe Elif Erson Bensan (METU–MBG)
Project Period: April 2021 – September 2023 (30 months)
Total Budget: ₺790,550

12. *Project Title:* Development of a flat-grooved heat pipe integrated cold plate
Funding Agency: ASELSAN A.Ş.
PI: Assoc. Prof. Dr. Barbaros Çetin
Consultant: Prof. Dr. Zafer Dursunkaya (METU–ME)
Project Period: November 2019 – May 2022
Total Budget: ₺326,400

11. *Project Title:* Investigation of induced pluripotent stem cell-derived cardiomyocyte and sensory neuron interactions on microelectrode integrated microfluidic system in-vitro
Funding Agency: TÜBİTAK–1001: 119S132
PI: Assoc. Prof. Dr. Esra Çağavi (Medipol Uni.)
Co-PI: Assist. Prof. Dr. Mehmet Kocatürk (Medipol Uni.)
Consultant: Assoc. Prof. Dr. Barbaros Çetin
Project Period: 30 months
Total Budget: ₺659,520

10. *Project Title:* Development of a lab-on-a-chip platform for determination of bacterial load from patients with blood stream infection
Funding Agency: TÜBİTAK–1003: 118E023
PI: Assoc. Prof. Dr. Barbaros Çetin
Co-PI: Assoc. Prof. Dr. Bülent Özer (METU–ME)
Co-PI: Dr. Ender Yıldırım (Çankaya Uni.–ME)
Co-PI: Prof. Dr. I. Pınar Zorlu (Hacettepe Uni.–Med. School)
Co-PI: Dr. Oğuz Balcı (DENOVO Ltd. Şti.)

Project Period: October 2018 – October 2021
Total Budget: ₺838,740

9. *Project Title:* Development of microfluidic genetic based minimal invasive test with high specificity to early gestation period
Funding Agency: TÜBİTAK–1511: 1170524
PI: TEKGEN Sağlık Hizmetleri Ltd. Şti.
Consultant: Assoc. Prof. Dr. Barbaros Çetin
Consultant: Asst. Prof. Dr. Güneş Kibar(Adana A. T. Sci. & Tech. Uni.–MTE)
Consultant: Assoc. Prof. Dr. Ajda Çoker Gürkan (Kültür Uni. Mol. Bio. & Gen.)
Consultant: Prof. Dr. Tunç Akkoç (Marmara Uni.–Med. School)
Project Period: April 2018-August 2020
Total Budget: ₺1,350,000

8. *Project Title:* Increasing performance of acoustophoretic systems for microparticle separation and manufacturing of a high flow rate acoustophoretic device
Funding Agency: TÜBİTAK–1001: 115M684
PI: Asst. Prof. Dr. Bülent Özer (TOBB ETU–ME)
Co-PI: Assoc. Prof. Dr. Göknur Büke (TOBB ETU–MSNE)
Consultant: Assoc. Prof. Dr. Barbaros Çetin
Project Period: June 2016 – March 2019 (33 months)
Total Budget: ₺555,750

7. *Project Title:* Development of a portable lab-on-a-chip system for genetic diagnostics and compatible HBV diagnostic kits
Funding Agency: TÜBİTAK–1003: 115S112
PI: Asst. Prof. Dr. Yegan Erdem (BilMECH)
Co-PI: Dr. Oğuz Balcı (DENOVO Ltd. Şti.)
Consultant: Assoc. Prof. Dr. Barbaros Çetin
Project Period: November 2016 – May 2019 (30 months)
Total Budget: ₺1,065,000

6. *Project Title:* Determination of microbial load and the number of somatic cells in whole milk by an integrated microfluidic device
Funding Agency: TÜBİTAK–1001: 114M597
PI: Asst. Prof. Dr. Barbaros Çetin
Co-PI: Asst. Prof. Dr. Göksel Durkaya (Atılım University–MME)
Co-PI: Assoc. Prof. Dr. Duygu Kışla, Assoc. Prof. Dr. Gülten Gündüz (Ege Uni.–FE)
Date: November 2014–March 2017 (28 months)
Total Budget: ₺262,155

5. *Project Title:* Development and fabrication of micro-grooved heat pipes for high-flux electronic cooling applications
   Funding Agency: TÜBİTAK–1001: 213M351
   PI: Prof. Dr. Zafer Dursunkaya (METU–ME)
   Co-PI: Asst. Prof. Dr. Barbaros Çetin
   Date: March 2014–December 2016 (33 months)
   Total Budget: ₺349,830

4. *Project Title:* Development of a lab-on-a-chip device for the manipulation of microparticles using AC-dielectrophoresis and acoustic methods
   Funding Agency: TÜBİTAK–3501: 112M102
   PI: Asst. Prof. Dr. Barbaros Çetin
   Co-PI: Asst. Prof. Dr. Bülent Özer (TOBB ETU–ME)
   Date: November 2011–January 2015 (26 months)
   Total Budget: ₺182,180

3. *Project Title:* Development of Boundary Element Method based commercial software for microfluidic applications
   Funding Agency: TÜBİTAK–1512: 2130311
   Entrepreneur: Asst. Prof. Dr. Barbaros Çetin
   Project Period: January, 2014 – December, 2014
   Total Budget: ₺99,720

[The following grants were obtained prior to İ.D. Bilkent University affiliation.]

2. *Project Title:* Analysis of Single Phase Fluid Flow and Heat Transfer in Micro-Channels by Parallel Implementation of Lattice Boltzmann Method on GPUs
   Funding Agency: TÜBİTAK–1002: 110M750
   PI: Asst. Prof. Dr. Cüneyt Sert (METU–ME)
   Co-PI: Asst. Prof. Dr. Barbaros Çetin
   Date: February, 2011 – February, 2012 (12 months)
   Total Budget: ₺15,000

1. *Project Title:* Establishment of Microfluidics & Lab-on-a-chip Group at METU–NCC
   Funding Agency: METU-NCC (Scientific Research Project)
   PI: Asst. Prof. Dr. Barbaros Çetin
   Date: May, 2010 – May, 2012 (24 months)
   Total Budget: ₺21,472

RESEARCH SUPERVISION

Graduate Students

[The following students are with Bilkent University affiliation.]

23. Özgür C. Gümüş (2023). Isogeometric boundary element formulation for deformable particles in micro-channel confinement, M.S. Thesis, İ.D. Bilkent University

22. Zahra Babaie (2023). Magnetic microfluidic platform for bacteria isolation and detection, M.S. Thesis, İ.D. Bilkent University

21. Alper Topuz (2021). A multi-domain direct boundary element formulation for particulate flow in micro-channels, M.S. Thesis, İ.D. Bilkent University

20. Atakan Atay (2021). DC-electrokinetic motion of colloidal cylinder(s) in the vicinity of a wall, M.S. Thesis, İ.D. Bilkent University

19. Umutcan Çalışkan (2019). Microfluidic synthesis of polyhedral oligomeric silsesquioxana (POSS) based organic-inorganic hybrid microparticles, M.S. Thesis, İ.D. Bilkent University

18. Cem Kurt (2019). Three-dimensional modeling of heat transfer and fluid flow in flat-grooved heat pipes, M.S. Thesis, İ.D. Bilkent University

17. H. Dilara Uslu (2018). Investigation of AC electroosmotic flow based microfluidic mixer with micro rods. M.S. Thesis, İ.D. Bilkent University

16. Hossein A. Alijanvand (2017). Thermal performance characterization of flat grooved heat pipes, M.S. Thesis, İ.D. Bilkent University (Co-supervisor: Prof. Dr. Zafer Dursunkaya, METU-ME)

15. Reza Rasooli (2017). Modeling of inertial particle flow and entry gas flow in micro-channels, M.S. Thesis, İ.D. Bilkent University

14. Serdar Taze (2015). Modeling and fabrication of silicon micro-grooved heat pipes, M.S. Thesis, İ.D. Bilkent University (Co-supervisor: Prof. Dr. Zafer Dursunkaya, METU-ME)

13. Soheila Zeinali (2014). Microfluidic device with 3D electrode structure for high throughput dielectrophoretic applications, M.S. Thesis, İ.D. Bilkent University

12. A. Koray Koska (2013). Injection molding of polymeric microfluidic devices, M.S. Thesis, İ.D. Bilkent University

[The following students have/had external affiliation and are/were co-supervised]

11. Kaan Yener (2024). Assessment of sintered wick heat pipe performance by modeling phase change in surface pores, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Zafer Dursunkaya, METU–ME)

10. Yiğit Ata Ağartan (2024). Experimental investigation of condensation turning point in a grooved micro structure, Ph.D. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Zafer Dursunkaya, METU–ME)

9. Beste Derebaşı (2023). Assessment of the effect of vapor flow on the thermal performance of flat grooved heat pipe, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Zafer Dursunkaya, METU–ME)

8. R. Aykut Sezmen (2021). Performance analysis of grooved heat pipes using 3-D multi-channel thermal resistance network, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Zafer Dursunkaya, METU–ME)

7. Samet Saygan (2021). Modeling guided heat pipe design methodology and experimental validation for flat grooved heat pipes, Ph.D. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. Zafer Dursunkaya, METU–ME)

6. Naci Polat (2018). Analysis of oxidative reagents through a microfluidic system, Ph.D. Thesis, Marmara University (İstanbul, Türkiye) (Supervisor: Prof. Dr. A. Süha Yalçın, Marmara Uni., Health Science Institute)

5. Gamze Düven (2017). Implementation of a microfluidic device for the determination of microbial load of milk, M.S. Thesis, Ege University (Supervisor: Prof. Dr. Duygu Kışla, Ege Uni., Food Eng. Dept.)

4. M. Doğan Aşık (2017). Design and fabrication of a novel microfluidic device for the synthesis of biopolimeric nanoparticles, Ph.D. Thesis, Hacettepe University (Ankara, Türkiye) (Supervisor: Prof. Dr. Necdet Sağlam, Hacettepe Uni., Nanotechnology and Nanomedicine)

3. Gizem Bedir (2015). Forward problem of electrocardiography in terms of transmembrane potentials within 3D heart, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Assoc. Prof. Dr. Yeşim Serinağaoğlu Doğrusöz, METU–EE)

2. Kadir Gökhan Güler (2014). Computational modeling of fin-and-tube type vehicle radiators based on porous medium approach, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Prof. Dr. M. Haluk Aksel, METU-ME)

1. S. Berat Çelik (2012). Analysis of single phase fluid flow and heat transfer in slip-flow regime by parallel implementation of Lattice-Boltzmann Method on GPUs, M.S. Thesis, METU (Ankara, Türkiye) (Supervisor: Asst. Prof. Dr. Cüneyt Sert, METU-ME)

Undergraduate Students

15. Comparison of continuous and discontinuous elements in Boundary Element Method for heat transfer problems with non-linear boundary conditions
Student: Artun A. Öztaş, Can Önol, Alp İskit

14. Experimental characterization of flat-grooved heat pipe integrated cold plate for electronics cooling
Student: Kaan Atak, Ö. Çoşar (Graduated in Spring 2023)

13. Experimental characterization of flat-grooved heat pipe
Student: Görkem Balyalıgil, Ali Yücel (Graduated in Spring 2021)

12. Modeling of swimming micro-organisms with flagella in microchannels using Boundary Element Method
Student: Metehan Çam (Graduated in Spring 2018)
Next position: Ph.D. Student, Nortwestern University
Metehan was awarded TÜBİTAK 2209/A undergraduate funding.

11. Thermo-mechanical modeling of heat-affected zone for medium carbon steels in laser welding
    Student: Yiğit F. Kuşcu (Graduated in Spring 2018)
    Next position: M.S. Student, École polytechnique fédérale de Lausanne
    Yiğit was awarded TÜBİTAK 2209/A undergraduate funding.

10. Design of a scalable on-chip micro-pump
    Student: Utku Hatipoğlu (Graduated in Spring 2017)
    Next position: M.S. Student, İ.D. Bilkent University

9. Computational modeling and experimental investigation of electrokinetic microfluidic mixer
    Student: H. Dilara Uslu (Graduated in Spring 2016)
    Next position: M.S. Student, İ.D. Bilkent University
    Dilara was awarded TÜBİTAK 2209/A undergraduate funding.

8. Modeling of dielectrophoretic particle motion using boundary element method
    Student: S. Doğan Öner (Graduated in Spring 2016)
    Next position: M.S. Student, İ.D. Bilkent University

7. Modeling of deformable particle flow in a microchannel using boundary element method
    Student: Cem Kurt (Graduated in Spring 2016)
    Next position: M.S. Student, İ.D. Bilkent University

6. Upscaling three-dimensional flows to two-dimensional interface formulations
    Student: İbrahim N. Yıldıran (Graduated in Spring 2016)
    Next position: Ph.D. Student, Koç University

5. Development of a computational model for a microfluidic chamber based polymerase chain reactor
    Student: Umutcan Çalışkan (Graduated in Spring 2016)
    Next position: M.S. Student, İ.D. Bilkent University
    Umutcan was awarded TÜBİTAK 2209/A undergraduate funding.

4. Design of a microfluidic chamber for the determination of DEP spectra of polystyrene micro-particles
    Student: Ece Özelçi (Graduated in Spring 2016)
    Next position: M.S. Student, École polytechnique fédérale de Lausanne
    Ece was awarded TÜBİTAK 2209/A undergraduate funding.

3. Development and experimental verification of a numerical model for a micro-fluidic PCR reactor
    Student: İlbey Karakurt (Graduated in Spring 2015)
    Next position: M.S. Student, University of California Berkeley
    İlbey was awarded TÜBİTAK 2209/A undergraduate funding.

2. Modeling of motion of spermatozoa in a microchannel
    Student: Berkcan Kapusuzoğlu (Graduated in Spring 2014)
    Next position: M.S. Student, Delft University of Technology

1. Design of a microfluidic chip for serum separation from whole blood
    Student: A. Resul Al (Graduated in Spring 2014)
    Next position: M.S. Student, KTH Royal Institute of Technology

CURRENT RESEARCH INTERESTS

My research interest can be classified in two main categories: **(i) microfluidics for biomedical applications** (originated from my Ph.D. study) and **(ii) micro-scale heat transfer** (originated from my M.S. study). For **(i)**, I have concentrated on the dielectrophoretic and acoustophoretic bio-particle manipulation, and my research includes modeling, fabrication and experimental verification. On the modeling side, I have been developing efficient computational models especially on the simulation of particle trajectories in a microchannel under the action of flow together with external forces like electric and/or acoustic to optimize the performance of microfluidic devices. On the fabrication side, I have been developing fabrication protocols with high repeatability and reproducibility for the fabrication 3D structures for high throughput bio-particle manipulation. For **(ii)**, I have concentrated on the investigation of thermal characteristics of single-phase fluid flow in micro-channels. More recently, I have extended my heat transfer study to micro-groove heat pipes where I implement my modeling, fabrication and experimentation experience from **(i)** to flat-grooved heat pipes.

Past and Present Research Collaborators

- Prof. Dr. Ali Beşkök (Southern Methodist University, ME) [since 2018]
- Prof. Dr. Zafer Dursunkaya (Middle East Technical University, ME) [since 2013]
- Prof. Dr. Kevin Cole (Uni. Nebraska, ME) [since 2011]
- Asst. Prof. Dr. M. Bülent Özer (Middle East Technical University, ME) [since 2011]

SCHOLARLY AND PROFESSIONAL ACTIVITIES AND ACHIEVEMENTS

Editorial Board Appointment

Isı Bilimi ve Tekniği Dergisi – J. Thermal Science and Technology (2017–2022)

Scientific Council Appointment

International Center for Heat and Mass Transfer (ICHMT) (since 2018)

Scientific Advisory Board

International Conference on Computational Heat & Mass Transfer (ICCHMT) (since 2017)

Local Organizing Chair for ICCHMT'25

Membership

National Union of Thermal Science and Technique (since 2011)

Journal Reviewer Appointments

Electrophoresis, Microfluid Nanofluid, Biomicrofluidics, LabChip, ASME J. Heat Transfer, Int. J. Heat Mass Transfer, Int. J. Therm. Sci., Appl. Therm. Eng., Nano/Microcale Thermophy. Eng., Isı Bilimi Tekniği Dergisi – J. Therm. Sci. Tech., Heat Transfer Eng., ASME J. Fluids Eng.

Other Reviewer Appointments

- The Scientific and Technological Research Council of Türkiye (TÜBİTAK)
  - Academic Research Funding Program Referee
  - Academic Research Funding Program External Consultant
  - Technology and Innovation Funding Program Referee
  - Scientist and Researcher Funding Program Referee
- Scientific Research Project Referee, İstanbul Technical University
- Scientific Research Project Referee, İzmir Institute of Technology
- Grant Reviewer, Netherlands Organisation for Scientific Research

Thesis and Qualification Examination (Bilkent University)

Mechanical Engineering Department

- M.S. Thesis
- Ph.D. Qualification Exam

Electrical & Electronics Engineering Department

- Ph.D. Qualification Exam

Thesis and Qualification Examination (Outside Bilkent)

METU–Dept. Mech. Eng.:	M.S. Thesis, Ph.D. Qualification Exam Ph.D. Thesis Supervising Committee, Ph.D. Thesis
METU–Dept. Electr. Electron. Eng.:	Ph.D. Thesis
Sabancı University–Mechatronics Eng.:	M.S. Thesis, Ph.D. Thesis
Gazi University–Dept. Mech. Eng.:	Ph.D. Thesis Supervising Committee, Ph.D. Thesis
Başkent University–Dept. Biomed. Eng.:	M.S. Thesis
Ege University–Dept. Bio-Eng.:	M.S. Thesis
Ege University–Dept. Food Eng.:	M.S. Thesis

Workshop/Symposium/Conference Organizations

- I am the Local Organizing Chair for *15*$^{\text{th}}$ *International Conference on Computational Heat & Mass Transfer (ICCHMT'25)* (May 19–23, 2025, Antalya, Türkiye)
- I co-organized the "Electrokinetic and Dielectrophoretic Phenomena" session in *ASME 17*$^{\text{th}}$ *International Conference on Nano/Micro/Mini-channels* (June 23–26, 2019, St. John's, Newfoundland, Canada) together with Prof. Ali Beşkök (SMU-ME).
- I co-organized the *2018 Symposium on Advances in Thermal & Fluid Sciences* (June 28–29, 2018) at İzmir Institute of Technology, İzmir, Türkiye with Asst. Prof. Murat Barışık (İzmir Inst. Tech, ME). The event was supported by Turkish Academy of Sciences and ITFS Engineering. 15 invited speakers were invited and nearly 70 attendees from academia and industry participated the symposium.
- I co-organized the "Electrokinetic and Dielectrophoretic Phenomena" session in *ASME 16*$^{\text{th}}$ *International Conference on Nano/Micro/Mini-channels* (June 10–13, 2018, Dubrovnik, Crotia) together with Prof. Ali Beşkök (SMU-ME).
- I organized an industry session in *21*$^{\text{th}}$ *National Conference on Thermal Sciences* (September 13–16, 2017). 5 invited talks were held by the R&D Engineers of ASELSAN, TAI, ROKETSAN and FORD OTOSAN regarding the state-of-the-art thermo-fluid applications in industry.
- I organized the *Symposium on Heat Pipes and High Heat Flux Heat Transfer* together with Prof. Dr. Zafer Dursunkaya (METU-ME) on October 7, 2016 at Bilkent University, Ankara, Türkiye. The event was supported by ASELSAN and TAI. Nearly 45 attendees from defense industry and 25 attendees from academia participated the workshop. Two sessions with 8 invited talks were held.
- I organized the *Workshop on Heat Conduction & Inverse Problems: Special Emphasis on Green's Function Method* with the participation of Prof. Dr. Kevin Cole (UNL) on May 17, 2016 at Bilkent University, Ankara, Türkiye. Nearly 30 attendees from defense industry and 25 attendees from academia participated the workshop.

TEACHING

Graduate Courses (Southern Methodist University)

ME 7330 Heat Transfer (Spring 2019)

Graduate Courses (İ.D. Bilkent University)

ME 501 Mathematical Techniques in Mechanical Engineering I (Fall 2013, 2016, 2021)
ME 503 Numerical Methods in Mechanical Engineering I (Fall 2015, 2017, 2019, 2022, 2024)
ME 511 Fluid Mechanics (Spring 2012, 2013, 2015)
ME 615 Microfluidics (Fall 2011)
ME 630 Advanced Heat Transfer (Spring 2021)
ME 631 Conductive Heat Transfer (Spring 2017)

Undergraduate Courses (İ.D. Bilkent University)

ME 102 System Engineering (Spring 2016–2018, 2021–2023)
ME 211 Thermo-Fluids Engineering I (Fall 2011–2015, 2017, 2020, 2022)
ME 212 Thermo-Fluids Engineering II (Spring 2012–2016, 2020)
ME 430 Heat Exchanger Design (Spring 2018, 2020, 2022)
ME 432 Applied Thermodynamics (Fall 2012, 2014, 2016, 2019, 2021,2023)
ME 481 Mechanical Engineering Design I (Fall 2023, 2024)
ME 482 Mechanical Engineering Design II (Spring 2024, 2025)
ME 485 Design Project I (Spring 2021, 2023)
ME 486 Design Project II (Summer 2021, 2023)

Undergraduate Courses (METU-NCC)

PNGE 211 Introduction to Fluid Mechanics (Spring 2011)
MECH 220 Mechanical Engineering Laboratory-I (Spring 2010, 2011)
MECH 305 Fluid Mechanics (Fall 2009, 2010)
CHME 323 Fluid Mechanics (Fall 2009, 2010)
MECH 405 Energy Conversion Systems (Fall 2009, 2010)
MECH 458 Graduation Project (Spring 2010, Fall 2010, Spring 2011)
MECH 468 Introduction to Microfluidics (Spring 2010, 2011)

Senior Design Supervision (İ.D. Bilkent University)

12. Miniature and precise azimuth/elevation rotator
Students: D. Akman, D. Balaban, T. N. Demirel, O. T. Öznergiz, S. Seven
Industrial Advisor: Barış Temel (Plan-S A.Ş.)
Funding: Plan-S A.Ş., TÜBİTAK–2209/B
Semester: Fall 2023, Spring 2024

11. Design of a multi-purpose remote-controlled underwater vehicle
Students: U. Akyüz, E. Cura, M. E. Çakal, A. Çeber, Ö. Demir, C. İ. Er
Semester: Fall 2021, Spring 2022

10. Mechanical design of a fuel transfer pump
Students: A. B. Dilci, O. Erdem, B. Gülcan, U. Güvercin, H. M. Kolomuç, B. Turgay
Industrial Advisor: Ahmet Gürsoy, Murat Alp (Roketsan A.Ş.)

Funding: Roketsan A.Ş.
Semester: Fall 2021, Spring 2022

9. Development of a thermoacoustic refrigerator
Students: A. Yücel, A. Güleç, A. F. Uyar, G. Balyalıgil, İ. Tutsak, S. Cankurtaran
Semester: Fall 2020, Spring 2021

8. Cold launch of missiles from the launch tube of the platform
Students: A. Hancılar, B. T. Arslan, E. Kartal, J. Kozok, M. Arı, M. Alagölü
Industrial Advisor: H. Avni Güler (Roketsan A.Ş.)
Funding: Roketsan A.Ş.
Semester: Fall 2020, Spring 2021

7. Design and manufacturing of a servo-controlled Stirling cryocooler
Students: A. Atay, Y. Kuşcu, A. Topuz, B. Küçük, M.K. Dinçtürk, B. Sarıarslan, B.O. Şahinoğlu
Industrial Advisor: Dr. Besim Baranoğlu (Novumek Ltd. Şti.)
Funding: Novumek Ltd. Şti., TÜBİTAK–2209/B
Semester: Fall 2017, Spring 2018

6. Design of a Tesla turbine with adaptive plate spacing
Students: O. Altunkaş, E. Bozgül, H. Buluş, B. Durmuş, S. Erdoğan, E. Güngör, D. Küçükkubaş
Industrial Advisor: Nebahat Karasu Atabey (FNSS A.Ş.), TÜBİTAK–2209/B
Funding: FNSS A.Ş.
Semester: Fall 2017, Spring 2018

5. Cooling of a diesel engine using an axial fan driven by electric motor
Students: M.Çelik, B. Deveci, S.S. Eren, C. B. Esen, H. Karakurt, Ö. Örs, İ. Tahir
Industrial Advisor: Dr. Hakan Mencek (Türk Traktör A.Ş.), TÜBİTAK–2209/B
Funding: Türk Traktör A.Ş.
Semester: Fall 2017, Spring 2018

4. Design and production of a compressed air engine
Students: U. Hatipoğlu, Y. Oskay, C. Aydoğan, D. Dedekargınoğlu, İ.I. Aydoğdu, M.Y. Çam
Industrial Advisor: Serdar Güryuva (FORD OTOSAN A.Ş.)
Funding: FORD OTOSAN A.Ş., ENTI Müh. A.Ş., TÜBİTAK–2209/B
Semester: Fall 2016, Spring 2017

3. Design and production of fuel suction system operated within different fuel tanks at different slopes
Students: M.E. Asar, M.A.İ. Kalın, Ö. Benzer, O. Yörük, Ç. Odabaşı, X. As'ad
Industrial Advisor: Dr. Hakan Mencek (Türk Traktör A.Ş.)
Funding: Türk Traktör A.Ş., TÜBİTAK–2241/A
Semester: Fall 2016, Spring 2017

2. Design and production of a liquid piston air compressor
Students: O. D. Yılmaz, S.D. Öner, İ. N. Yıldıran, M. Özcan, Ö. Demirel, O. Ayar
Industrial Advisor: Şükrü Erikli (Dalgakıran Kompresör A.Ş.)
Funding: Dalgakıran Kompresör A.Ş., TÜBİTAK–2209/B
Semester: Fall 2015, Spring 2016

1. Design and production of a desktop recyclable filament machine
   Students: E.T. Yalçınkaya, M. Üşenmez, K.İ. Kılıç, H.D. Uslu, U. Çalışkan, S. Andaş
   Industrial Advisor: Erdem Çağatay (ArtıBoyut Ltd. Şti.)
   Funding: ArtıBoyut Ltd. Şti., TÜBİTAK–2209/B
   Semester: Fall 2015, Spring 2016

Summer Internship Projects (İ.D. Bilkent University)

5. Experimental characterization of a heat pipe
   Students: A. Yücel, G. Balyalıgil
   Semester: Summer 2020

4. Development of an experimental setup for a plate type HX
   Students: A. Hancılar, B. T. Arslan
   Semester: Summer 2020

3. Development of a graphical user interface with MATLAB for the analysis for shell-and-tube HXs
   Students: A. F. Uyar, İ. Tutsak
   Semester: Summer 2020

2. Development of a graphical user interface with MATLAB for the analysis of flate-plate HXs
   Students: M. A. Kaplan, M. A. Sav
   Semester: Summer 2020

1. Design of a Hybrid Solar and Wind Electrical Power System for Farming
   Students: M. Arı, J. Kozot, H. A. Chaudhry, M. S. Shahid, S. G. Khan, A. Abdullah
   Semester: Summer 2020

Graduation Project Supervision (METU-NCC)

7. Design of a solar-powered drip-irrigation system
   Students: Mert Alpagut, Fethi kılınç (Spring 2011)
   Semester: Spring 2011

6. Implementation of Lattice-Boltzmann Method for electrokinetic flows
   Student: Yiğit Gürol
   Semester: Fall 2010

5. Simulation of particle motion inside the microchannel under the action of fluid flow and DEP force
   Student: Kadir Göhan Güler
   Semester: Fall 2010

4. Design of a microfluidic system for separation and counting of microparticles
   Student: A. Koray Koska
   Semester: Spring 2010

3. Analysis of fluid flow and heat transfer inside macro- and micro-channels using Lattice-Boltzmann Method
   Student: S. Berat Çelik
   Semester: Spring 2010

2. Design of a continuous-flow micro-PCR device
   Student: Kalender Akgül
   Semester: Spring 2010

1. Design of a student society hut operating with solar energy
   Student: Güralp Arat
   Semester: Spring 2010

Miscellaneous Projects/Competitions

6. Bilkent Electrical Vehicle Team
   Competition: TEKNOFEST'22 Efficiency Challenge Electric Vehicle Competition
   Short Description: A group of about 25 Bilkent students from Mechanical, Electrical & Electronics Engineering and Chemistry Departments worked on this project.
   Date: September 2022 – July 2022

5. Bilkent Electrical Vehicle Team
   Competition: TEKNOFEST'21 Efficiency Challenge Electric Vehicle Competition
   Short Description: A group of about 25 Bilkent students from Mechanical, Electrical & Electronics Engineering and Chemistry Departments worked on this project.
   Date: March 2021 – September 2021

4. Bilkent Rocket Team
   Competition: TEKNOFEST'21 Medium Altitude Rocket Competition
   Short Description: A group of about 5 Bilkent students from Mechanical and Electrical & Electronics Engineering have been working on this project.
   Date: March 2021 – Present

3. Design of a compressed-air powered vehicle
   Short Description: This is a joint project with Mechanical Engineering Society with an external funding of about 25000 TL (approx. 5000 Euro).
   Date: September 2014 – May 2017

2. Design of a fluidic chamber for the treatment of zebra fish for genetic research
   Collaborator: Dr. Ayça Birgül (Bilkent University-MBG)
   Student: Engin Kırıcı, Cem Kurt, Yiğit Oskay
   Date: Summer 2013-Summer 2014

1. Design of a solar powered golf-cart to be used on METU–NCC campus (Design phase was completed under my supervision)
   Short Description: A group of about 25 METU–NCC students from Mechanical and Electrical & Electronics Engineering program worked on this project. The budget of the first phase of the project was 8,000 TL (approx. 3000 Euro), and the first phase was completed under my supervision.
   Date: January 2010 – June 2011

DEPARTMENTAL AND UNIVERSITY SERVICE

- I have routinely been involved in departmental duties such as faculty search, curriculum review, lab equipment design and purchase, advising of undergraduates.
- *Associate Dean for Student Student Affairs* of the Engineering Faculty (07/2023 – Present)
- *Vice Chair* of the Mechanical Engineering Department (03/2020–06/2023)
- *ME Undergraduate Committee Chair* (09/2019–Present)
- *ABET Accreditation Coordinator* for the Mechanical Engineering Department (2014–Present)
- İ.D. Bilkent University *Youth Camp Coordinator* for the Mech. Eng. Dept. (2012–2016)
- Regularly presented the Mechanical Engineering Department to prospective students
- Academic Advisor for the Mechanical Engineering Society (MES) (2011–2018)
  I supervised several technical projects within MES. Regular meetings conducted to discuss the technical and administrative (budget, sponsorship etc.) aspects of the projects. Several technical trips and technical seminars organized regularly for the professional development of BilMECH students. Two projects of MES, which are the design of a compressed-air vehicle and compressed-air powered wheelchair, funded with an external funding of 25,000TL in this period.

CONTRIBUTION TO SOCIETY

I organized a robot programing and 3D printer training event for nine graders in NOVA Science High School, Bursa, which is my home town, on May 27–29, 2016. Four undergraduate students from BilMECH assisted me for the programing training. ArtıBoyut Ltd. Şti. organized the 3D printer training. As a part of the event, basic circuit and Arduino programing trainings were held, and the fundamentals of the 3D printing were discussed. 25 high school students attended and were able to build vehicles which stop upon sensing an obstacle. Two continuation events were also organized on Arduino programing (September 23–24, 2016; January 19–20, 2017). Through these events, high school students building up their autonomous vehicles. The event triggered the curiosity of the high school students on science and technology.

EXTRA-CURRICULAR ACTIVITIES AND HONORS

- Member of *GORDION Master's Swimming Team* (January 2016–Present)
- Participated in *Int. Arena Aquamasters Swimming Championships*, May 20, 2018, Marmaris, Türkiye: 3000m (E35-39, 6^{nd} place)
- Participated in *VII. International Master's Swimming Republic Cup*, October 27–29, 2013, Ankara, Türkiye: 50m Butterfly (C2, 2^{nd} place), 100m Butterfly (C2, 2^{nd} place), 400m Freestyle (C2, 1^{st} place), 4×50m Freestyle (R2, 3^{rd} place), 4×50m Medley (R1, 3^{rd} place)
- Participated in *Marmaris Open-water Swimming*, June 10, 2013, Marmaris, Türkiye: 2500m (C2, 2^{nd} place)
- Participated in *Turkish Master's Spring Cup Swimming Championship*, June 8–9, 2013, Marmaris, Türkiye: 50m Butterfly (C2, 2^{nd} place), 100m Butterfly (C2, 2^{nd} place), 100m IM (C2, 3^{rd} place), 4×50m Freestyle (R2, 2^{nd} place), 4×50m Freestyle Mixed (R2, 2^{nd} place)
- Member of *APEYK Master's Swimming Team* (March 2013–June 2015)
- 2^{nd} place in the *TRNC University Basketball Championship* as a head coach of the METU–NCC Men's Basketball Team, May 2011
- 2^{nd} place in the 2^{nd} *Basketball Tourn. in the memory of Koray Bekiroğlu* organized by Lefke European University as a head coach of the METU–NCC Men's Basketball Team, April 2011
- Coach of the *METU–NCC Men's Basketball Team* (November 2010–June 2011)
- 2^{nd} place in *METU–NCC Streetball Tourn.* as a member of the team "Slow-break", Oct. 2010
- Player of the *Soyer Sports Club* (`www.soyerspor.org`) competing in National Northern Cyprus Basketball League (October 2009–October 2010)
- *METU–NCC Streetball Tournament* champion (Team "Slow-break"), October 2009
- President of the *Turkish Friendship Association*, Nashville, TN, USA (January 2008–June 2008)
- Board member of *Turkish Friendship Association*, Nashville, TN, USA (Nov. 2007–June 2008)
- Board member of the *Vanderbilt University Turkish Students Association*, Nashville, TN, USA (September 2007–May 2008)
- Leader of the organization team for the *Turkish Night 2008* organized by Turkish Friendship Association and Vanderbilt University Turkish Students Association (hosted 300 guests with a concert by worldwide known band *Omar Faruk Tekbilek & His Ensemble*) (April 2008)
- Participated in *International Asia-to-Europe Swimming Marathon*, Istanbul, Türkiye in 1999 (2^{nd} place), 2002 (3^{rd} place) and 2006 (2^{nd} place)
- Participated in *International Europe-to-Asia Swimming Marathon*, Çanakkale, Türkiye in 2004 (4^{th} place)
- Academic advisor of the *METU Swimming Team* during September 2002–June 2006

- *METU Streetball Tournament* champion (Team "Bodyguards"), May 2005
- Volunteering as a Math and Science tutor to underprivileged elementary and high school children between 2001 and 2003, in the Voluntary Education Project, organized by *METU Communication Club*, and being the project leader between September 2002 and June 2003
- 3^{th} place for 200m IM and 4x200m Freestyle in the *Nat. Uni. Swimming Championship* in 2002
- Member of the *METU University Waterpolo Team*, 2002
- Member of the *METU Swimming Team*, 1998, 1999, 2002
- Member of the *METU Waterpolo Team* competing in National League (Oct. 1997–May 1998)
- *National Swimming Champion* for 1500m Freestyle (Age 16/17) in 1996