

Dr. Umut Ceyhan

CONTACT INFORMATION

E-mail: umut.ceyhan@ikcu.edu.tr
Voice: +90 (232) 329-3535/3751

RESEARCH INTERESTS

Fluid mechanics (especially microfluidics and interfacial phenomena), Computational fluid dynamics

EDUCATION

University of California, Berkeley, California, USA

Ph.D. Mechanical Engineering, May 2016

İzmir Institute of Technology, İzmir, Türkiye

M.S. Mechanical Engineering, July 2011

B.S. Mechanical Engineering, June 2009

PUBLICATIONS AND CONTRIBUTED TALKS

21. Boylu, M. A., **Ceyhan, U.** (2023) Self-Driving and Merging Droplets on Wettability Gradient Surfaces: A Lattice Boltzmann Study, *SDU J Nat Appl Sci*, 27(3), 464-473.
doi: 10.19113/sdufenbed.1305602

20. Kiracılar, B., **Ceyhan, U.** (2023) Linear Stability of Thin Liquid Films on a Heated Surface with Van der Waals Force, *DEUISGR23*.

19. Boylu, M. A., **Ceyhan, U.** (2023) Controlling the Motion of Interfaces in Capillary Channels with Non-uniform Surface Wettability, *DEÜ FMD*, 25(75), 675-691.
doi: 10.21205/deufmd.2023257513

18. Seçer, A., **Ceyhan, U.** (2023) The Role of Surfaces with Reentrant Structures in Droplet Impact, *7th International Students Science Congress*, İzmir, Türkiye.

17. Kaya, B., **Ceyhan, U.** (2023) Axisymmetric deformation of drops through tubes with symmetric and asymmetric constrictions, *Meccanica*, 58, 1291–1306. doi: 10.1007/s11012-023-01666-1 (Publisher: Springer)

16. Özdoğan, M., **Ceyhan, U.** (2023) Droplet entrapment on Inclined Substrates by Enforcement of Pearl Formation, *Physics of Fluids*, 35, 022112. doi: 10.1063/5.0138464 (Publisher: American Institute of Physics Publishing)

15. Seçer, A., **Ceyhan, U.** (2022) Impact of Droplets on Surfaces with Chemical Heterogeneities, *7th International Science and Engineering Congress, BILMES 2022*

14. Boylu, M. A., **Ceyhan, U.** (2022) Effects of Variable Wall Surface Energy on the Motion of Self-Driven Interface in a Capillary Microchannel, *7th International Science and Engineering Congress, BILMES 2022*

13. Özdoğan, M., **Ceyhan, U.** (2022). On Modeling Three Dimensional Slender Droplet Motion over Substrates using Finite Element Method with Adaptive Mesh Refinement, *6th International Students Science Congress*, Izmir, Turkey.

12. Güngör, Ş., **Ceyhan, U.**, & Karadeniz, Z. H. (2021). Optimization of Heat Transfer in a Grooved Pipe Model by Stochastic Algorithms and DOE based RSM, *International Journal of Thermal Sciences*, 159, 106634. doi: 10.1016/j.ijthermalsci.2020.106634 (Publisher: Elsevier)

11. **Ceyhan, U.**, Tiktaş, A. & Özdoğan, M. (2020). Pinning and depinning of Wenzel-state droplets around inclined steps, *Colloid and Interface Science Communications*, 35, 100238. doi: 10.1016/j.colcom.2020.100238 (Publisher: Elsevier)
10. Kaya, B., **Ceyhan, U.** & Karadeniz, Z. H. (2019). Effect of cylinders on the heat transfer in a microchannel, *CTST'19 22nd Congress of Thermal Sciences and Technology*, 11 - 14 Sept., Kocaeli, Türkiye.
9. Güngör, Ş., Aydın, L., Kaya, B., **Ceyhan, U.** & Karadeniz, Z. H. (2019). Analysis of Backward and Forward Effects on a Grooved Co-axial Heat Exchanger by Response Surface Methodology, *CLIMA 2019 Congress*, 26-29 May, Bucharest, Romania. doi: 10.1051/e3sconf/201911101092
8. Güngör, Ş., Karadeniz, Z. H., **Ceyhan, U.** & Aydın, L. (2018). A preliminary study for optimized heat exchangers: parametric analysis of axisymmetric circular grooved model. *7th Rostocker International Conference: 'Thermophysical Properties for Technical Thermodynamics'*, 26-27 July, University of Rostock, Germany.
7. **Ceyhan, U.** & Morris, S. J. S. (2016). Meniscus growth during the wiping stage of intaglio (gravure) printing, *Journal of Fluid Mechanics*, 807, pp. 419–440. doi: 10.1017/jfm.2016.618 (Publisher: Cambridge University Press)
6. **Ceyhan, U.** & Morris, S. J. S. (2016). Control of smearing during wiping stage of gravure printing of electronics. *69th Annual Meeting of the APS Division of Fluid Dynamics Meeting*, Portland, Oregon, USA.
5. **Ceyhan, U.** & Morris, S. J. S. (2015). Analysis for $Ca \rightarrow 0$ of smearing during gravure printing. *68th Annual Meeting of the APS Division of Fluid Dynamics Meeting*, Boston, Massachusetts, USA.
4. **Ceyhan, U.** & Morris, S. J. S. (2015). On tail formation during gravure printing of electronics. *11th European Coating Symposium*, Eindhoven, the Netherlands.
3. **Ceyhan, U.** and Morris, S. J. S. (2014). On tail formation during gravure printing of sessile drops. *67th Annual Meeting of the APS Division of Fluid Dynamics Meeting*, San Francisco, CA, USA .
2. Kitsomboonloha, R., **Ceyhan, U.**, Morris, S. J. S. & Subramanian, V. (2012). Experimental study of the residue film in direct gravure printing of electronics. *American Physical Society, 65th Annual Division of Fluid Dynamics Meeting*, San Diego, CA, USA.
1. **Ceyhan, U.**, Kitsomboonloha, R., Morris, S. J. S. & Subramanian, V. (2012). Lubrication analysis of the nanometric coating film deposited during gravure printing. *American Physical Society, 65th Annual Division of Fluid Dynamics Meeting*, San Diego, CA, USA.

HONORS AND
AWARDS

Bachelor's degree, First rank graduate of İzmir Institute of Technology, Izmir, Türkiye, 2009 (gpa: 3.97/4)
 High honor student, İzmir Institute of Technology, İzmir, Türkiye, Fall, Spring, 2008-2009
 High honor student, İzmir Institute of Technology, İzmir, Türkiye, Fall, Spring, 2007-2008
 High honor student, İzmir Institute of Technology, İzmir, Türkiye, Fall, Spring, 2006-2007
 High honor student, İzmir Institute of Technology, İzmir, Türkiye, Fall, Spring, 2005-2006

ACADEMIC AND
ADMINISTRATIVE
EXPERIENCE

İzmir Katip Celebi University, İzmir, Türkiye
Asst. Prof. Dr., Mechanical Engineering Department
Vice Chair, Mechanical Engineering Department

July 2017 - On going
July 2019 - July 2022

İzmir Katip Celebi University, İzmir, Türkiye

Dr. Researcher, Mechanical Engineering Department

January 2017 - July 2017

University of California, Berkeley, California, USA

Ph.D. Student

2011-2016

Research fellow

‘Fluid Mechanics Problems Motivated by Gravure Printing of Electronics, Ph.D. Dissertation’

İzmir Institute of Technology, İzmir, Türkiye, (Medium of instruction is English)

Graduate Student

2010-2011

Research fellow

‘Development of a 3–D Laminar Navier-Stokes Solver for Separated Channel Flows, M.S. Thesis’

‘Production of home made hot wires for air jet flow measurements’

‘Large eddy simulation of heat and fluid flow of a round impinging jet’

Koç University, İstanbul, Türkiye, (Medium of instruction is English)

Teaching Assistant

2009-2010

Research project

2009-2010

‘A computational study of droplet deformation in an electric field.’

TEACHING

Graduate

ME527(MAK502), Introduction to Continuum Mechanics (Fall 17, 18, 19, 20, 21, 22, 23)

NAS(FBE)521, Introduction to Finite Element Method (Spring 18, 19, 20, 21, 22, 23, 24)

Undergraduate

ME321, Fluid Mechanics (Fall 17, 18, 19, 20, 21, 22, 23)

MEE314, Fluid Mechanics (Spring 17, 18, 20)

ME411, Research in Thermal and Fluid Design (Fall 17)

ME412, Thermal and Fluid Design Application (Spring 18, 19, 20, 21, 22, 23, 24)

ME445, Microscale Fluid Mechanics (Fall 17, 18, 20, 21, 22, 23)

ME473, Introduction to Finite Element Method (Spring 18, 19, 20, 21, 22, 23, 24)

MATH101, Calculus I (Spring 17)

SCIENTIFIC COMMITTEE & REFEREEING

13. Physics of Fluids, December 23 12. Physics of Fluids, November 23 11. Physics of Fluids, July 23 10. Physics of Fluids, June 23 9. Physics of Fluids, February 23 8. Physics of Fluids, December 22 7. Physics of Fluids, April 22 6. Physics of Fluids, March 22 5. TIPTEKNO’20 4. 4th International Students Science Congress 3. 22nd Congress on Thermal Science and Technology (ULIBTK 2019) 2. 3rd International Students Science Congress 1. TIPTEKNO’19

RESEARCH SUPERVISION

Graduate Students

11. Berke Kadir Türker (entered Spring 2024) M.S. Thesis, IKCU

10. Emre Taş (entered Spring 2024) M.S. Thesis, IKCU

9. Oğuzhan Kesmez (entered Spring 2024) M.S. Thesis, IKCU

8. Kaya Berk Sözen (entered Spring 2024) M.S. Thesis, IKCU

7. Bilge Kiracılar (entered Fall 2023), M.S. Thesis, IKCU

6. Tuğçe Karateke (entered Spring 2023), M.S. Thesis, IKCU

5. Alptuğ Boylu (entered Spring 2020, graduated 2 February 2023), M.S. Thesis, IKCU

4. Atalay Seçer (entered Spring 2020, graduated 2 February 2023), M.S. Thesis, IKCU

3. Mert Özdoğan (entered Fall 2019, graduated 26 July 2022), M.S. Thesis, IKCU
2. Büşra Kaya (entered Fall 2018, graduated 27 January 2022), M.S. Thesis, IKCU
1. Aslı Tiktaş (entered Spring 2018, graduated 25 June 2020), M.S. Thesis, IKCU

Undergraduate Students

5. Bilge Kiracılar, Kaya Berk Sözen, Mehmet Ali Tamer, Oğuzhan Kesmez (Spring 2023), IKCU
4. Atalay Seçer, Hakan Bal, Yunus Peksert (Spring 2019), IKCU
3. Mert Özdoğan (Spring 2019), IKCU
2. Çağatay Doğan, Göksenin Viran, Büşra Kaya, Haydar Anıl Demirhan (Spring 2018), IKCU
1. Çağatay Doğan, Göksenin Viran (Fall 2018), IKCU

GRADUATE
COMMITTEE

Ph.D. Qualifying Examination: Menal İlhan Chanbaz (25 May. 2023, 19 Dec. 2023) Meltem Tezcan (27 Dec. 2022, 25 May. 2023) Muhammet Tayyip Gürbüz (31 May 2021, 29 Dec. 2021) Alper Mete Genç (25 June 2020) Nur Çobanoğlu (25 June 2020) Ufuk Akgül (25 May 2018, 24 May 2019); *M.S. Thesis Committee:* Mehmet Akçair (21 August 2017)