Assoc. Prof. MUSTAFA AKKAYA

Personal Information

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International Researcher IDs
ScholarID: j8HoAA8AAAAJ
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Publons / Web Of Science ResearcherID: AAK-3701-2021
ScopusID: 57219285370
Yoksis Researcher ID: 52740

Education

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Turkey 2016 - 2020
Postgraduate, Firat University, Turkey 2013 - 2016
Undergraduate, Firat University, Turkey 2008 - 2012

Foreign Languages

English

Dissertations

Doctorate, Nanopartiküllerin soğutma sistemlerinin performansı üzerine olan etkilerinin incelenmesi, Gazi University, Fen Bilimleri Enstitüsü, 2020
Postgraduate, Karaman ilinin rüzgâr enerjisi potansiyelinin farklı türbinlerde güç yönünden incelenmesi, Firat University, 2016

Research Areas

Avesis Research Areas: Engineering and Technology
WoS Research Areas: Engineering Computing & Technology (Eng)
Scopus Research Areas: Physical Sciences, Multidisciplinary

Academic Positions

Associate Professor, Manisa Celal Bayar University, HASAN FERDİ TURGUTLU TEKNOLOJİ FAKÜLTESİ, ENERJİ SİSTEMLERİ MÜHENDİSLİĞİ, 2024 - Present
Assistant Professor, Manisa Celal Bayar University, HASAN FERDİ TURGUTLU TEKNOLOJİ FAKÜLTESİ, ENERJİ SİSTEMLERİ MÜHENDİSLİĞİ, 2022 - 2024
Research Assistant, Karamanoglu Mehmetbey University, 2013 - 2022

Academic and Administrative Experience

Manisa Celal Bayar University, 2022 - 2025

Courses

Undergraduate

Yenilenebilir Enerji Kaynakları, Undergraduate, 2022-2023
Güç Sistemleri Analizi, Undergraduate, 2022-2023
Mühendislik Projesi, Undergraduate, 2022-2023
Enerji Mühendisliği Labaratuvarı, Undergraduate, 2022-2023
Enerji Sistemleri Mühendisliğine Giriş, Undergraduate, 2022-2023
Enerji İletimi ve Dağıtımı, Undergraduate, 2022-2023
Sosyal Sorumluluk Projesi, Undergraduate, 2022-2023
Rüzgar Enerjisi Teknolojileri, Undergraduate, 2022-2023
Mühendislik Tasarımı, Undergraduate, 2022-2023
İşletmede Mesleki Eğitim, Undergraduate, 2022-2023
Güç Elektroniği, Undergraduate, 2022-2023
Staj, Undergraduate, 2022-2023
Elektrik-Elektronik Tekniği 1, Undergraduate, 2021-2022, 2020-2021
İşletmede Mesleki Eğitim, Undergraduate, 2021-2022
Mühendislik Tasarımı, Undergraduate, 2021-2022
Güç Sistemleri Analizi, Undergraduate, 2021-2022
Enerji İletimi ve Dağıtımı, Undergraduate, 2021-2022, 2020-2021
Elektrik-Elektronik Tekniği-2, Undergraduate, 2020-2021
Elektrik Enerji İletimi ve Dağıtımı, Undergraduate, 2020-2021

Undergraduate Double Major

Enerji Sistemlerinde Yöneylem Araştırması, Undergraduate Double Major, 2022-2023
İleri Mühendislik Matematiği, Undergraduate Double Major, 2022-2023
Rüzgar Enerjisi Temelleri, Undergraduate Double Major, 2022-2023

Articles

I. **Synergistic thermal enhancement of Ag/h-BN and Ag/ZrO_2 binary hybrid nanolubricants: Central composite design optimization**
AKKAYA M., AKSOY A. B.
THERMOCHIMICA ACTA, vol.763, 2026 (SCI-Expanded, Scopus)

II. **A digital twin-based approach for energy optimisation in medical gas systems in hospital intensive care units**
AKKAYA M., Akkaya S.
SUSTAINABLE ENERGY TECHNOLOGIES AND ASSESSMENTS, vol.92, 2026 (SCI-Expanded, Scopus)

III. **Modelling zone thermal load reduction strategies for operating theatres: a simulation study for different climate zones in Türkiye**
AKKAYA M., Akkaya S.
INTERNATIONAL JOURNAL OF REFRIGERATION, vol.188, 2026 (SCI-Expanded, Scopus)

IV. **Interfacial engineering with reduced graphene oxide for high-performance perovskite solar cells**
Kareem M., Salih E. Y., Sorathiya V., Al-Zahrani F. A., AKKAYA M., Akman E.
Modern Physics Letters B, vol.40, no.17, 2026 (SCI-Expanded, Scopus)

V. **A Counter Electrode Design Based on Cu-WSe2 Alloy Structure for High-Efficiency Dye-Sensitized Solar Cells**

AKKAYA M., Akar S., Sezgin A., Kareem M., Karapinar H. S., Akman E.
CRYSTAL RESEARCH AND TECHNOLOGY, vol.61, no.1, 2026 (SCI-Expanded, Scopus)

VI. **Cationic Surfactant-Driven Interfacial Engineering Enables 22% Efficient and Stable Perovskite Solar Cells**
Sahin B., AKKAYA M., Mavili Z., Yilmaz M., Ebic M.
ENERGY & FUELS, vol.40, no.1, pp.845-856, 2026 (SCI-Expanded, Scopus)

VII. **ENHANCEMENT OF EXERGY EFFICIENCY IN VAPOR COMPRESSION REFRIGERATION SYSTEMS USING WO_3-BASED NANOLUBRICANTS**
AKSOY A. B., Yilmaz M., Akbayrak S., AKKAYA M.
HEAT TRANSFER RESEARCH, vol.56, no.16, 2025 (SCI-Expanded, Scopus)

VIII. **Regression Model Extractions of a T-Equivalent Circuit Modelling for Medium-Length Transmission Line Based-on the Parametric Simulation Approach**
Akkaya M.
Politeknik Dergisi, vol.27, no.4, pp.1649-1658, 2024 (TRDizin)

IX. **The impacts of synthesized Ag doped ZnO nano-materials on the energy efficiency of the refrigeration system**
Akkaya M., Yurtdaş S.
Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, vol.238, no.1, pp.35-44, 2024 (SCI-Expanded, Scopus)

X. **The Probe of Thermophysical Properties for BaTiO3/SrTiO3@MO Hybrid Nanolubricants**
Akkaya M.
JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.26, no.1, pp.437-443, 2023 (ESCI, TRDizin)

XI. **Usage of Graphene-Doped Tin Oxide Hybrid Nanocomposites in Compressor and Electromagnetic Modeling for Single-Phase Compressor Motor**
Akkaya M.
Arabian Journal for Science and Engineering, vol.48, no.3, pp.3097-3110, 2023 (SCI-Expanded, Scopus)

XII. **ENERGY ANALYSIS OF SiC–Si3N4 @ POE AND SiC–Si3N4 @ R134a BASED COOLING SYSTEMS**
AKKAYA M., Sarilmaz A., MENLİK T., ÖZEL F.
Heat Transfer Research, vol.54, no.2, pp.25-37, 2023 (SCI-Expanded, Scopus)

XIII. **Numerical and experimental analysis of refrigerating performance for hybrid nanolubricants with sepiolite additives**
AKKAYA M., Sarilmaz A., Balci S., ÖZEL F.
Thermal Science and Engineering Progress, vol.37, 2023 (SCI-Expanded, Scopus)

XIV. **An effective strategy for decreased energy consumption by using Fe3O4 + CeO2 @ POE in Cooling system**
AKKAYA M.
Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, vol.236, no.5, pp.1020-1028, 2022 (SCI-Expanded, Scopus)

XV. **Reduction of the core size and power losses by using soft magnetic material for a single-phase induction motor**
Balci S., AKKAYA M.
Measurement: Journal of the International Measurement Confederation, vol.198, 2022 (SCI-Expanded, Scopus)

XVI. **ENERGY EFFICIENCY IMPROVEMENT OF THE HEAT PUMP BY EMPLOYING SYNTHESIZED CuO/ZnO HYBRID NANOFLUID**
Akkaya M., Yurtdas S.
Heat Transfer Research, vol.53, no.1, pp.47-60, 2022 (SCI-Expanded, Scopus)

XVII. **The Synthesis Copper-doped Nickel Oxide and Application of Hybrid Nano-lubricants as a Compressor Oil**
Akkaya M., Akman E.
Gazi Mühendislik Bilimleri Dergisi, vol.7, pp.134-142, 2021 (TRDizin)

XVIII. **MoO3 /PAG ve ZnO/PAG Nanoyağlayıcılarının Soğutma Sisteminin Performans Parametrelerine Etkilerinin Belirlenmesi**
Akkaya M.
Bitlis Eren Üniversitesi Fen Bilimleri Dergisi, vol.10, no.2, pp.521-532, 2021 (TRDizin)

XIX. **The Effects of Triton X-100 and Tween 80 Surfactants on the Thermal Performance of a Nano-Lubricant: An Experimental Study**
Akkaya M., Menlik T., Sözen A., Gürü M.
International Journal of Precision Engineering and Manufacturing - Green Technology, vol.8, no.3, pp.955-967, 2021 (SCI-Expanded, Scopus)

XX. **Analysis and Applicability of Mersin Region Wind Speed Data with Artificial Neural Networks**
Akkaya M., Gültekin A., Sabancı K., Balcı S., Sağlam H.
Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, vol.9, no.1, pp.39-51, 2020 (TRDizin)

XXI. **Experimental Investigation of the use of Nano-Lubricants Prepared in Different Al2O3 Nanoparticle Concentrations in a Cooling System**
Akkaya M.
JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.24, no.3, pp.755-761, 2020 (ESCI, TRDizin)

XXII. **Experimental investigation of nanolubricant usage in a cooling system at different nanoparticle concentrations**
Akkaya M., MENLİK T., SÖZEN A., Gürü M.
Heat Transfer Research, vol.51, no.10, pp.949-965, 2020 (SCI-Expanded, Scopus)

XXIII. **Classification of Different Wheat Varieties by Using Data Mining Algorithms**
Akkaya M.
International Journal of Intelligent Systems and Applications in Engineering, vol.4, no.2, pp.40-44, 2016 (TRDizin)

Papers Presented at Peer-Reviewed Scientific Conferences

I. **MULTI-OBJECTIVE THERMAL MANAGEMENT OPTIMIZATION OF ELECTRIC VEHICLE BATTERY PACKS USING DEEP REINFORCEMENT LEARNING: A CONCEPTUAL FRAMEWORK**
ÖZTÜRK H., AKKAYA M.
6. Uluslararası Paris Bilimsel Araştırmalar ve İnovasyon Kongresi-FRANSA, Turkey, 10 October 2026, (Full Text)

II. **AI-POWERED VEHICLE-TO-GRID (V2G) OPTIMIZATION STRATEGIES AND RENEWABLE ENERGY INTEGRATION FOR THE TURKISH ELECTRICITY GRID**
Alkan Ö., Aksoy A. B., Akkaya M.
6. Uluslararası Paris Bilimsel Araştırmalar ve İnovasyon Kongresi-FRANSA, 10 - 11 October 2026, pp.499-515, (Full Text)

III. **Electric Vehicles in Türkiye: Life-Cycle Impacts and Future Projections**
AKKAYA M.
4. Uluslararası Prizren Bilimsel Araştırmalar ve İnovasyon Kongresi-KOSOVA, Montenegro, 29 August 2026, (Full Text)

IV. **ENERGY–EXERGY PERFORMANCE OF A GRAPHENE/h-BN/AL_2O_3 NANOLUBRICANT IN AN R134A SYSTEM**
AKKAYA M., EREN E. N.
4. Uluslararası Prizren Bilimsel Araştırmalar ve İnovasyon Kongresi-KOSOVA, Montenegro, 29 August 2026, (Full Text)

V. **PERFORMANCE ANALYSIS AND ECONOMIC FEASIBILITY OF INNOVATIVE VERTICAL AXIS WIND TURBINE DESIGNS UNDER URBAN WIND REGIMES: THE CASE OF IZMIR**
AKKAYA M., AKMAN E.
VI. Bilsel Uluslararası Sur Bilimsel Araştırmalar Kongresi, Turkey, 24 December 2025, (Full Text)

VI. **DESIGN OF ECONOMICAL AND NOVEL COUNTER ELECTRODES FOR DYE-SENSITIZED SOLAR CELL APPLICATIONS**

AKKAYA M., AKMAN E.
VI. Bilsel Uluslararası Sur Bilimsel Araştırmalar Kongresi, Turkey, 24 December 2025, (Full Text)

VII. **Yeşil Sentezlenen Zno Nanoparçacıklarının Karakterizasyonu Ve Nanoakışkan Termofiziksel Özelliklerinin Teorik Değerlendirilmesi**
KANDEMİR ŞENER B. B., AKKAYA M.
III. Uluslararası Şirvanşahlar Bilimsel Araştırmalar ve İnovasyon Kongresi, Azerbaijan, 22 - 23 November 2025, (Full Text)

VIII. **SnO2 Ve MnO Nanoparçacıklarının Yeşil Sentezi, Karakterizasyonu Ve Nanoyağlayıcı Potansiyelinin İncelenmesi**
KANDEMİR ŞENER B. B., AKKAYA M.
III. Uluslararası Şirvanşahlar Bilimsel Araştırmalar ve İnovasyon Kongresi-, Azerbaijan, 22 - 23 November 2025, (Full Text)

IX. **ENERGY EFFICIENCY PREDICTION FOR SUSTAINABLE BUILDING DESIGN: OPTIMIZATION OF HEATING AND COOLING LOADS USING MACHINE LEARNING ALGORITHMS**
AKKAYA M.
VII. Bilsel Uluslararası Gordion Bilimsel Araştırmalar Kongresi, Ankara, Turkey, 25 October 2025, (Full Text)

X. **THEORETICAL INVESTIGATION OF THERMOPHYSICAL PROPERTIES ZRO2 + WO3 @ DISTILLED WATER FOR HEAT TRANSFER APPLICATIONS**
AKKAYA M.
VII. Bilsel Uluslararası Gordion Bilimsel Araştırmalar Kongresi, Ankara, Turkey, 25 October 2025, (Full Text)

XI. **Investigation of Thermophysical Properties of CuO/deionized water Nanofluids Prepared with CuO Nanoparticles from Aronia Melanocarpa Leaf Extract**
KANDEMİR ŞENER B. B., AKKAYA M.
BİLSEL INTERNATIONAL ÇATALHÖYÜK SCIENTIFIC RESEARCHES CONGRESS, Turkey, 23 - 24 November 2024, (Full Text)

XII. **DUAL IMPACT: GREEN SYNTHESIS OF CUO NANOPARTICLES FROM Aronia Melanocarpa LEAF EXTRACT TO ENHANCE ENERGY EFFICIENCY IN COOLING SYSTEMS**
KANDEMİR ŞENER B. B., AKKAYA M.
Bio&Nanotech2024, Turkey, 30 October - 01 November 2024, (Full Text)

XIII. **Isı Değiştirici Uygulamasında Farklı Tiplerde Nanoakışkan Kullanımı Üzerine Sayısal Bir Çalışma**
Yağlıoğlu O., Eren E. N., AKKAYA M.
International Conference on Frontiers in Academic Research, Konya, Turkey, 18 - 21 February 2023, (Full Text)

XIV. **Improving the Thermal Performance of PAG Lubricants by Using Nanoparticles of Reduced Graphene Oxide**
AKKAYA M.
International Conference on Innovative Academic Studies, Konya, Turkey, 10 - 13 September 2022, (Full Text)

XV. **An Electromagnetic Simulation for Polyphase Synchronous Generator with FEA Software**
BALCI S., AKKAYA M.
European Conference on Renewable Energy Systems, İstanbul, Turkey, 7 - 09 May 2022, (Full Text)

XVI. **Metal Doping Strategy to Fabricate High Performance Dye-Sensitized Solar Cells**
Dursun H., Özkaya V., Sürücü B., Akar S., AKKAYA M., AKIN S., AKMAN E.
International World Energy Conference, Kayseri, Turkey, 3 - 04 December 2021, (Summary Text)

XVII. **Examination of The Refrıgeratıng Performance for Hexagonal Boron Nitride Nanoparticles**
AKKAYA M., MENLİK T.
International World Energy Conference, Kayseri, Turkey, 3 - 04 December 2021, (Full Text)

XVIII. **Enhanced Cooling Heat Transfer Performance with Usage Fe3O4/POE Nanolubricants**
AKKAYA M.
Interdisciplinary Conference on Mechanics, Computers and Electrics, Ankara, Turkey, 27 - 28 November 2021, (Full Text)

XIX. **Estimating Abalone Age From Physical Measurements by Using Machine Learning Algorithms.**
AKKAYA M., SABANCI K.

The Second International Science and Engineering Congress, Antalya, Turkey, 8 - 10 February 2019, (Summary Text)

XX. **Data Classification of Different Type of Grape Juice Fermentation and Design of Cold Storage to Protect the Product**
AKKAYA M.
International Science and Engineering Congress – 2018, Girne, Cyprus (Kktc), 4 - 06 September 2018, (Full Text)

XXI. **Classification of Different Wind Speed Data in Turkey by Using Data Mining Algorithms**
AKKAYA M., SABANCI K.
International Computer and Applied Sciences Conference, Barcelona, Spain, 21 - 22 October 2017, (Summary Text)

Peer Reviews in Scientific Publications

HEAT TRANSFER RESEARCH, SCI Journal, March 2022

Metrics

Publication: 45