

SEZGİ KOÇAK SOYLU

E-Mail: sezgi.kocak@antalya.edu.tr

Place of Birth: Ankara, Turkey

Nationality: Turkish

Language: Turkish (Native)

English (Fluent), German (Basic Communication Skills)



EDUCATION

2012 – 2018: *Doctor of Philosophy (PhD)*, Akdeniz University

Department: Mechanical Engineering

Title of the thesis: “Investigation of the Effect of TiO₂ Based Nanofluid Usage on Heat Transfer Performance in Automobile Radiator”

Study emphases: Determining thermophysical properties of nanofluids and investigating their applicability to engineering systems, particularly to engine cooling.

Advisor: Assoc. Prof. Dr. İbrahim Atmaca

Grade: 3.72 / 4.00 (91.60 / 100)

2009 – 2012: *Master of Science (M.Sc.)*, Akdeniz University

Department: Mechanical Engineering

Title of the thesis: “Theoretical Analysis of Solar Assisted Water Source Heat Pump Space Heating System.”

Study emphases: Developing a small applet for solar energy calculations and heat pump energy – exergy analysis.

Advisor: Assoc. Prof. Dr. İbrahim Atmaca

Grade: 3.43 / 4.00 (88.60 / 100)

2004 – 2009: *Bachelor of Science (B.Sc.)*, Akdeniz University

Department: Mechanical Engineering

Title of the thesis: “Effect of External Ultrasonic Treatment on Several Properties of Hypereutectic Cast Aluminium-Silicon Alloy”

Study emphases: Studying effects of ultrasonic treatment on bi-metal cast aluminium alloys.

Advisor: Prof. Dr. Narin Ünal

Grade: 2.97 / 4.00 (79.40 / 100)

WORK EXPERIENCE in ACADEMIA

2018 – 2010: *Research Assistant*, Department of Mechanical Engineering, Akdeniz University

Teaching

Teaching experience with bachelor and master's degree students, informal supervision.

- Heat Transfer
- Fluid Mechanics
- Heat Exchangers
- Alternative Energy Systems
- Solar Energy and Applications
- Mechanical Engineering Laboratory (particularly thermodynamics and heat transfer lab.)
- Supervising Mechanical Engineering Graduate Projects

Publications

A. SCI, SSCI, AHCI Indexed Journals

1. **Koçak Soylu S.**, Atmaca İ, Asiltürk M. Doğan A., "Improving Heat Transfer Performance of an Automobile Radiator Using *Cu* and *Ag* Doped *TiO₂* Based Nanofluids", *Applied Thermal Engineering*, 2019.
2. **Koçak Soylu S.**, Atmaca İ., "A Study on Air-Cooled Chillers with Evaporatively Cooled Condenser for 3 Types of Climate", *Journal of Thermal Science and Technology*, vol.36, pp.1-8, 2016.
3. Yildirim C., **Koçak Soylu S.**, Atmaca İ., Solmus I., "Experimental Investigation of a Portable Desalination Unit Configured by a Thermoelectric Cooler", *Energy Conversion and Management*, vol.85, pp.140-145, 2014.
4. Atmaca İ., **Koçak Soylu S.**, "Theoretical Energy and Exergy Analyses of Solar Assisted Heat Pump Space Heating System", *Thermal Science*, vol.18, pp.417-427, 2014.
5. Unal N., Çamurlu H.E., **Koçak Soylu S.**, Duztepe G., "Effect of External Ultrasonic Treatment on Hypereutectic Cast Aluminium-Silicon Alloy", *International Journal of Cast Metals Research*, vol.25, pp.246-250, 2012.

B. Other Indexed Journals

1. Atmaca İ., **Koçak Soylu S.**, Kemer M., "Analysis of Cold Surface Effect on Thermal Comfort in Conditioned Environments", *Journal of Mechanical Instalment Engineering*, vol.159, pp.84-94, 2017 (in Turkish).
2. **Koçak Soylu S.**, Atmaca İ., Doğan A., "Investigation of Evaporative Cooling Effectiveness on the Performance of Air-Cooled Chillers", *The Online Journal of Science and Technology*, vol.6, pp.36-39, 2016.
3. Atmaca İ., **Koçak Soylu S.**, "Determination of Thermal Comfort Zone for Employees Working on Different Metabolic Activity Levels in the Plants", *Engineer and Machinery*, vol.54, pp.26-32, 2013 (in Turkish).
4. **Koçak Soylu S.**, Şaşmaz C., Atmaca İ., "Technical and Economic Analysis of a Shopping Center Insulated for Various Degree-Day Zones According to TS825", *Journal of Mechanical Instalment Engineering*, vol.128, pp.76-88, 2012 (in Turkish).

C. Conference Proceedings

C.1. International Congress

1. **Koçak Soylu S.**, Çarkacı Ç., Atmaca İ., Doğan A., "Investigation of a Solar Assisted Water Source Heat Pump System for Different Solar Radiations", 12th REHVA World Congress: CLIMA 2016, Aalborg, DENMARK, 22-25 May 2016, vol.3, pp.1-1. (*oral presentation*)
2. **Koçak Soylu S.**, Atmaca İ., Doğan A., "Investigation of Evaporative Cooling Effectiveness on the Performance of Air - Cooled Chillers", International Science and Technology Conference ISTEC 2015, St. Petersburg, RUSSIA, 2-4 September 2015, pp.803-806.
3. **Koçak Soylu S.**, Atmaca İ., Doğan A., "An Assessment of the Heat Transfer Applications of Nanofluids", 3rd International Scientific Conference on Engineering Manufacturing and Advanced Technologies MAT 2014, Mostar, BOSNIA-HERZEGOVINA, 18-20 September 2014, pp.46-53.
4. Atmaca İ., **Koçak Soylu S.**, Doğan A., "Determination of The Optimum Thermal Comfort Zone for Work Safety of The Employees Working in Manufacturing Sector", International Science and Technology Conference ISTEC 2013, Rome, ITALY, 25-27 June 2013, pp.359-364.
5. **Koçak Soylu S.**, Atmaca İ., "Investigation of Heating Load Effects on Solar Assisted Heat Pump System Performance with Simulation", 2nd International Scientific Conference on Engineering Manufacturing and Advanced Technologies MAT 2012, Antalya, TURKEY, 22-24 November 2012, pp.157-168. (*oral presentation*)

6. Atmaca İ., **Koçak Soylu S.**, "Determination of Optimum Collector Surface Area for Solar Assisted Heat Pump System with Simulation: Energy and Exergy Analysis", International Science and Technology Conference ISTEC 2012, Dubai, THE UNITED ARAB EMIRATES, 13-15 December 2012, pp.347-353.

C.2. National Congress (proceedings are in Turkish)

1. Çengel G., Şenel A., **Koçak Soylu S.**, Atmaca İ. "Investigation of Solar Photovoltaic Support in Sanitary Hot Water Supply Application with Sea Water Source Heat Pump". 10th Renewable Energy Resources Symposium and Exhibition YEKSEM 2019, ANTALYA, TURKEY, 12 – 14 December 2019.
2. Şenel A., Çengel G., **Koçak Soylu S.**, Atmaca İ. "Versatile Analysis of Solar Thermal and Solar Photovoltaic Application at the Same Economic Scale". 10th Renewable Energy Resources Symposium and Exhibition YEKSEM 2019, ANTALYA, TURKEY, 12 – 14 December 2019.
3. Atmaca İ., **Koçak Soylu S.**, Özdemir O.S., Asiltürk M. "Nanofluids and Use in Solar Hot Water Systems". 8th Solar Energy Systems Symposium and Exhibition, MERSİN, TURKEY, 8 – 9 November 2019.
4. **Koçak Soylu S.**, Atmaca İ., "Availability, Research and Application Potential for the Concept of Internet of Things for Various Thermal Comfort Applications", 14th National Installation Engineering Congress TESKON 2019, İzmir, TURKEY, 17-20 April 2019, pp.1014-1023 (*oral presentation*).
5. Atmaca İ., **Koçak Soylu S.**, "Evaluation of Thermal Comfort with Existing Standards and Studies from Physical Risk Factors", 9th National Occupational Health and Safety Congress, Adana, TURKEY, 30 November - 2 December 2017, pp.1-9.
6. **Koçak Soylu S.**, Şenel A., Atmaca İ., "A Study on Photovoltaic Panel Usage in Controlled Atmosphere Storage", 9th Renewable Energy Resources Symposium and Exhibition YEKSEM 2017, Antalya, TURKEY, 3-5 November 2017, pp.9-16.
7. Özçelik M.Y., **Koçak Soylu S.**, Atmaca İ., "Investigation of Aerogel Insulated Valves in A Sample Wood Industry Facility", 4th Energy Efficiency Congress, Kocaeli, TURKEY, 13-14 October 2017, pp.179-186.
8. Özçelik M.Y., **Koçak Soylu S.**, Atmaca İ., "Technical and Economic Analysis of Aerogel Insulation in an Industrial Plant", 13th National Installation Engineering Congress TESKON 2017, İzmir, TURKEY, 19-22 April 2017, pp.2189-2199.

9. Atmaca İ., **Koçak Soylu S.**, Kemer M., "Analysis of Cold Surface Effect on Thermal Comfort for Conditioned Spaces", 13th National Installation Engineering Congress TESKON 2017, İzmir, TURKEY, 19-22 April 2017, pp.1115-1126.
10. Çağlar A., **Koçak Soylu S.**, Atmaca İ., "Increasing Heat Transfer with Fins in Heat Wave Adsorbent Cooling Systems", 2nd National Air-Conditioning Cooling Education Symposium and Exhibition", Balıkesir, TURKEY, 23-25 October 2014, pp.654-660.
11. Atmaca İ., **Koçak Soylu S.**, Çağlar A., "Experimental Investigation of the System Performance Used for Evaporatif Cooling of Air-Conditioner Inlet Air", 2nd National Air-Conditioning Cooling Education Symposium and Exhibition", Balıkesir, TURKEY, 23-25 October 2014, pp.578-587.
12. Atmaca İ., **Koçak Soylu S.**, "Theoretical and Experimental Investigation of Radiation Temperature on Thermal Comfort for Conditioned Spaces", 11th National Installation Engineering Congress TESKON 2013, İzmir, TURKEY, 19-22 April 2017, pp. 2057-2075.
13. Atmaca İ., Çarkacı Ç., **Koçak Soylu S.**, "Experimental Performance Analysis of a Solar-Assisted Water Source Heat Pump System with Low Solar Radiation", 19th National Heat Science and Technique Congress ULIBTK'13, Samsun, TURKEY, 9-12 September 2013, pp.1478-1483.
14. Atmaca İ., **Koçak Soylu S.**, " Technical and Economic Analysis of a Building Insulated in Accordance with TS825 Standard", 10th National Installation Engineering Congress TESKON 2011, İzmir, TURKEY, 13-16 April 2011, pp.239-249.

Grants

1. *"Heat Transfer Performance Investigation of TiO₂ Based Nanofluids on Automobile Radiator"*
Founding agency: Akdeniz University Scientific Research Projects Department
Year: 2017
Status: Completed
Position: Researcher
2. *"Experimental Investigation of Nanofluids to Reduce Surface Area of Finned Flat Tube Cross Flow Heat Exchangers"*
Founding agency: Akdeniz University Scientific Research Projects Department
Year: 2016
Status: Completed
Position: Researcher

3. *“Design, Manufacturing and Experimental Investigation of a Portable Desalination Unit Configured by A Thermoelectric Cooler and Solar Power”*

Founding agency: Akdeniz University Scientific Research Projects Department

Year: 2014

Status: Completed

Position: Researcher

4. *“Theoretical Analysis of Solar Assisted Water Source Heat Pump Space Heating System”*

Founding agency: Akdeniz University Scientific Research Projects Department

Year: 2012

Status: Completed

Position: Researcher

Awards

1. *“Awarded First Prize in Energy – Machinery – Construction – Material Technologies Category”*

Contest: Antalya Organized Industrial Zone - Research, Development and Innovation Project Market

Year: 2018

2. *“Graduated as second place in Mechanical Engineering Department, Akdeniz University”*

Year: 2009

H – Factor Information

- **Researcher ID:** A-2760-2013
- **Google Scholar Profile:** <https://scholar.google.com/citations?user=o-s8mEAAAAJ&hl=tr&oi=ao>

WORK EXPERIENCE *outside* ACADEMIA

2009 – 2010: Mechanical Design Engineer in HVAC sector, VEMEKS Engineering, Antalya, Turkey.

I worked as a mechanical design engineer for the company. My responsibilities were doing necessary calculations and technical drawing of heating-cooling, sanitary and fire safety systems of a building. Also had a brief experience on heat pump applications for personal usage.