ASSOC. PROF. DR. İPEK AYTAÇ

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EDUCATION

2003-2006	**High School**, Gazi University Foundation Private Science High School, Ankara, Türkiye.
2006-2011	**B.Sc.**, Başkent University, Faculty of Engineering, Mechanical Engineering, Ankara, Türkiye.
2012-2014	**M.Sc.**, Gazi University, Energy Systems Engineering Department, Ankara, Türkiye. **Thesis Title:** Heat Transfer Performance Enhancement by Using Alumina Nanofluid in the Parallel and Cross- Flow Concentric Tube Heat Exchangers **Supervisor:** Prof. Dr. Adnan SÖZEN
2016-2020	**Ph.D.**, Gazi University, Energy Systems Engineering Department, Ankara, Türkiye. **Thesis Title:** Use of Nano Fluid in Heat Recovery Units **Supervisor:** Prof. Dr. Adnan SÖZEN

EXPERIENCE

Work Experience

2018 - 2021	**Research Assistant**, University of Turkish Aeronautical Association, Faculty of Engineering, Department of Mechanical Engineering, Ankara, Türkiye.
2021 - 2023	**Assist. Prof. Dr.** University of Turkish Aeronautical Association, Faculty of Engineering, Department of Mechanical Engineering, Ankara, Türkiye.
2023 - Ongoing	**Assoc. Prof. Dr.** University of Turkish Aeronautical Association, Faculty of Engineering, Department of Mechanical Engineering, Ankara, Türkiye.

PUBLICATIONS

Articles published in peer reviewed international journals (SCI, SCI Expanded):

1. **Aytaç İ.**, Tuncer A. D., Khanlari A., Variyenli H. İ., Mantıcı S., Güngör L., Ünvar S. (2023). Investigating the effects of using MgO-CuO/water hybrid nanofluid in an evacuated solar water collector: A comprehensive survey, Thermal Science and Engineering Progress, 39, 101688, Doi: 10.1016/j.tsep.2023.101688.

2. **Aytaç İ.**, Badali Y., Tuncer A. D. (2023). Numerical and experimental investigation for enhancing thermal performance of a concentric heat exchanger using different scenarios, International Journal of Numerical Methods for Heat and Fluid Flow, 33 (6), 2100-2127, Doi: 10.1108/HFF-10-2022-0588.

3. Tuncer A. D., Khanlari A., **Aytaç İ.**, Çiftçi E., Sözen A., Variyenli H. İ. (2022). Passive thermal management of photovoltaic panel by using phase change material-filled aluminum cans: an experimental study, Heat Transfer Research, 53(5), 73-86, Doi: 10.1615/HeatTransRes.2022041473.

4. **Aytaç İ.** (2022). Determination of the thermal behavior of water-based Fe_3O_4 nanofluid using thermophysical property models, Heat Transfer Research, 53(18), 57-75, Doi: 10.1615/HeatTransRes.2022043374.

5. **Aytaç İ.** (2022). Experimental investigation on heat transfer performance of Fe_2O_3/water and Fe_3O_4/water nanofluids in a plate heat exchanger, Heat Transfer Research, 53(15), 69-93, Doi: 10.1615/HeatTransRes.2022043164.

6. Khanlari A., Tuncer A. D., Sözen A., **Aytaç İ.**, Çiftçi E., Variyenli H. İ. (2022). Energy and exergy analysis of a vertical solar air heater with nano-enhanced absorber coating and perforated baffles, Renewable Energy, 187, 586-602, Doi: 10.1016/j.renene.2022.01.074.

7. Çiftçi E., Khanlari A., Sözen A., **Aytaç İ.**, Tuncer A. D. (2021). Energy and exergy analysis of a photovoltaic thermal (PVT) system used in solar dryer: A numerical and experimental investigation, Renewable Energy, 180, 410-423, Doi: 10.1016/j.renene.2021.08.081.

8. Sözen A., Filiz Ç., **Aytaç İ.**, Martin K., Ali H. M., Boran K., Yetişken Y. (2021). Upgrading of the Performance of an Air-to-Air Heat Exchanger Using Graphene/Water Nanofluid. International Journal of Thermophysics, 42(35), Doi: 10.1007/s10765-020-02790-w.

9. **Aytaç İ.**, Sözen A., Martin K., Filiz Ç., Ali H. M. (2020). Improvement of Thermal Performance using Spineloxides/Water Nanofluids in the Heat Recovery Unit with Air-to-Air Thermosiphone Mechanism, International Journal of Thermophysics, 41(158), Doi: 10.1007/s10765-020-02739-z.

10. Sözen A., Martin K., **Aytaç İ.**, Filiz Ç. (2020). Upgrading the performance of heat recovery unit containing heat pipes by using a hybrid (CuO + ZnO)/water nanofluid, Heat Transfer Research, 51(14), 1289-1300, Doi: 10.1615/HeatTransRes.2020035393.

11. Sözen A., Variyenli H. İ., Özdemir M. B., Gürü M., **Aytaç İ.** (2016). Heat transfer enhancement using alumina and fly ash nanofluids in parallel and cross-flow concentric tube heat exchangers, Journal of the Energy Institute, 89(3), 414-424, Doi: 10.1016/j.joei.2015.02.012.

Articles published in other peer reviewed international journals (ESCI):

1. Karaçam T., Variyenli H. İ., Martin K., Khanlari A., **Aytaç İ**. (2022). Experimental investigation of the Effect of Using Thermostatic Radiator Valve on Energy Efficiency in Buildings, Journal of Polytechnic, 25(4): 1713-172, Doi: 10.2339/politeknik.1031156.

2. Yürük M., Variyenli H. İ., Martin K., Khanlari A., **Aytaç İ.** (2022). Experimental Evaluation of Installation Cleaning in Terms of Energy Efficiency in Individual Heating Systems, Journal of Polytechnic, 25(3), 1375-1384, Doi: 10.2339/politeknik.1025494.

3. **Aytaç İ.**, Sözen A. (2022). Performance improvement of the heat recovery unit with sequential type heat pipes using water based ZnO and $ZnOAl_2O_3$ nanofluids, Journal of Polytechnic, 25(1), 1-7, Doi: 10.2339/politeknik.703083.

4. **Aytaç İ.** (2021). Investigation of the effect of CuO/water and ZnO/water nanofluids on heat pipe performance, Journal of Polytechnic, 24(3), 963-971, Doi: 10.2339/politeknik.755358.

Articles published in peer reviewed national journals:

1. **Aytaç İ.** (2020). Thermal Behaviors of Thermophysical Properties of Hybrid Nanofluids, Gazi University Journal of Science Part C: Design and Technology, 8(4), 810-829, Doi: 10.29109/gujsc.756583.

Papers delivered in international conferences and printed as proceedings:

1. **Aytaç İ.** A Detailed Investigation on Using Single and Hybrid Nanofluid in a Plate Heat Exchanger with 16 Plates. 4. International Gobeklitepe Scientific Research Congress, October 07-08, 2022, Şanliurfa, Turkey.

2. **Aytaç İ.** Determination of Thermal Performance Improvement of a Heat Exchanger Including Heat Pipe System Utilizing Water Based $FeOAl_2O_3$ and FeCuO Nanofluids. International Black Sea Modern Scientific Research Congress, September 29 - October 02, 2022, Rize, Turkey.

3. **Aytaç İ.** Numerical Analysis of the Impact of Different Turbulator Modifications on the Overall Behavior of a Concentric Type Heat Exchanger. 3. Baskent International Conference on Multidisciplinary Studies, September 23-25, 2022, Ankara, Türkiye.

4. **Aytaç İ.** The Influence of Using Hybrid Type Nanofluid in a Concentric Tube-Type Heat Exchanger on Thermal Performance. 2nd International Istanbul Congress of Multidisciplinary Scientific Research, September 28-29, 2022, İstanbul, Türkiye.

5. **Aytaç İ.** Investigation of Thermophysical Characteristics of Aqueous Ferro Nanofluids. International Symposium on Current Developments in Science, Technology and Social Sciences (BILTEK-VI), September 16-18, 2022, Malatya, Türkiye.

6. Sözen A., Çiftçi E., **Aytaç İ.** Preparation of Aqueous Fe+Cuo, $ZnO+Al_2O_3$ and $CuO+Al_2O_3$ Hybrid Nanofluids and Thermal System Applications. International Conference on Advanced Materials Science Engineering and High Tech Device Applications (ICMATSE), 11-14, October 02-04, 2020, Ankara, Türkiye.

7. Martin K., **Aytaç İ.**, Filiz Ç., Sözen A., İskender Ü. Upgrading of Performance of Air to Air Heat Pipe Heat Exchanger by Using CuO+ZnO Hybrid Nano Fluid. 8th European Conference on Renewable Energy Systems (ECRES), August 24-25, 2020, İstanbul, Türkiye.

8. Martin K., **Aytaç İ.**, Filiz Ç., Sözen A., Kilinç C. Experimental Investigation of the Use of MgO+ZnO Mixture in Thermosiphon Type Heat Pipes within the Scope of Air-to-Air Heat Exchanger Design. 8th European Conference on Renewable Energy Systems (ECRES), August 24-25, 2020, İstanbul, Türkiye.

9. **Aytaç İ.** Upgrading of the Performance of a Heat Exchanger Utilizing Graphene/Water Nanofluid, 3rd Internatıonal Engıneerıng and Archıtecture Congress, May 28-29, 2022, Diyarbakır, Türkiye.

10. **Aytaç İ.** Determination of the Thermophysical Properties of Nanofluids Using Models in the Literature, 4. International Sciences and Innovation Congress, February 19-20, 2022, Ankara, Türkiye.

11.**Aytaç İ.** Heat Transfer Enhancement Using Nanofluids in Heat Pipes, V. International Icontech Conference on Innovative Surveys in Positive Sciences, February 5-6, 2022, Şanlıurfa, Türkiye.

12. **Aytaç İ.** Improvement of Thermal Performance by Using $ZnOAl_2O_3$/water Nanofluid in Heat Pipe-Heat Recovery Unit, 2nd International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2020), October 07-09, 2020, Gaziantep, Türkiye.

13. **Aytaç İ.** Experimental Investigation of the Effect of Using ZnO / water Nanofluid on the Thermal Performance of the Air to Air Heat Recovery Unit, 2nd International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2020), October 07-09, 2020, Gaziantep, Türkiye.

RESEARCH AREAS

Heat transfer, nanofluids, heat exchanger, solar collector.

CERTIFICATIONS

Certificate of Occupational Health and Safety Expertise, Class C (National Certificate).