

Onur Taylan, Ph.D.

Assistant Professor
Mechanical Engineering Program, S-222
Middle East Technical University Northern Cyprus Campus
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PROFESSIONAL APPOINTMENTS	<ul style="list-style-type: none">• Associate Dean / Vice Chair• Assistant Professor• Online Administrator• Research Assistant• Teaching Assistant• Teaching Assistant• Admin. Assistant	Academic Board of Engineering and Natural Sciences, Middle East Technical University Northern Cyprus Campus Middle East Technical University Northern Cyprus Campus International Journal of Thermodynamics (IJOT) The University of Texas at Austin The University of Texas at Austin Middle East Technical University International Journal of Thermodynamics (IJOT)	Sep. 2017 – Sep. 2020 Sep. 2014 – Present May. 2010 – Sep. 2014 Jan. 2014 – Aug. 2014 Sep. 2010 – Dec. 2013 Sep. 2007 – Aug. 2010 Sep. 2008 – May. 2010
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EDUCATION	The University of Texas at Austin, TX, USA Ph.D. , Mechanical Engineering <i>Adviser:</i> Dr. Halil Berberoglu <i>Thesis Title:</i> Synthesis Gas Production using Non-Thermal Plasma Reactors <i>August 2014</i>
	Middle East Technical University, Ankara, Turkey M.S. , Mechanical Engineering <i>Advisers:</i> Dr. Derek Baker and Dr. Bilgin Kaftanoglu <i>Thesis Title:</i> Numerical Modeling and Performance Analysis of Solar-Powered Ideal Adsorption Cooling Systems <i>May 2010</i>
	B.S. , Mechanical Engineering Field of Study: Thermo-Fluid Sciences and Energy <i>June 2007</i>

BOOK CHAPTERS	[1] Al-Ghussain L., Taylan O. (2021), "Comparison of Sizing Models for Hybrid Renewable Energy Systems", in Hybrid Energy System Models, Editors: Berrada A., El Mrabet R. Academic Press, Elsevier: ISBN 978-0-12-821403-9. [2] Taylan O., Berberoglu H. (2013), "Fuel Production Using Concentrated Solar Energy", in The Applications of Solar Energy, Editor: Rugescu R. InTech: ISBN 980-953-307-937-5.
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JOURNAL PAPERS	[3] Al-Ghussain L., Abujubbeh M., Darwish Ahmad A., Abubaker A.M., Taylan O., Fahrioglu M., Akafuah N.K. (2020), "100% Renewable Energy Grid for Rural Electrification of Remote Areas: A Case Study in Jordan", <i>Energies</i> , 13(18), p. 4908. [4] Al-Ghussain L., Samu R., Taylan O., Fahrioglu M. (2020), "Techno-Economic Comparative Analysis of Renewable Energy Systems: Case Study in Zimbabwe", <i>Inventions</i> , 5(3), p. 27. [5] Al-Ghussain L., Samu R., Taylan O., Fahrioglu M. (2020), "Sizing Renewable Energy Systems With Energy Storage Systems in Microgrids For Maximum Cost-Efficient Utilization of Renewable Energy Resources", <i>Sustainable Cities and Society</i> , 55, p. 102059. [6] Taylan O. (2019), "Sizing of Photovoltaic and Wind Energy Systems by Techno-Economic Analysis: Effects of Discount Rate and Feed-in-tariff", <i>Dokuz Eylul University Faculty of Engineering Journal of Science and Engineering</i> , 21(63), pp. 879-895. [7] Al-Ghussain L., Taylan O., Baker D.K. (2019), "An Investigation of Optimum PV and Wind Energy System Capacities for Alternate Short and Long-Term Energy Storage Sizing Methodologies", <i>International Journal of Energy Research</i> , 43(1), pp. 204-218. [8] Al-Ghussain L., Taylan O. (2019), "Sizing Methodology of a PV/wind Hybrid System: Case Study in Cyprus", <i>Environmental Progress & Sustainable Energy</i> , 38(3), p. e13052. [9] Taylan O., Pinero D., Berberoglu H. (2018), "Effects of Reactor Geometry on Dissociating CO ₂ and Electrode Degradation in a MHCD Plasma Reactor", <i>Greenhouse Gases: Science and Technology</i> , 8(4), pp. 701-712. [10] Sadati S.M.S., Jahani E., Taylan O, Baker D.K. (2018), "Sizing of PV-Wind-Battery Hybrid System for a Mediterranean Island Community Based on Estimated and Measured Meteorological Data", <i>Journal of Solar Energy Engineering</i> , 140, p. 011006.
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- [11] Al-Ghussain L., Taylan O., Fahrioglu M. (2018), "Sizing of a Photovoltaic-Wind-Oil Shale Hybrid System: Case Analysis in Jordan", *Journal of Solar Energy Engineering*, 140, p. 011002.
- [12] Okoye C.O., Taylan O. (2017), "Performance Analysis of a Solar Chimney Power Plant for Rural Areas in Nigeria", *Renewable Energy*, 104, pp. 96-108.
- [13] Okoye C.O., Solyali O., Taylan O. (2016), "A New Economic Feasibility Approach for Solar Chimney Power Plant Design", *Energy Conversion and Management*, 126, pp. 1013-1027.
- [14] Okoye C.O., Taylan O., Baker D.K. (2016), "Solar Energy Potentials in Strategically Located Cities in Nigeria: Review, Resource Assessment and PV System Design", *Renewable and Sustainable Energy Reviews*, 55(1), pp. 550-566.
- [15] Taylan O., Berberoglu H. (2015), "Dissociation of carbon dioxide using a microhollow cathode discharge plasma reactor: effects of applied voltage, flow rate and concentration", *Plasma Sources Science and Technology*, 24(1), p. 015006.
- [16] Taylan O., Berberoglu H. (2014), "Electrical Characterization and an Equivalent Circuit Model of a Microhollow Cathode Discharge Reactor", *Journal of Applied Physics*, 116(4), p. 043302.
- [17] Taylan O., Berberoglu H. (2013), "Thermal Radiation Transport in a Fluidized Dry Water System", *Journal of Quantitative Spectroscopy and Radiative Transfer*, 120(1), pp. 104-113.
- [18] Taylan O., Baker D. K., Kaftanoglu B. (2012), "COP Trends for Ideal Thermal Wave Adsorption Cooling Cycles with Enhancements", *International Journal of Refrigeration*, 35(3), pp. 562-570.
- [19] Taylan O., Baker D. K., Kaftanoglu B. (2011), "Normalized Thermodynamic Model for Intermittent Energy Systems and Application to Solar-Powered Adsorption Cooling Systems", *International Journal of Thermodynamics*, 14(3), pp.107-115.
- [20] Taylan, G., Taylan, O., Fahrioglu, M. "Comparison of middle-size PV and PTC Power Plants for METU NCC" 6th Global Congress on Renewable Energy and Environment (ESWAE 2018), Aydin, Turkey, October 12-14, 2018.
- [21] Gurer, E., Taylan, O., Yuksel, T. "Driving cycle and temperature effects on the energy performance of a solar-powered electric vehicle in Istanbul" 6th Global Congress on Renewable Energy and Environment (ESWAE 2018), Aydin, Turkey, October 12-14, 2018.
- [22] Al-Ghussain, L., Taylan, O., Samu, R., Fahrioglu, M. "Techno-Economic Analysis of Photovoltaic-Hydrogen Fuel Cell/Pumped Hydro Storage System for Micro Grid Applications: Case Study in Cyprus," 2018 International Conference on Photovoltaic Science and Technologies (PVCon), Ankara, Turkey, July 4-6, 2018.
- [23] Taylan O., Ahmed H., Guven P., "Dissociation of CO₂ Using Salt Gradient Solar Pond," 2nd International Mediterranean Science and Engineering Congress (IMSEC 2017), Adana, Turkey, October 25-27, 2017, (384) 750-758.
- [24] Samu R., Fahrioglu M., Taylan O., "Feasibility Study of a Grid Connected Hybrid PV-Wind Power Plant in Gwanda, Zimbabwe." HONET-ICT International Symposium 2016, Haspolat, Nicosia, Northern Cyprus, October 13-14, 2016, (33).
- [25] Obaidullah, M., Kadyrov, S., Gorjinezhad, S., Taylan O., Torkmahalleh, M. A., Ahmadi, G., "One Year Operation of a Salinity Gradient Solar Pond in Northern Cyprus- Experimental Investigations and CFD Simulation," 2016 AIChE Spring Meeting and Global Congress on Process Safety, Houston, TX, USA, April 10-14, 2016, 151b.
- [26] Sadati S.M.S., Jahani E., Taylan O., "Technical and Economic Analyses for Sizing PV Power Plant With Storage System for METU NCC," ASME IMECE 2015 (International Mechanical Engineering Congress & Exposition), Houston, TX, USA, November 13-19, 2015, IMECE2015-50959.
- [27] Taylan O., Berberoglu H., "Dissociation of Carbon Dioxide Using a Microhollow Cathode Discharge Reactor", full paper accepted to ASME IMECE 2013 (International Mechanical Engineering Congress & Exposition), San Diego, CA, USA, November 15-21, 2013, IMECE2013-64632.
- [28] Taylan O., Berberoglu H., "Modeling of a Microhollow Cathode Discharge Reactor for Carbon Dioxide Dissociation", full paper accepted to ASME IMECE 2013 (International Mechanical Engineering Congress & Exposition), San Diego, CA, USA, November 15-21, 2013, IMECE2013-64637.
- [29] Taylan O., Berberoglu H., "Dissociation of Carbon Dioxide Using a Non-Thermal Plasma Reactor", ASME Summer Heat Transfer Conference 2013, Minneapolis, MN, USA, July 14-19, 2013, HT2013-17559.
- [30] Taylan O., Murphy T.E., Berberoglu H., "Light Transport Analysis of Smart Windows for Solar Energy Harvesting," 7th International Symposium on Radiative Transfer, Kusadasi, Turkey, June 2-8, 2013.

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- [31] Taylan O., Berberoglu H., “Thermal Radiation Transport in a Cloud of Dry Water Particles”, the ASME Summer Heat Transfer Conference 2012, Puerto Rico, USA, July 8-12, 2012, HT2012-58416.
- [32] Taylan O., Berberoglu H., “Rheological Properties of Dry Water”, the ASME IMECE 2011 (International Mechanical Engineering Congress & Exposition), Denver, CO, USA, November 11-17, 2011, IMECE2011-64114.
- [33] Taylan O., Baker D. K., Kaftanoglu B., “Adsorbent – Refrigerant Comparison for a Solar Powered Adsorption Cooling System using Seasonal Simulations”, the 10th REHVA (the Federation of European Heating and Air Conditioning Associations) World Congress (Clima 2010), Antalya, Turkey, May 9-12, 2010.
- [34] Taylan O., Baker D. K., Kaftanoglu B., “Parametric Study and Seasonal Simulations of a Solar Powered Adsorption Cooling System”, the 22nd International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS 2009), pp. 833-842, Foz do Iguacu, Brazil, August 30-September 3, 2009.

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- FUNDED PROJECTS
- Campus Research Fund (BAP FEN-18-D-8), Principal Investigator, “Estimation of Solar Irradiation at a Tilted Surface at METU NCC”, 2018-2020, 32550 TL.
 - Campus Research Fund (BAP FEN-16-YG-3), Principal Investigator, “Modeling of CO₂ dissociation using solar pond”, 2016-2018, 44000 TL.
 - TÜBİTAK MAG Project (105M244), Researcher, “Güneş enerjisi destekli zeolit iklimlendirme sistemi / Solar assisted air conditioning system with zeolite”, 2006-2009: 1-236, 192000 TL.

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- SKILLS
- 10 years of experience in teaching for various courses in thermal-fluid sciences
 - 3 years of experimental experience in spectrophotometry and potentiometry
 - 3 years of experience in numerical analysis using MATLAB for modeling adsorption beds for cooling systems
 - 2.5 years of experience in finite element analysis using COMSOL
 - 2 years of experience in numerical methods using FORTRAN for solving the Radiative Transport Equation
 - 1.5 years of experience in numerical methods using FORTRAN for solving the Radiative Transport Equation
 - 6 months of experience in managing electric fields in dielectric barrier discharge plasma reactors
 - 6 months of experience in radiation heat transfer through Monte Carlo method
 - 6 months of experience in numerical modeling for thermo- and exergo-economic analysis of engineering systems
 - 6 months of experience in performance analysis of polymer exchange membrane fuel cell

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- AWARDS & HONORS
- Graduate Engineering Council Conference Grant (Fall 2013)
 - Professional Development Award – Office of Graduate Studies (Fall 2013 & Summer 2013)
 - National Science Foundation Award for ASME Heat Transfer Division Workshop (Summer 2013)
 - Dean’s High Honor Certificate (Spring 2007 & Fall 2006)
 - Dean’s Honor Certificate (Fall 2003, Spring 2004, Fall 2005, Spring 2006)
 - 1804th rank, top 0.75%, in mathematics-science branch in university entrance examination among approximately 1.5 million candidates (June 2003)

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- AREAS OF INTEREST
- Absorption / Adsorption Cooling Systems
 - Building Energy Systems
 - Energy Analyses / Simulations of Engineering Systems
 - Engineering Economy
 - Heating and Air-Conditioning Systems
 - Plasma Reforming and Plasma Technologies
 - Radiation Heat Transfer
 - Renewable and Sustainable Energy Conversion Systems
 - Solar Energy Utilization
 - Sustainable Technologies
 - Thermodynamics
 - Zero-energy buildings and districts

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TEACHING

- MECH 203 – Thermodynamics

EXPERIENCE

- MECH 220 – Mechanical Engineering Laboratory I
- MECH 311 – Heat Transfer
- MECH 320 – Mechanical Engineering Laboratory II
- MECH 405 – Energy Conversion Systems
- MECH 420 – Mechanical Engineering Laboratory III
- MECH 458 – Graduation Design Project
- MECH 476 – Second Law Analysis of Engineering Systems
- MECH 495 – Design of Renewable Energy Systems
- CHME 325 – Heat Transfer

PROFESSIONAL**SERVICE***Member of the Professional Organizations and Committees*

- American Society of Thermal and Fluids Engineers (ASTFE), Member (2014 – Present)
- American Society of Mechanical Engineers (ASME), Member (2014 – Present)
- ASME K-6 Heat Transfer in Energy Systems, Committee Member (2013 – Present)
- American Society of Mechanical Engineers (ASME), Student Member (2010 – 2014)

Technical Session Chair in Conferences

- Chair of a technical session, “Solar Thermal and Cooling Systems,” in ASME International Mechanical Engineering Congress & Exposition, San Diego, CA, USA, November 15-21, 2013.
- Chair of a technical session, “Heat Transfer in Solar Energy Systems,” in ASME Summer Heat Transfer Conference, Minneapolis, MN, July 14-19, 2013.
- Co-chaired a session in a technical session, “Radiation in Energy Systems,” in ASME International Mechanical Congress and Exposition, Houston, TX, November 9-15, 2012.

Thesis Committee Member

- Nafi Cabacaba, “Experimental Analysis of Soiling Effect on String Type PV systems,” Ph.D. Student, Supervisors: Dr. Serkan Abbasoğlu, Cyprus International University, 2015-Current.
- Kathy M. Kiema, “Technical and Economic Feasibility of Large Scale Concentrating Solar Power Deployment in Kenya,” M.Sc. Thesis, Supervisor: Dr. Murat Fahrioglu, Middle East Technical University Northern Cyprus Campus, August 2017.
- Syed Muhammad Hassan Ali, “Optimal Photovoltaic Size Estimation for a Campus Area Considering Uncertainties in Load, Power Generation and Electricity Rates,” M.Sc. Thesis, Supervisors: Dr. Yasemin Merzifonluoglu Uzgoren, Dr. Eray Uzgoren, Middle East Technical University Northern Cyprus Campus, June 2015.
- Daniel Pinero, “Electrode Degradation in Micro-Hollow Cathode Discharge Reactors,” M.Sc. Thesis, Supervisor: Dr. Halil Berberoglu, The University of Texas at Austin, May 2015.

Scientific Committee Member and University Service

- Personal Data Protection Commission, Middle East Technical University Northern Cyprus Campus (Associate Coordinator from 2020 – Present)
- Laboratory Commission Member, Middle East Technical University Northern Cyprus Campus (Member from 2016 – 2019, Chair: 2019 – Present)
- ABET Commission Member, Middle East Technical University Northern Cyprus Campus (Member from 2018 – Present)
- SEES Graduate Program Committee Member, Middle East Technical University Northern Cyprus Campus (2016 – Present)
- Green Campus Initiative, Middle East Technical University Northern Cyprus Campus (2015 – Present)
- 2017-2021 Strategic Planning Physical Resources Committee Coordinator, Middle East Technical University Northern Cyprus Campus (2016 – 2017)
- 2017-2021 Strategic Planning International Relations Committee Member, Middle East Technical University Northern Cyprus Campus (2016 – 2017)
- Turkish Solar Electricity Conference and Exhibition 2015 (SolarTR-3), Ankara, Turkey, April 27-29, 2015.

Reviewer for Journals and Conferences

- Applied Energy
- ASME Heat Transfer Journal

- Desalination
- Energies
- Energy Conversion and Management
- Energy Sources, Part A: Recovery, Utilization and Environmental Effects
- Energy Strategy Reviews
- Environmental Progress & Sustainable Energy
- Frontiers in Energy Research
- Greenhouse Gases: Science and Technology
- IEEE Access
- IET Renewable Power Generation
- International Journal of Global Energy Issues
- International Journal of Hydrogen Energy
- International Journal of Sustainable Energy
- Journal of Cleaner Production
- Journal of Electrical and Computer Engineering
- Journal of Energy Engineering
- Journal of Energy Management and Technology
- Journal of Energy Storage
- Journal of Heat Transfer, ASME
- Journal of Solar Energy Engineering
- Journal of Thermal Science and Technology
- Renewable Energy
- Renewable & Sustainable Energy Reviews
- Science in the Total Environment
- Sustainable Energy Technologies and Assessments
- Technology in Society
- The Open Fuels & Energy Science Journal
- Wiley Interdisciplinary Reviews: Energy and Environment
- ASME International Mechanical Congress and Exposition
- ASME Summer Heat Transfer Conference
- Turkish Solar Electricity Conference and Exhibition (SolarTR)

LANGUAGES		
• Turkish		Native
• English		Good command in reading and writing, fluent in speaking
• Spanish		Beginner
• German		Beginner

SUPERVISING			
	<i>Alumni from Sustainable Environment and Energy Systems Program</i>		
• Alfred Ejiro Abukubu	MSc, September 2020		<i>Adviser, co-supervised by Dr. Emre Artun</i>
• Genco Kavaz	MSc, August 2019		<i>Adviser</i>
• Erim Gurer	MSc, August 2019		<i>Adviser, co-supervised by Dr. Tugce Yuksel Bediz</i>
• Pelin Guven	MSc, September 2018		<i>Adviser, co-supervised by Dr. Mehdi Torkmahalleh</i>
• Caglan Sevinc	MSc, January 2018		<i>Adviser (transferred from Dr. Eray Uzgoren)</i>
• Loiy Al-Ghussain	MSc, July 2017		<i>Adviser, co-supervised by Dr. Derek K. Baker</i>
• Fahad Haneef	MSc, July 2017		<i>Adviser</i>
• Humayun Ahmed	MSc, January 2017		<i>Adviser</i>
• Sajed Sadati	MSc, July 2016		<i>Adviser</i>
• Kemal Masera	MSc, June 2016		<i>Adviser</i>
• Okoye Chiemeka Onyeka	MSc, January 2016		<i>Adviser</i>
	<i>Graduate Students in Sustainable Environment and Energy Systems Program</i>		
• Deniz Goren	Fall 2018 – Present		<i>Adviser</i>
• S. M. Meesam Raza	Spring 2019 – Present		<i>Adviser</i>
• Youssef M. M. B. Youssef	Fall 2019 – Present		<i>Adviser</i>
• Ibrahim M. S. Mohamed	Fall 2019 – Present		<i>Adviser</i>
• M. Haseeb Rasool	Spring 2020 – Present		<i>Adviser</i>