# Ahmet Ozan Celik, PhD

Associate Professor of Fluid Mechanics and Hydraulics

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ONLINE PORTFOLIO\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

<https://www.researchgate.net/profile/A_Celik2>

<https://scholar.google.com.tr/citations?user=aHQ3digAAAAJ&hl=en>

[www.linkedin.com/in/ozan-celik-823009a6](http://www.linkedin.com/in/ozan-celik-823009a6)

<https://www.linkedin.com/company/teqflow-inc>

www.ev-bee.com

EDUCATION\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Aug 2005 – Aug 2011* | **Virginia Polytechnic Institute and State University**  PhD, Initiation of sediment movement under turbulent flow conditions  Blacksburg, United States |
| *Sep 2002 – Sep 2004* | **Istanbul Technical University**  MS-CE, Open channel flow through vegetation  İstanbul, Turkey |
| *Sep 1998 – May 2002* | **Istanbul Technical University**  BS, Civil Engineering  İstanbul, Turkey |

WORK EXPERIENCE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Oct.2018-Present* | **Associate Professor**  Eskisehir Technical University, Department of Civil Engineering Eskisehir, Turkey |
| *Jan. 2013 – Oct. 2018* | **Assistant Professor (Tenure appointment application Dec. 2017)**  Anadolu University, Department of Civil Engineering, Eskisehir Turkey |
| *Aug. 2010 – Jan. 2013* | **Lecturer**  Anadolu University, Department of Civil Engineering, Eskisehir Turkey |
| *Aug. 2008 – Aug. 2010* | **Lecturer**  Virginia Tech, Department of Civil and Environmental Engineering, Blacksburg Virginia, US |
| *Aug. 2005 – Aug. 2008* | **Research Assistant**  Virginia Tech, Department of Civil and Environmental Engineering, BEHL, Department of Mechanical Engineering, Blacksburg Virginia, US |
| *Sep. 2002–Aug. 2005* | **Research Assistant**  İstanbul Technical University, Department of Civil Engineering, Hydraulics Laboratory, İstanbul Turkey |

RESEARCH SKILLS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | Experimental: Laboratory and field instrumentation, Analog and digital measurement chains, Data acquisition, LDV & PIV and ADV measurements, Underwater pressure measurements, Field measurements with ADCP, Hot wire measurements, Pressure sensor calibration, Measurements with wave probes, Data synchronization, Calibration, Structural mechanics, vehicle body design  Numerical: Engineering design, Two-phase flow modeling (free surface), liquid-liquid mix modeling, particle tracking modeling with ANSYS CFX-FLUENT and OpenFOAM, Thermodynamics simulations, Steady/transient mechanical simulations, exploratory data analysis with MATLAB, GIS, CAD, Maxwell |

RESEARCH INTERESTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | Experimental fluid mechanics, fluid flow simulation, vehicle aerodynamics, computational fluid dynamics, turbulent flow, sediment transport, open channel flow, hydrodynamics, energy, hydropower, exploratory data analysis, statistics, electric vehicles, charging systems, clean energy sources |

RESEARCH GRANTS & CONTRACTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Aug. 2022-present* | Wireless charging for mobile charging units, **KOSGEB, PI** |
| *June. 2022-present* | **EVbee** Mobile Charging Systems: **Co-Founder** |
| *Jan. 2020-present* | Heliostat wind load and mechanical simulations, Partners: **BAYTEK, TEKFEN** |
| *March 2020-Feb. 2021* | Glass forming process: numerical simulations for determining the effect of different alloys on heat flux, Partner: **ŞİŞECAM** |
| *March 2020* | PIV experiments for deternining the pyrotechnic characteristics of rocket engine burner, Partner: **KALE R&D** |
| *Dec. 2019* | Reactive and absorptive type blower silencer acoustic and flow analysis-design improvements, Partner: **ERSAM** |
| *Jan. 2019-present* | Small liquid-gas separator tank design, **KOSGEB**, **PI** |
| *Sep. 2017-Sep.2018* | Design and prototype building of new water dispencer and ice maker system for refrigerators with water fountains**,** Partner: **ARCELIK, PI** |
| *June 2018* | ANSYS-FLUENT Manual (Turkish) preparetion, Partner: **Anova** |
| *April 2018-present* | Wind turbine blade design and parametric optimisation via numerical experiments, TUBITAK **ARDEB 1001**, Partner : **Kutahya DumluPinar University, Advisor/CFD analyst** |
| *Dec. 2017-Nov.2019* | New aerodynamic add-on devices to reduce fuel consumption of ground vehicles, **TUBITAK 1512-BIGG** Program award, **PI** |
| *Sep. 2017-Present* | Aerodynamic improvements of a coach type bus, **TEYDEB 1501**, Partner: **TEMSA, Advisor, Designer, CFD analyst** |
| *July 2017-present* | 7160928- Oil skimmer design with a grooved thread drum pattern-**TUBITAK 1507**, Partner: SEAGULL A.S., **Advisor**, Designer |
| *May 2017 (Accepted)* | 3170225 - Parametric CFD analysis for new semi-trailer and trailer combinations-**TUBITAK 1501**, Partner: **TIRSAN.,** **Advisor, Designer, CFD analyst** |
| *May 2017 (Accepted)* | 3170228- CFD analysis of an inloader trailer for transporting glass-**TUBITAK 1501**, Partner: **TIRSAN.,** **Advisor, Designer, CFD analyst** |
| *June 2017-present* | 1705F405-Computational and experimental fluid mechanics-Design workshop-**Anadolu Un. BAP** - (Publication and Research Reward Project, Anadolu Un., **PI** |
| *Feb. 2017-Aug. 2017* | 216M521-Experimental and numerical investigation of vortex induced hydrodynamic effects downstream of submerged gates: Development of vortex breaker apparatus-**TUBITAK 3001**, Partner: ESOGU, **Research Fellow** |
| *Nov. 2016-Nov. 2018* | 1702F052- Investigation of the water hammer impacts, hydraulic surge control and benefitial energy harvesting system design- **Anadolu Un. BAP**, **PI** |
| *March 2016-present* | 1603F141-Improving the aerodynamics of a solar powered car- **Anadolu Un. BAP**, **Co-PI**, Designer |
| *July 2015-March 2017* | 215M069-Simulating the behaviour of self compacting concrete with numerical modeling-**TUBITAK 3001**, Partner: Bilecik S.E. Un., **Research Fellow** |
| *April 2015* | Analysis of the Channels in Sedimentation Basin Using Computational Fluid Dynamics Method, Industry partnered collaborative senior student project grant-**TUBITAK 2209 B** program, Partner: ESKI, **Supervisor** |
| *April 2015* | Solar Car Design and Geometry Improvement by Computational Fluid Dynamics, Industry partnered collaborative senior student project grant-**TUBITAK 2209 B** program, Partner: ALFATEC, **Supervisor** |
| *April 2015* | Time Dependent Numerical Modelling of Wind Loads Acting on Tall Buildings, Industry partnered collaborative senior student project grant-**TUBITAK 2209 B** program, Partner: Erdemli A.S., **Supervisor** |
| *June 2014*  *June 2014-June 2015* | Improving the Sandbox in a Water Treatment Plant Using Computational Fluid Dynamics- Industry partnered collaborative senior student project grant-**TUBITAK 2241 A** program, Partner: ESKI, **Supervisor**  Water Structure Design Using CFD-**Anadolu Un. BAP** - (Publication and Research Reward Project, Anadolu Un., **PI** |
| *Feb. 2014-Aug.2015* | 1401F025-Evaluation of Hydropower Potential in Turkey: Implications for Selecting and Designing Hydroelectric Equipment Considering Recent Data, **Anadolu Un. BAP**, **PI** |
| *July 2013-July 2014* | 1306F112-Hydropower Research-Anadolu Un. BAP -, (Publication and Research Reward Project, **Anadolu Un**., **PI** |
| *July 2013* | Producing Electricity from an Industrial facility's Ventilation System-Industry partnered collaborative senior student project grant-**TUBITAK 2241 A** program, Partner: KUDRET METAL, **Supervisor** |
| *July 2012-July 2014* | 1205F079-Civil Engineering Department, Facility Improvement Project-**Anadolu Un. BAP**, **Co-PI** |
| *March 2012-March 2013* | 1110F171-Systematic Variation of with-in Concrete Element Compressive Strenght, **Anadolu Un. BAP**, **Co-PI** |
| *Aug. 2005-Aug.2008* | EAR 0439663 and EAR 0738759-Incipient Motion in Turbulent Open Channel Flow-National Science Foundation-**NSF** - **Researcher**, Virginia Tech CEE |

PEER REVIEWED ARTICLES (cited by 839 total, August, 2022)

Kiriççi, V , Çelik, A , İnsel, C , Kaya, M. EVALUATING THE PERFORMANCE OF A SIMPLE DEVICE FOR REDUCING PRESSURE SURGE EFFECTS USING EXPERIMENTAL AND NUMERICAL METHODS . **Eskişehir Technical University Journal of Science and Technology A - Applied Sciences and Engineering**, 22 (1) , 55-67 . DOI: 10.18038/estubtda.805571, **2021**

Investigating the Advantages and Limitations of Modeling Physical Mass Transfer of CO2 on Flat Plate by One Fluid Formulation in OpenFOAM, PP Thummala, UT Un, **AO Celik**

**Periodica Polytechnica Chemical Engineering,** 64(1)**,** 124-134**, 2020**

[CFD simulations of self-compacting concrete with discrete phase modeling](javascript:void(0)), C Karakurt, **AO Celik**, C Yılmazer, V Kiriççi, E Özyaşar, **Construction and Building Materials** 186, 20-30, **2018**

[Investigation of wind loads on the Osmangazi Bridge with numerical modeling](javascript:void(0))

**AO Celik**, V Kiriççi, **Pamukkale University Journal of Engineering Sciences** 24 (3), 376-383, **2018**

[Accounting for the role of turbulent flow on particle dislodgement via a coupled quadrant analysis of velocity and pressure sequences](javascript:void(0)), WR Shih, P Diplas, **AO Celik**, C Dancey, **Advances in water resources** 101, 37-48, **2017**

[Examination of changes in the Turkish hydropower development, regulation, and planning](javascript:void(0))

**AO Celik**, V Kiricci, **Energy & Environment** 27 (8), 919-932, **2016**

[Reassessment of the flood damage at a river diversion hydropower plant site: lessons learned from a case study](javascript:void(0)), **AO Celik**, V Kiricci, C Insel, **Natural Hazards**, 1-15, **2016**

[Instantaneous pressure measurements on a spherical grain under threshold flow conditions](javascript:void(0))

**AO Celik**, P Diplas, CL Dancey, **Journal of Fluid Mechanics** 741, 60-9, **2014**

[Instantaneous turbulent forces and impulse on a rough bed: Implications for initiation of bed material movement](javascript:void(0)), **AO Celik**, P Diplas, CL Dancey, **Water Resources Research** 49 (4), 2213-2227, **2013**

[Statistical distributions of in situ microcore concrete strength](javascript:void(0))

K Kilinc, **AO Celik**, M Tuncan, A Tuncan, G Arslan, O Arioz, **Construction and Building Materials** 26 (1), 393-403, **2012**

[Distributions of Compressive Strength Obtained from Various Diameter Cores.](javascript:void(0)), **AO Celik**, K Kilinc, M Tuncan, A Tuncan, ACI **Materials Journal** 109 (6), **2012**

Impulse and particle dislodgement under turbulent flow conditions

**AO Celik**, P Diplas, CL Dancey, M Valyrakis, **Physics of Fluids** 22 (4), 046601, **2010**

Role of instantaneous force magnitude and duration on particle entrainment

M Valyrakis, P Diplas, CL Dancey, K Greer, **AO Celik**, **Journal of Geophysical Research**: Earth Surface 115 (F2), **2010**

[Nonintrusive method for detecting particle movement characteristics near threshold flow conditions](javascript:void(0))

P Diplas, **AO Celik**, CL Dancey, M Valyrakis, **Journal of Irrigation and Drainage Engineering** 136 (11), 774-780, **2010**

[Some thoughts on measurements of marginal bedload transport rates based on experience from laboratory flume experiments](javascript:void(0)), P Diplas, **AO Celik**, M Valyrakis, CL Dancey, **US Department of the Interior, US Geological, 2010**

[The role of impulse on the initiation of particle movement under turbulent flow conditions](javascript:void(0))

P Diplas, CL Dancey, **AO Celik**, M Valyrakis, K Greer, T Akar, **Science** 322 (5902), 717-720, **2008**

[An experimental model application of wavescreen: Dynamic pressure, water particle velocity, and wave measurements](javascript:void(0)), O Yagci, VSO Kirca, MS Kabdasli, **AO Celik**, NE Unal, A Aydingakko, **Ocean Engineering** 33 (10), 1299-1321, **2006**

PEER REVIEWED CONFERENCE PROCEEDINGS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**AO Celik**, C Yilmazer, V Kiricci, “Reducing sediment deposition in a clarification tank using numerical modeling” 2. International Conference on Civil and Environmental Engineering, (**ICOCEE** **2017**), Nevsehir, Turkey, May 8-10, 2017

V Kiricci, **AO Celik**, “Modelling the Wind Loads on Bridges: Implications for Safety of Long Vehicles” 2. International Conference on Civil and Environmental Engineering, (**ICOCEE** **2017**), Nevsehir, Turkey, May 8-10, 2017

C Insel, **AO Celik**, V Kiricci, E Guner, “Solar vehicle design with CFD: Influence of geometric features on drag and lift forces” 2nd International Conference on Engineering Sciences and Technologies (**ESaT** **2016**), 29 June-01 July 2016, Slovak Republic

C Insel, **AO Celik**, V Kiricci, T Dal “Kanal Tipi Bir HES Sahasında Oluşan Doğal Afet Hasarının İncelenmesi” Uluslararası Doğal Afetler ve Afet Yönetimi Sempozyumu (**DAAYS’16**), 2-4 Mart 2016, Karabük

E Demirel and **AO Celik** “Numerical simulation of vortical structures downstream of a submerged sluice gate using open foam.” **ACM 2015** Advances in Applied and Computational Mechanics Izmir-Turkey, August 5-7, 2015

V Kiricci, **AO Celik**, MA Kizilaslan, E Demirel, “3D CFD model of a V-notch weir” International Conference on Engineering Sciences and Technologies (**ESaT 2015**), Kosice, May 27-28, 2015, Slovak Republic

V Kiricci, **AO Celik**, ” Modeling Hydraulic Structures with Computational Fluid Dynamics ” International Scientific Conference, People Buildings and Environment **PBE 2014**, Kromeriz, October 15-17, 2014, Czech Republic

**AO Celik**, V Kiricci, “An Assessment on Hydropower Policies in Turkey” International Scientific Conference, People Buildings and Environment **PBE 2014**, Kromeriz, October 15-17, 2014, Czech Republic

PATENTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Protective device for regulating the fluid pressure and for damping the fluid pressure surge-**PCT/EP2016/060248-WO2017194075A1**

Dune –Apparatus to reduce drag force for commercial vehicles-**TKNK/034684/000023**

Dimples for butterfly valve disc- PENDING

Flow induced form-PENDING

EV-bee-PENDING

COURSES TAUGHT\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Undergraduate level* | **Fluid Mechanics at ITU** (02-04) **at Virginia Tech** (2009-2010) **at AU-ESTU** (2011-present)  **Hydraulics at AU-ESTU** (2011-present)  **Hydrology at AU** (2013 Summer)  **Water Resources Engineering at AU** (2013 Fall)  **Introduction to CFD-Design at AU** (2013-present)  **Senior Design Project at AU** (2013-present)  **Renewable Energy at AU-ESTU** (2013-present)  **Statistics at AU** (2015 Fall) |
| *Graduate level* | **Advances in Sediment Transport Research** (2013-present)  **Experimental Methods in Advanced Fluid Mechanics** (2013-present) |

PROFESSIONAL SERVICES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | ASCE-Journal of Hydraulic Engineering, Reviewer  AGU-Water Resources Research, Reviewer  AGU-Journal of Geophysical Research, Reviewer  Elsevier-Advances in Water Resources, Reviewer  Cambridge-Journal of Fluid Mechanics, Reviewer  ASCE- Journal of Waterway, Port, Coastal, and Ocean Engineering, , Reviewer  Elsevier-Ocean Engineering, , Reviewer  Proceedings of the Royal Society-A, Reviewer  Springer-Environmental Fluid Mechanics, Reviewer  IAHR-Journal of Hydraulic Research, Reviewer  TUBITAK-Journal of Engineering and Environmental Sciences, Reviewer  TUBITAK-Teknik Dergi, Reviewer  ESTÜ Solar Team, Academic Advisor  TEQFLOW R&D Engineering Inc., Co-founder (Nov. 2017)  EVbee Inc., Co-founder (June, 2022) |