

Prof. Dr. Hikmet Ş. AYBAR



Rev: October 2023

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EDUCATION

THE OHIO STATE UNIVERSITY, Columbus, Ohio, USA
Department of Mechanical Engineering
Ph.D., Nuclear Engineering (minor in Computer Information Science), June 1992

THE OHIO STATE UNIVERSITY, Columbus, Ohio, USA
Department of Mechanical Engineering
MS, Nuclear Engineering, December 1987

ISTANBUL TECHNICAL UNIVERSITY, Istanbul, Turkey
Institute for Nuclear Energy
Advance License Diploma, Nuclear Engineering, March 1982

ISTANBUL UNIVERSITY, Istanbul, Turkey
Faculty of Science
License Diploma, Physics (minor in Mathematics), June 1978

Language Schools attended

Language School at The Ohio State University, Columbus, OH, USA (01/1985 – 04/1985)
Language Institute for English (LIFE), Rutherford, NJ, USA (02/1984 – 12/1984)
Goethe Institute, Lüneburg, Germany (06/1978 – 06/1979)

CURRENT POSITIONS

09/2023-Present **EASTERN MEDITERRANEAN UNIVERSITY (EMU)**
Department of Mechanical Engineering, Famagusta, North Cyprus
Distinguished Professor

PREVIOUS POSITIONS

09/2014-10/2018 **YOZGAT BOZOK UNIVERSITY, Yozgat, Turkey**
Department of Mechanical Engineering

Professor (09/2014 – 10/2018)

Teaching undergraduate and graduate courses and conducting research. Supervising graduate students (MS, PhD) projects and undergraduate student Capstone Projects.

Administrative Duties

Vice Rector (08/2015 – 08/2018)

As Vice Rector, I was natural member of the University Executives Board (10/2014 – 10/2018), and the University Senate (10/2014 – 10/2018); and also I was responsible for the following Committees:

- Foreign Faculty Member Search and Assessment Committee (Chair) (08/2015 – 10/2018)
- Faculty Member Assessment and Promotion Committee (Chair) (08/2015 – 10/2018)
- Research and Publication Ethics Committee (Chair) (09/2016 – 10/2018)
- Research Seed Grant Assessment Committee (Chair) (08/2015 – 08/2018)
- University Education Assessment Committee (Chair) (08/2015 – 12/2016)
- Bozok University 2017-2021 Strategic Plan Development Committee (Chair) (10/2015-10/2016)

Dean of Faculty of Engineering (12/2016 – 10/2018)

As Dean of the Faculty, I was Chairing Engineering Faculty Board, and many other committees of the Faculty; Interviewing and recruiting new faculty members and new teaching assistant for the departments; encouraging the faculty members for developing new courses, writing research and infrastructure proposals. Under my leading, Department of Mechanical Engineering has gotten 2.5 Million TL (625,000 USD) from TANAP (Trans Anatolia Natural Gas Pipeline Co.) SEI (Social and Environment Investment) Programs to establish Advanced Material Testing Laboratory in the Engineering Faculty.

Interim Dean of Faculty of Communication (10/2014 – 12/2016)

As Interim Dean of the Faculty, I was interviewing and recruiting faculty members; working on preparing the curriculum of new undergraduate programs.

Advisor to the Rector (09/2014 – 05/2015)

As Advisor, helping the Rector on the educational and technical problems of the University.

09/2015-10/2018

**Bozok Technology Development Region (BOZOK TECHNOPARK)
Yozgat, Turkey**

Head of Company Board, and Director

Bozok TechnoPark was established with a project grant awarded by EU IPA-3 Program in 2013. I have worked on the closing of the IPA-3 project. Worked on establishment of Technology Transfer Office (TTO); Establishment of R&D/Design Center; Establishment of FABLab. Advising the companies in Bozok Technopark for taking grant from some Turkish Government Agencies

such as KOSGEB, TEYDEB, TUBİTAK, TTGV; and from European Union Grant programs.

02/2012-08/2014 **G.Magosa Technology Development Region (GMTGB-TEKNOPARK)
G.Magosa, North Cyprus
Head of Company Board, and Director**
I worked on the establishment of the G.Magosa Technopark in 2009. Advising the companies in G.Magosa Technopark for taking grant from Turkish Government Aid Agency in North Cyprus; European Union Grant programs.

02/1995-08/2014 **EASTERN MEDITERRANEAN UNIVERSITY (EMU)
Department of Mechanical Engineering, G.Magosa, North Cyprus
Professor (12/2004)
Assoc. Professor (01/1996)
Asst. Professor (02/1995)**
Teaching undergraduate and graduate courses and conducting research. Supervising graduate students (MS, PhD) and undergraduate student Capstone Design Projects. As a member of Mechanical Engineering Department ABET Committee, worked on departmental documentation for the application to ABET in 2005.

Administrative Duties

Vice Dean of Engineering Faculty (06/2008 – 06/2014)

As Vice Dean, I was responsible student affairs, and every semester courses offered by the departments; chairing Engineering Faculty ABET Committee (2008-2010). To prepare the departments for ABET Evaluation, as the Engineering Faculty Dean's Office, we have prepared a proposal to get financial assistance for the labs and other needs from Turkish Government Aid Office in North Cyprus, and got 2.8 Million TL (700,000 USD) for the "New Lab Design and Lab Improvement" project in 2009, and I have lead this project.

Graduate Committee Chairman of Mechanical Eng. Dept. (2000 – 2014)

As Committee Chairman, responsible for graduate student affairs, graduate courses offered, encouraging development of new graduate courses.

Vice Chairman of Mechanical Engineering Dept. (02/1995 – 11/1997)

As Vice Chairman of the Department, main responsibility was undergraduate student affairs.

University Level Committee Duties

University Student Disciplinary Committee Chairman (06/2011- 09/2012)
Elected Member of Faculty Board (6 Academic Terms)
Elected Member of University Senate (3 Academic Terms).

Consultant Duties

Consultant to the Turkish Government Aid Office in North Cyprus. The Aid Office gives financial support to the Municipalities in North Cyprus for infrastructure projects such as water system, sewage, road construction, and

street lighting. Those projects are investigated and controlled, and the payments are approved. The 10-15 Million TL projects are controlled per year.

- 08/1992-02/1995 **TURKISH ATOMIC ENERGY AUTHORITY (TAEK)**, Ankara, Turkey
Senior R&D Engineer
Worked on system analysis and accident analyses of nuclear power plants (BWR and PWR) using RELAP5 code for safety analysis; probabilistic reliability/risk analysis. Worked on thermal-hydraulic and neutronic code development for nuclear power plants. Worked on nuclear power plants licensing, compliance, and QA activities.
- 04/1989-06/1992 **THE OHIO STATE UNIVERSITY**, Columbus, Ohio, USA
Department of Mechanical Engineering
Teaching/Research Assistant
Assisted in teaching ME510 Heat Transfer course. Participated in the research projects that are “heat exchanger analysis for heat pump”, and “design and analysis of inherently safe reactor” (DoE DE-FG07-88 ER 12815).
- 02/1988-04/1989 **THE OHIO STATE UNIVERSITY**, Columbus, Ohio, USA
Chemistry Department
Research Associate
Developed a computer code and run-on CRAY Supercomputer to solve time-dependent mass transfer equation for diffusion coefficient determination of a lipid-water system. Worked on the calculation of time-dependent heat transfer from human cell membrane.
- 01/1986-06/1987 **THE OHIO STATE UNIVERSITY**, Columbus, Ohio, USA
Near Eastern Languages and Cultures (NELC) Department
Teaching Assistant
Working with Prof. Cornell Fleischer who is one of the department faculties. Helping him on the courses of Elementary Turkish I and II, Intermediate Turkish I and II.
- 06/1980-01/1984 **ZONGULDAK BÜLENT ECEVİT UNIVERSITY**, Zonguldak, Turkey
Mechanical Engineering Department
Instructor
Taught heat transfer course, and supervised student HVAC design projects such as fan sizing, building ventilation, duct design and sizing, heating/cooling load calculations.

HONORS AND AWARDS

- Outstanding Student Award, Goethe Language Institute, Lüneburg, Germany (1978).
- Turkish Atomic Energy Authority Fellowship to pursue MS and Ph.D. studies in USA (1984-1990).

SOCIETIES, PROFESSIONAL AND SCIENTIFIC ACTIVITIES

- Program Evaluator, Association for Evaluation and Accreditation for Engineering Programs (MÜDEK) (2016-Present)
- Member of Advisory Board of the Journal of Turkish Society of HVAC & Sanitary Engineers (2004-2006).
- Faculty Advisor for the EMU ASME Student Section (1997-2007).
- Member of the American Society of Mechanical Engineers (1995-2002).
- Member of the Chamber of Turkish Physics Engineers (1993-2000).
- Liaison Officer of OECD-Nuclear Energy Agency Databank at Eastern Mediterranean University (2001-2014).
- Founding Member, Administrative Board of the EMU-Technology Development Center, Eastern Mediterranean University (1999-2003).
- Founding Member, Administrative Board of the European Research and Information Center, Eastern Mediterranean University (1995).
- Member of Subregion Operating Board in Region XIII, American Society of Mechanical Engineers (1998).
- Member of Technical Committee on the Nondestructive Examination Methods, Turkish Standards Institution (1992-1994).
- Member of Task Force on Supercomputing in Nuclear Application, Nuclear Science Committee, Organization for Economic Co-Operation and Development (OECD) (1993-1994).

TEACHING AND RESEARCH ACTIVITIES

Teaching

Undergraduate Courses: Mechanical Engineering

MENG 190	Introduction to Mechanical Engineering
MENG 244	Fundamentals of Thermodynamics (for Industrial Engineering students)
MENG 245	Thermodynamics I
MENG 246	Thermodynamics II
MENG 345	Heat Transfer
MENG 403	Reliability Engineering
MENG 443	Heating, Ventilation & Air Conditioning
MENG 445	Thermal System Design
MENG 446	Thermal Power Engines
MM 471	Energy Conversion Systems

Undergraduate Courses: Computer Engineering

CMPE 101	Introduction to Computing
CMPE 102	Introduction to Programming
CMPE 106	Fundamentals of Computing
CMPE 108	Algorithms and Programming
CMPE 371	Analysis of Algorithms

Graduate Courses:

ME 511	Applied Computational Methods for Engineers
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ME 542	Energy Systems
ME 543	Nuclear Heat Transport
ME 544	Advanced Heat Transfer-Convection
ME 545	Transport Phenomena
ME 557	Two-Phase Flow and Heat Transfer
MM 511	Advanced Thermodynamics
MM 551	Renewable Energy Technologies
MM 565	Introduction to Nuclear Energy Engineering

Research

The areas of research interest in general are: Energy Generation Systems (Nuclear and Fossil-fuel power plants); Solar Energy and Applications (solar water heating, solar air heating, solar desalination); Desalination Systems; Thermal System Design and System Simulation; Computational Fluid Flow and Heat Transfer; Engineering Software Development; Magnetic Materials and Application (magnetic cooling and heating).

Graduate Student Supervision

4 PhD and 19 MS degrees completed.

PhD Dissertations Supervised

- Mathematical Modeling of Transpiration Cooling in Cylindrical Domain (Mehdi Moghadasi Faridani, February 2015)
- Performance Enhancement Study For Simple Solar Still (T.V.Arjunan, co-advising, June 2010)
- Mathematical Modeling of Two-phase Flow in a Boiling Channel using Ensemble Averaging Method (Mohsen Sharifpur, June 2009)
- Mathematical Modeling of Steam-Driven Jet Pump (Nabil Beithou, June 1999)

MS Theses Supervised

- The Performance of Combined Solar Chimney System for Power Generation and Seawater Desalination (Mohamed Fateh Yosif, December 2014)
- Simulation of Ocean Waves and Marine Currents by Smoothed Particle Hydrodynamics Method (Hossein Rashidian, June 2014)
- Mathematical Modeling of Laser Ablation (Bahador Vasooghi Chahar Oymaghi, June 2014)
- Blood Flow Simulation in Descending Thoracic Aorta and the Effect of Geometry and Pathology on Flow Behavior (Sina Ghafoorpoor Yazdi, January 2014)
- Unsteady Natural Convection within a Differentially Heated Porous Enclosure (Ali Hooshyar Faghiri, January 2014)
- Experimental and Numerical Investigation of Heat Conduction in Porous Media (Hana Salati, January 2014)
- Design of an Experiment to Calibrate a Peltier Element and Measuring Thermal Conductivity (Maryam Abdollahpour, January 2014)
- Experimental Study on an Inclined Double Solar Water Distillation System (Foad Irani, January 2014)
- Experimental Investigation of Thermal Conductivity through Nanofluids (Muhammad Abid, February 2012)

- An Experimental Study of Natural Convection of Nanofluid in a Rectangular Cavity (Sedighe Tadrissi, February 2010)
- Mathematical Modeling of Magnetic Regenerator Refrigeration Systems (Navid Salarvand, June 2009)
- Simulation of Hydrodynamics using SPH Method (Bahman Bidmeshki, February 2009)
- Evaluation of Thermo-physical Properties of Nanofluids (M. Reza Azizian, February 2009)
- Review and Analysis of Solar Desalination Systems (Hossein Assafi, June 2008)
- Experimental Investigation of Pressure Drop in Particle-liquid Two Phase Flow (Roozbeh Vaziri, June 2008)
- Design and Analysis of Low Pressure Small Desalination System (Mohammed Lawal I. Yahaya, June 2007)
- Experimental Study of Fluid Flow in a Duct Filled with Porous Medium (Hani Sadr Hosseini, June 2005)
- Numerical Study of Natural Convection in a Cavity with Hot Slab (Savas Kayaci, February 2004)
- Design of a Multi Effect Desalination System (Rami El-Zinaty, June 2003)

Samples of Capstone Design Projects Supervised

- Design of Spray-type Solar Still (February 2007)
- Design of a Compound Parabolic Solar Collector (February 2007)
- Design Improvement of Integrated Solar Collector – Water Tank Heating System (February 2007)
- Transpired Solar Heating for Ventilation Preheating (June 2006)
- Designing of an Air Handling Unit System for Space Heating (February 2006)
- Designing and Manufacturing of a Subsonic Wind Tunnel (June 2005)
- Design Improvement of Evaporative Cooling System with Desiccant (June 2005)
- Integrated Solar Collector – Water Tank Heating System (June 2005)
- Designing of Combined Fresh and Hot Water Generation System using Solar Energy (June 2004)
- Designing of an Evaporative Cooling System with Desiccant (June 2004)
- Designing of an Evaporative Cooling System (June 2004)

EXTERNAL RESEARCH SUPPORT

Experimental Investigation of Natural Convection of Nanofluid

MEKB Type-B Project, North Cyprus, 15000 TL (~3,000 USD) (December 2010)

Simulation of Hydrodynamics using SPH Method

EMU Research Found, North Cyprus, 3714 USD (December 2008)

First-Order Magnetic Phase Transitions and Magnetic Cooling

MEKB Type-B Project, North Cyprus, 28820 TL (~7,000 USD) (November 2008)

Design of Spray-type Solar Still

Adademir Education Foundation, North Cyprus, 750 USD to support this undergraduate Capstone design project (February 2007).

Designing and Manufacturing of a Subsonic Wind Tunnel

EMU Research Found, North Cyprus, 750 USD to support this undergraduate Capstone design project (June 2005).

Design of Combined Fresh Water and Hot Water Generation System using Solar Energy

Adademir Education Foundation, North Cyprus, 350 USD to support this undergraduate Capstone design project (June 2004).

South Africa Tourist Information System: System Analysis

Project and Grant from Shjrawi Bros. Inc. (SBI), 12,000 USD (September 2001).

Development of Nuclear Fuel Performance Analysis Capability

Project and Grant from Shielding Engineering and Analysis (SEA) Inc., Madrid, Spain, 3,600 USD (May 2001).

Process Control System Reliability and Safety Analysis under Uncertainty, NATO (CRG-940274) Grant, 6,000 USD (May 1994).

PUBLICATIONS

Recently Published Papers (2023)

Margub Abdullah, Hasan B. Albargi, Emad Hasani Malekshah*, **Hikmet Ş. Aybar***, “Artificial intelligent Modeling and optimization of pin-fin configuration on the thermal performance of two tubes inside phase change material for cooling of a solar panel using Ag-water nanofluid”, *Engineering Analysis with Boundary Elements*, Vol.157, pp. 483–495 (2023) EABE_5459.

Emad Hasani Malekshah*, Tahar Tayebi, S. Mohammad Sajadi, Bahram Jalili, Payam Jalili, **Hikmet Ş. Aybar***, “Optimizing geometrical structure of a residential parabolic solar collector relying on hydrothermal assessment and second law analysis”, *Engineering Analysis with Boundary Elements*, Vol 157, pp. 314-325 (2023) EABE_5460.

Jia Liu, Awatef Abidi, A.S. Abdullah, Emad Hasani Malekshah*, **Hikmet Ş. Aybar***, “Artificial intelligence-based entropy generation investigation of two-phase nanofluid flow in a heatsink with pin fins”, *Engineering Analysis with Boundary Elements*, Vol.155, pp.212-225 (2023). EABE_5327.

Tao Hai, Awatef Abidi, S. Mohammad Sajadi, Jasni Mohamad Zain*, Emad Hasani Maleksha*, **Hikmet Ş. Aybar***, “Simultaneous cooling of plate and cylindrical batteries in an air-cooled lithium battery thermal management system, by changing the distances of the batteries from each other and the pack wall”, *Journal of the Taiwan Institute of Chemical Engineers*, JTICE_104931(2023).

Hai Tao*, Dan Wang, Awatef Abidi, AD Alizadehf, Mahmoud Shamsborhan, **Hikmet Ş. Aybar***, “Numerical investigation of parallel microchannels on a battery pack in the buildings with the aim

of cooling by applying nanofluid- optimization in channel numbers”, Journal of the Taiwan Institute of Chemical Engineers, JTICE_104894 (2023).

Haiji Chen, Awatef Abidi, S. Mohammad Sajadi, Yanjie Yuan, **Hikmet Ş. Aybar**, Behzad Heidarshenas, “Effect of splitter damper on airflow conduction for thermal management of a lithium-ion battery cooling system with plate and cylindrical batteries”, Journal of the Taiwan Institute of Chemical Engineers, JTICE_104853 (2023).

Saeed Alqaed, Jawed Mustafa*, Fahad Awjah Almehmadi, Mathkar A Alharthi, H. F. Elattara, H. A. Refaey, **Hikmet Ş. Aybar***, “Entropy generation of the laminar and mixed flow of alumina/water nanofluid flow in a two-dimensional rectangular enclosure affected by a magnetic field using the lattice Boltzmann method”, Engineering Analysis with Boundary Elements, Vol.151, pp. 187-198 (2023) EABE_5177.

A Tahmasebi, AM Abed, A Aghaei, F Izadi, EH Malekshah, **HŞ Aybar**, “Investigation into the effect of twisted tape on the thermo-hydraulic performance and entropy generation of turbulent flow of mono and hybrid magnetic nanofluids inside a parabolic solar collector absorber tube by applying two -phase analysis”, Engineering Analysis with Boundary Elements, Vol.150, 318-328 (2023).

EH Malekshah, M Abd El-Rahman, SM Sajadi, **HŞ Aybar**, AS El-Shafay, “Optimization of corrugated-receiver solar collector's geometry using LBM analysis based on curved boundary scheme”, Journal of the Taiwan Institute of Chemical Engineers, 104728 (2023).

T Hai, M Abd El-Rahman, S Li, EH Malekshah, **HŞ Aybar**, AS El-Shafay, “The entropy generation analysis and optimization of a water/silver nanofluid flow inside a photovoltaic thermal collector considering plain, ribbed, and porous-ribbed absorber tubes”, Journal of the Taiwan Institute of Chemical Engineers, 104695 (2023)

Oriza Candra, Abdeljelil Chammam, José Ricardo Nuñez Alvarez, Iskandar Muda*, **Hikmet Ş. Aybar***, “The impact of renewable energy on the sustainable development of the economy algorithm of developing countries”, Sustainability (MDPI), 15, 2104, (2023).

Humaira Yasmin*, Solomon O. Giwa, Saima Noor, **Hikmet Ş. Aybar***, “Reproduction of Nanofluid Synthesis and Experiments in Mechanical Engineering: A Research Paradigm Shift”, Energies (MDPI), 16, 1145, (2023).

H Yasmin*, SO Giwa, S Noor, **HŞ Aybar**, “Influence of Preparation Characteristics on Stability, Properties, and Performance of Mono-and Hybrid Nanofluids: Current and Future Perspective”, Machines, Vol.11 (1), 112 (2023).

Emad Hasani Malekshah*, Chaoping Zhu, Magda Abd El-Rahman, Mohamed Bechir Ben Hamida, Hussein Ali Ameen, **Hikmet Ş. Aybar***, “Numerical simulation and optimization with artificial neural network of two-phase nanofluid flow in a circular heatsink with cylindrical pin-fins”, Engineering Analysis with Boundary Elements, V.148, pp.305–316 (2023) EABE_5066.

Emad Hasani Malekshah*, **Hikmet Ş. Aybar***, Mohamed Bechir Ben Hamida, Raad Z. Homod, “Parametric study on a convective flow in a thermal storage using IBM/thermal lattice Boltzmann flux solver”, Engineering Analysis with Boundary Elements, V.148, pp.62-72 (2023) EABE-5048.

EH Malekshah, AM Abed, **HŞ Aybar**, “Thermal analysis of multi-finned plate employing lattice Boltzmann method based on Taylor-series/least-squares”, *Engineering Analysis with Boundary Elements*, Vol.146, 407-417 (2023).

Recently Published Papers (2022)

Vadim V. Ponkratov, Alexey S. Kuznetsov, Iskandar Muda*, Miftahul Jannah Nasution, Mohammed Al-Bahrani, **Hikmet S. Aybar***, “Investigating the Index of Sustainable Development and Reduction in Greenhouse Gases of Renewable Energies”, *Sustainability*, Vol.14, 14829 (2022).

T Hai, A Abidi, AM Abed, J Zhou, EH Malekshah, **HŞ Aybar***, “Three-dimensional numerical study of the effect of an air-cooled system on thermal management of a cylindrical lithium-ion battery pack with two different arrangements of battery cells”, *Journal of Power Sources*, Vol.550, JPS_232117 (2022).

Y Zhang, F Tavakoli, A Abidi, Z Li, **HŞ Aybar**, B Heidarshenas, “Investigation of horizontal and vertical distance of lithium-ion batteries on the thermal management of the battery pack filled with phase change material with the air flow”, *Journal of Power Sources*, Vol.550, JPS_232145 (2022).

Q Yu, A Abidi, MZ Mahmoud, EH Malekshah, **HŞ Aybar**, “Numerical evaluation of the effect of air inlet and outlet cross-sections of a lithium-ion battery pack in an air-cooled thermal management system”, *Journal of Power Sources*, Vol.549, JPS_232067 (2022).

Jawed Mustafa*, Saeed Alqaed, **Hikmet Ş. Aybar***, Shahid Husain,” Investigation of the effect of twisted tape turbulators on thermal-hydraulic behavior of parabolic solar collector with polymer hybrid nanofluid and exergy analysis using numerical method and ANN”, *Engineering Analysis with Boundary Elements*, Vol.144, pp.81-93 (2022) EABE_4894.

Tao Hai, Awatef Abidi, Lei Wang, M.Ghaderi, Mustafa Z. Mahmoud, Muhyaddin Rawa, **Hikmet Ş. Aybar***, “Thermal analysis of building benefits from PCM and heat recovery- installing PCM to boost energy consumption reduction”, *Journal of Building Engineering*, Vol.58, JOBE_104982 (2022).

Shi Fuxi, Nima Sina, Amir Ahmadi, S. Mohammad Sajadi, Mustafa Z. Mahmoud*, **Hikmet Ş. Aybar***, “Effect of different pitches on the 3D helically coiled shell and tube heat exchanger filled with a hybrid nanofluid: Numerical study and artificial neural network modeling”, *Engineering Analysis with Boundary Elements*, Vol.143, pp. 755-768 (2022) EABE_4879.

Shi Fuxi, Nima Sina*, S. Mohammad Sajadi, Mustafa Z. Mahmoud, Anas Abdelrahman, **Hikmet Ş. Aybar***, “Artificial neural network modeling to examine spring turbulators influence on parabolic solar collector effectiveness with hybrid nanofluids”, *Engineering Analysis with Boundary Elements*, Vol. 143 (2022), Pages 442-456 EABE_4858.

Tao Hai, Nejla Mahjoub Said, Jasni Mohamad Zain*, S. Mohammad Sajadi, Mustafa Z. Mahmoud, **Hikmet Ş. Aybar***, “ANN usefulness in building enhanced with PCM: efficacy of PCM installation location”, *Journal of Building Engineering*, Vol.57 (2022) JOBE_104914.

Saeed Alqaed, Jawed Mustafa*, **Hikmet Ş. Aybar***, Basharat Jamil, Mathkar A. Alharthi, “Investigation of thermal entropy generation and nanofluid flow of in a new heatsink with effect of nanoparticles shape”, *Journal of Case Studies in Thermal Engineering*, Vol.36 (2022) CSITE_102198.

Khalid Abdulkhaliq M Alharbi, Obaid Aldosari*, Nima Sina, **Hikmet Ş. Aybar***, Shi Fuxi, Samah Elsayed Alkhatib, Abd Allah A Mousa, “Installation of rectangular enclosures filled with phase change nanomaterials on the thrombus walls of a residential building to manage solar radiation in different seasons of the year”, *Journal of Building Engineering*, Vol.57 (2022) JOBE_104732.

Yuansheng Cheng, S. Mohammad Sajadi, Mustafa Z. Mahmoud, Z. Li*, Mohamed A. Shamseldin, **Hikmet Ş. Aybar***, “Study of circular, horizontal elliptical, vertical elliptical enclosures filled with phase change material in thermal management of lithium-ion batteries in an air-cooled system”, *Journal of Energy Storage*, Vol.53 (2022), EST_105041

Ji a Liu, Farzan Tavakoli, S. Mohammad Sajadi, Mustafa Z. Mahmoud, Behzad Heidarshenas*, **Hikmet Ş. Aybar***, “Numerical evaluation and artificial neural network modeling of the effect of oval PCM compartment dimensions around a triple lithium-ion battery pack despite forced airflow”, *Engineering Analysis with Boundary Elements*, Vol.142, pp.71-92, EABE_4810 (2022)

Yu Jiang, Ghassan Fadhil Smaisim, Mustafa Z. Mahmoud, Zhixiong Li*, **Hikmet Ş. Aybar***, Azher M. Abed, “Simultaneous numerical investigation of the passive use of phase-change materials and the active use of a nanofluid inside a rectangular duct in the thermal management of lithium-ion batteries”, *Journal of Power Sources*, Vol.541, JOPS_231610 (2022).

Tao Hai, Awatef Abidi, Jasni Mohamad Zain*, S. Mohammad Sajadi, Mustafa Z. Mahmoud, **Hikmet Ş. Aybar***, “Assessment of using solar system enhanced with MWCNT in PCM-enhanced building to decrease thermal energy usage in ejector cooling system”, *Journal of Building Engineering*, Vol.55, JOBE_104697 (2022).

M. Bani Khaled, A. Qandil, N. Abdallatif, N. Beithou*, Sameh Alsaqoor, Ali Alahmer, **H. S. Aybar**, Artur Andruszkiewicz, “Heating and cooling device for motorhomes and caravans”, *International Journal of Thermofluids*, Vol.15, (2022), IJTF_100193.

Man-Wen Tian, Azher M. Abed, Shu-Rong Yan, S. Mohammad Sajadi, Mustafa Z. Mahmoud*, **Hikmet S. Aybar***, Ghassan Fadhil Smaisim, “Economic cost and numerical evaluation of cooling of a cylindrical lithium-ion battery pack using air and phase change materials”, *Journal of Energy Storage*, Vol.52, 104925 (2022).

Wei Wu, Ghassan Fadhil Smaisim, S. Mohammad Sajadi, Moram A. Fagiry, Zhixiong Li*, Mohamed A. Shamseldin, **Hikmet Ş. Aybar***, “Impact of phase change material-based heatsinks on lithium-ion battery thermal management: A comprehensive review”, *Journal of Energy Storage*, Vol.52, 104874 (2022).

Man-Wen Tian, Ghassan Fadhil Smaisim, Shu-Rong Yan, S. Mohammad Sajadi, Mustafa Z. Mahmoud*, **Hikmet Ş. Aybar***, Azher M. Abed, “Economic cost and efficiency analysis of a lithium-ion battery pack with the circular and elliptical cavities filled with phase change materials”, *Journal of Energy Storage*, Vol.52, 104794 (2022).

Khalid Abdulkhaliq M Alharbi*, Ghassan Fadhil Smaism, S. Mohammad Sajadi, Moram A. Fagiy, **Hikmet Ş. Aybar***, Samah Elsayed Elkhatib, “Numerical study of lozenge, triangular and rectangular arrangements of lithium-ion batteries in their thermal management in a cooled-air cooling system”, *Journal of Energy Storage*, Vol.52, 104786 (2022)

Raj Kumar, Rahul Nadda, Sushil Kumar*, Abdul Razak, Mohsen Sharifpur*, **Hikmet Ş. Aybar**, C.Ahamed Saleel, Asif Afzal*, “Influence of artificial roughness parametric variation on thermal performance of solar thermal collector: An experimental study, response surface analysis and ANN modelling”, *Sustainable Energy Technologies and Assessment (SETA)*, Vol.52, 102047 (2022).

Sudhir Kumar Pathak, Pravin Omprakash Sharma, Varun Goel, Suvanjan Bhattacharyya*, **Hikmet Ş. Aybar**, Josua P. Meyer, “A Detailed Review on the Performance of Photovoltaic/Thermal System using Various Cooling Methods”, *Sustainable Energy Technologies and Assessment (SETA)*, Vol.51, 101844 (2022).

Reza Alayi, Farnaz Jahanbin, **Hikmet Ş. Aybar**, Mohsen Sharifpur, Nima Khalilpoor, “Investigation of the Effect of Physical Factors on Exergy Efficiency of a Photovoltaic Thermal (PV/T) with Air Cooling”, *International Journal of Photoenergy*, Article ID 9882195, <https://doi.org/10.1155/2022/9882195> (2022).

M. Bani Khalid, A. Qandil, N. Beithou*, **H. Ş. Aybar**, “Renewable Hydrogen Driven CHCP Device”, *International Journal of Hydrogen Energy*, Volume 47(4), pp. 2208-2219 (2022).

Book Chapter

T. V. Arjunan, **H.Ş. Aybar**, Jamel Orfi, S. Vijayan, “Performance Analysis of Solar Desalination Systems”, *Solar Desalination Technology, Green Energy and Technology*, Springer ISBN 978-981-13-6886-8 (2019).

International Journals (SCI and SCI-E)

1. Mostafa Mahdavi, Mohsen Sharifpur, **Hikmet Ş. Aybar***, Ali J. Chamkha, Josua P. Meyer, “Impact of Micro-Fins on A Heated Cylinder Submerged in A Nanofluid Saturated Medium”, *International Journal of Heat and Mass Transfer*, Vol.177 (2021).
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