

## Assoc. Prof. AHMET AKTAŞ

### Personal Information

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### International Researcher IDs

ScholarID: Utr0j00AAAAJ

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Publons / Web Of Science ResearcherID: T-5696-2018

ScopusID: 55816354600

Yoksis Researcher ID: 249950

### Biography

Ahmet Aktas was born in Bursa, Turkey, in 1987. He received his B.Sc. in Electrical Education from Kocaeli University in 2010. He received the M.Sc. degree from the Department of Energy Systems Engineering, Kocaeli University 2013. Finally, he got his PhD in Energy Systems Engineering at Kocaeli University in 2016. He is an Associate Professor Doctor with the Department of Energy Systems Engineering, Technology Faculty, Gazi University, Turkey. He is the author of the book "Solar Hybrid Systems: Design and Application" published in Elsevier, and has one patent. He has published many papers on different subjects, including multilevel inverters, photovoltaic power generation systems, renewable energy sources, energy management, energy storage technologies, battery and ultracapacitor modeling, smart energy management, microcontroller programming, smart grid integration, microprocessor-based application systems, offshore wind turbine, and marine current energy. He designs cards for the defense industry and special projects. He carried out project management on offshore wind, marine current flow, and hybrid energy storage systems supported by The Scientific and Technological Research Council of Turkey.

He worked as a postdoctoral researcher at Oak Ridge National Laboratory and the University of Tennessee to study wireless power transfer for electric vehicles.

### Education Information

Post Doctorate, University of Tennessee, Knoxville, Electrical Engineering and Computer Science, United States Of America 2022 - 2023

Doctorate, Kocaeli University, Fen Bilimleri Enstitüsü, Enerji Sistemleri Mühendisliği Bölümü, Turkey 2013 - 2016

Postgraduate, Kocaeli University, Fen Bilimleri Enstitüsü, Enerji Sistemleri Mühendisliği Bölümü, Turkey 2011 - 2013

Undergraduate, Kocaeli University, Teknik Eğitim Fakültesi, Elektrik Eğitimi, Turkey 2005 - 2010

### Dissertations

Doctorate, Şebeke bağlantılı fotovoltaik tabanlı batarya ve ultrakapasitörlü hibrit sistemin akıllı enerji yönetimi, Kocaeli

University, Fen Bilimleri Enstitüsü, 2016

Postgraduate, 3 fazlı 4 telli şebeke bağlantılı fotovoltaik sistemler için maksimum güç izleyen 4 kollu evirici tasarımı, Kocaeli University, Fen Bilimleri Enstitüsü, 2013

## Research Areas

Electrical and Electronics Engineering, Electronic, Energy, Power Electronics, Engineering and Technology

## Academic Titles / Tasks

Associate Professor, Gazi University, Teknoloji Fakültesi, Elektrik - Elektronik Mühendisliği, 2021 - Continues

Assistant Professor, Kütahya Dumlupınar University, 2018 - 2021

Assistant Professor, Istanbul Gelisim University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronic Engineering, 2017 - 2018

## Academic and Administrative Experience

Deputy Head of Department, Gazi University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2021 - 2022

Head of Department, Kütahya Dumlupınar University, Teknoloji Fakültesi, Elektrik Elektronik Mühendisliği, 2019 - 2020

Deputy Head of Department, Istanbul Gelisim University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronic Engineering, 2017 - 2018

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Solar PV potential in Africa for three generational time-scales: present, near future and far future**  
Damo U., Ahmed T., Ozoegwu C., Sambo A., AKTAŞ A., AKÇA H., Alam M., Bahaj A.  
Solar Energy, vol.275, 2024 (SCI-Expanded)
- II. **Design and implementation of a new adaptive energy management algorithm capable of active and reactive power control for grid-connected PV systems**  
Kırççek Y., AKTAŞ A.  
Ain Shams Engineering Journal, vol.14, no.12, 2023 (SCI-Expanded)
- III. **Conventional and distributed combustion regime on a model thermoelectric generator (TEG) performance using a swirl burner/furnace**  
İLBAŞ M., Akyildiz S., KARYEYEN S., AKTAŞ A.  
Fuel, vol.347, 2023 (SCI-Expanded)
- IV. **A novel optimal energy management strategy for offshore wind/marine current/battery/ultracapacitor hybrid renewable energy system**  
AKTAŞ A., Kircicek Y.  
ENERGY, vol.199, 2020 (SCI-Expanded)
- V. **MODELLING AND VALIDATION ANALYSIS ACCORDING TO TEMPERATURE EFFECT OF DIFFERENT TYPE BATTERIES**  
AKTAŞ A., Kircicek Y., Ozkaymak M.  
THERMAL SCIENCE, vol.24, no.2, pp.1031-1043, 2020 (SCI-Expanded)
- VI. **Design and implementation of adaptive battery charging method considering the battery temperature**  
AKTAŞ A.  
IET CIRCUITS DEVICES & SYSTEMS, vol.14, no.1, pp.72-79, 2020 (SCI-Expanded)
- VII. **Design and application of electrical power backup and battery charge with a new voltage controller**

### **approach for military vehicles**

AKTAŞ A.

IET POWER ELECTRONICS, vol.12, no.9, pp.2407-2413, 2019 (SCI-Expanded)

- VIII. **Dynamic energy management for photovoltaic power system including hybrid energy storage in smart grid applications**  
AKTAŞ A., Erhan K., ÖZDEMİR Ş., ÖZDEMİR E.  
ENERGY, vol.162, pp.72-82, 2018 (SCI-Expanded)
- IX. **Experimental investigation of a new smart energy management algorithm for a hybrid energy storage system in smart grid applications**  
AKTAŞ A., Erhan K., ÖZDEMİR Ş., ÖZDEMİR E.  
ELECTRIC POWER SYSTEMS RESEARCH, vol.144, pp.185-196, 2017 (SCI-Expanded)
- X. **Opportunities and challenges for energy storage applications in smart grid**  
ÖZDEMİR E., ÖZDEMİR Ş., Erhan K., AKTAŞ A.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.32, no.2, pp.499-506, 2017 (SCI-Expanded)
- XI. **Design and operation of a multifunction photovoltaic power system with shunt active filtering using a single-stage three-phase multilevel inverter**  
SEZEN S., AKTAŞ A., Ucar M., ÖZDEMİR E.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.25, no.2, pp.1412-1425, 2017 (SCI-Expanded)
- XII. **Operation and performance of grid-connected solar photovoltaic power system in Kocaeli university**  
AKTAŞ A., ÖZDEMİR E., KARAKAYA A., Ucar M.  
JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS, vol.15, no.5-6, pp.559-564, 2013 (SCI-Expanded)

### **Articles Published in Other Journals**

- I. **An Example of Remote Monitoring for A Refrigerated Display Cabinet: Effects on Energy Performance**  
Güven Y., Aktaş A., Aktaş M., Erten S., Öder M.  
GAZI UNIVERSITY JOURNAL OF SCIENCE, vol.0, no.0, 2024 (ESCI)
- II. **Examination and experimental comparison of dc/dc buck converter topologies used in wireless electric vehicle charging applications**  
AKÇA H., AKTAŞ A.  
International Journal of Optimization and Control: Theories and Applications, vol.14, no.2, pp.81-89, 2024 (ESCI)
- III. **dc/dc Boost Converter Topologies and Experimental Comparison in Electric Vehicle to Grid Applications**  
AKÇA H., AKTAŞ A.  
JOURNAL OF POLYTECHNIC-POLITEKNİK DERGISI, vol.1, no.1, pp.1-9, 2024 (ESCI)
- IV. **Rüzgâr ve Deniz Akıntı Enerjisinin Tahrik Ettiği Güç Üretim Sisteminin İncelenmesi**  
AKTAŞ A., Kırçıçek Y., ŞENER A. Ş.  
Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji, vol.7, no.1, pp.141-152, 2019 (Peer-Reviewed Journal)
- V. **Control and application of accuracy positioning estimation based real-time location system**  
AKTAŞ A.  
An International Journal of Optimization and Control: Theories Applications (IJOCTA), vol.9, no.2, pp.82-88, 2019 (Scopus)
- VI. **Investigation of Hybrid Renewable Energy Source and Hybrid Energy Storage System**  
AKTAŞ A., Kırçıçek Y.  
Journal of Electronics Sensors, vol.2, no.1, pp.1-19, 2019 (Peer-Reviewed Journal)
- VII. **Yenilenebilir Enerji Desteği için Kullanılan Farklı Tip Bataryaların Modellenmesi ve Karşılaştırmalı**

## **Analizi**

Kırçicek Y., AKTAŞ A., ÖZDEMİR Ş.

Politeknik Dergisi, vol.20, no.1, pp.83-90, 2017 (Peer-Reviewed Journal)

## **VIII. Modelling and Comparative Analysis of Different Type of Batteries Used for Renewable Energy Support**

Kircicek Y., AKTAŞ A., ÖZDEMİR Ş.

JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.20, no.1, pp.83-90, 2017 (ESCI)

## **IX. Araç Yakıt Tankı Montajı için Otomasyon Sistem Tasarımı ve Uygulaması**

AYAZ M., ERHAN K., AKTAŞ A., ÖZDEMİR E., Salihoğlu H.

Düzce Üniversitesi Bilim ve Teknoloji Dergisi, vol.3, no.2, pp.357-366, 2015 (Peer-Reviewed Journal)

## **Books & Book Chapters**

### **I. Solar Hybrid Systems Design and Application**

AKTAŞ A., Kırçicek Y.

Academic Press , London, 2021

### **II. The importance of energy storage in solar and wind energy, hybrid renewable energy systems**

AKTAŞ A.

in: Advances in Clean Energy Technologies, Abul Kalam Azad, Editor, Academic Press , Melbourne, pp.377-403, 2020

## **Refereed Congress / Symposium Publications in Proceedings**

### **I. Thermal Analysis of a 100 kW Polyphase Wireless Power Transfer System**

Aydin E., Barua H., AKTAŞ A., Mohammad M., Onar O. C., Ozpineci B.

39th Annual IEEE Applied Power Electronics Conference and Exposition, APEC 2024, California, United States Of America, 25 - 29 February 2024, pp.1927-1931

### **II. Thermal Analysis of a Polypropylene Capacitor for Resonant Tuning Networks in WPT Applications**

AKTAŞ A., Barua H., Asa E., Onar O. C.

2024 IEEE Transportation Electrification Conference and Expo, ITEC 2024, Illinois, United States Of America, 19 - 21 June 2024

### **III. Numerical Investigation of Combustion and Flame Characteristics in a Swirl Burner/Furnace for a Model Thermoelectrical Generator(TEG) Performance**

İLBAŞ M., Akyıldız S., KARYEYEN S., AKTAŞ A.

INTERNATIONAL COMBUSTION SYMPOSIUM (INCOS), Turkey, 08 September 2022

### **IV. SMART FAN MANAGEMENT ALGORITHM DESIGN FOR CONTROLLING POLLUTION ON CONDENSER SURFACE IN COOLING SYSTEMS**

Aktaş M., Aktaş A., Bilgin S., Erdoğmuş F. N., Öder M.

2. BASKENT INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES, Ankara, Turkey, 24 February - 25 March 2022, pp.410-417

### **V. Güneş Panelleri İçin İnternet Üzerinden Maksimum Güç Noktası Doğruluğunu İzleyen Sistem Tasarımı**

AKTAŞ A., IŞIK A.

4th INTERNATIONAL APPLIED SCIENCES CONGRESS, Girne, Cyprus (Kktc), 24 April 2021, vol.1, pp.8-16

### **VI. Design and Production of Hybrid Power Generation System Using Darrieus and Savonius Turbines**

AKTAŞ A.

International Symposium on Current Developments in Science, Technology and Social Sciences, Ankara, Turkey, 20 - 22 December 2019, vol.1, pp.1-7

### **VII. Integration of Hybrid Power Generation System with Energy Storage Unit Consisting of Battery and**

## **Ultracapacitor**

Kırçıçek Y., AKTAŞ A.

International Symposium on Current Developments in Science, Technology and Social Sciences, Ankara, Turkey, 20 - 22 December 2019, vol.1, pp.8-25

- VIII. **Domestic Battery Charge Unit Design and Production for Military Vehicle**  
AKTAŞ A.  
International Conference on Research in Education and Science (ICRES), İzmir, Turkey, 28 April - 01 May 2019, vol.2, pp.74-80
- IX. **Battery and Ultracapacitor Modeling and Experimental Analysis used in Hybrid Energy Storage Systems**  
AKTAŞ A., Kırçıçek Y., ŞENER A. Ş.  
International Conference on Research in Education and Science (ICRES), İzmir, Turkey, 28 April - 01 May 2019, vol.2, pp.195-201
- X. **Importance of Smart Energy Management Algorithm in Renewable Sources Integrated Energy Storage Unit**  
Kırçıçek Y., AKTAŞ A., ÖZKAYMAK M.  
International Conference on Research in Education and Science (ICRES 2018), Muğla, Turkey, 28 April - 01 May 2018, vol.2, pp.447-453
- XI. **The Assessment of Wind and Sea Flow Energy Production from Seas by Using Energy Storage Unit**  
Sener A. S., AKTAŞ A., Kircicek Y.  
7th International Conference on Renewable Energy Research and Applications (ICRERA), Paris, France, 14 - 17 October 2018, pp.836-840
- XII. **An Energy Storage System Including Ultra-capacitor Unit for Extended Driving Range of EVs**  
ERHAN K., AYAZ M., AKTAŞ A., ÖZDEMİR E.  
2nd International Conference on Computer Science, Engineering and Applied Science, Paris, France, 28 - 29 November 2017, vol.1, pp.1-7
- XIII. **Investigation of Turbine Variables Used for Wave, Tidal and Flow Energy from Hydrokinetic Energy Transformation Systems**  
Kırçıçek Y., AKTAŞ A.  
International Conference on Research in Education and Science (ICRES), Aydın, Turkey, 18 - 21 May 2017, vol.1, pp.719-725
- XIV. **A Case Study for Hybrid Energy Storage System Supplied from Grid Connected Photovoltaic Power**  
AKTAŞ A., ERHAN K., ÖZDEMİR E., ÖZDEMİR Ş.  
1st International Mediterranean Science and Engineering Congress (IMSEC2016), Adana, Turkey, 26 - 28 October 2016, vol.1, pp.3731-3736
- XV. **Design and Analysis of Ultra-Capacitor Regenerative Braking Energy Storage System for Hybrid and Electrical Vehicles**  
ERHAN K., ÖZDEMİR E., AKTAŞ A.  
8th International Ege Energy Symposium, Afyonkarahisar, Turkey, 11 - 13 May 2016, vol.1, pp.1082-1087
- XVI. **Design and Analysis of Flywheel Regenerative Braking Energy Storage System for Hybrid and Electrical Vehicles**  
ERHAN K., ÖZDEMİR E., AKTAŞ A.  
8th International Ege Energy Symposium, Afyonkarahisar, Turkey, 11 - 13 May 2016, vol.1, pp.20-24
- XVII. **Design and Analysis of Hybrid Energy Storage System Supplied from Photovoltaic Power Source**  
AKTAŞ A., ÖZDEMİR E., ERHAN K., ÖZDEMİR Ş.  
8th International Ege Energy Symposium, Afyonkarahisar, Turkey, 11 - 13 May 2016, vol.1, pp.57-61
- XVIII. **Energy Storage Technologies Opportunities and Challenges in Smart Grids**  
ÖZDEMİR E., ÖZDEMİR Ş., Erhan K., AKTAŞ A.  
3rd International Smart Grid Workshop and Certificate Program (ISGWCP), İstanbul, Turkey, 21 - 25 March 2016, pp.15-20
- XIX. **Şebeke Bağlantılı Fotovoltaik Elektrik Üretim Sistemlerinin Güç Kalitesine Etkileri ve Performans**

## Analizi

Erkurt S., ÖZDEMİR E., Koç İ. M., AKTAŞ A., ERHAN K.

6. Enerji Verimliliği Ve Kalitesi Sempozyumu ve Sergisi, Sakarya, Turkey, 4 - 06 June 2015, vol.1, pp.139-143

XX. **Akıllı Şebeke Standartlarında Enerji Depolama Uygulamalarının İncelenmesi**

Koç İ. M., ERHAN K., AKTAŞ A., ÖZDEMİR E., ÖZDEMİR Ş.

6. Enerji Verimliliği Ve Kalitesi Sempozyumu ve Sergisi, Sakarya, Turkey, 4 - 06 June 2015, vol.1, pp.134-138

XXI. **Development of a Hybrid Energy Storage System Composed Battery And Ultracapacitor Supplied from Photovoltaic Power Source for 3-Phase 4-Wire Smart Micro Grid Structure**

AKTAŞ A., ERHAN K., ÖZDEMİR E., ÖZDEMİR Ş.

Solar Electricity Conference and Exhibition (Solar TR), İzmir, Turkey, 19 - 21 November 2014, vol.1, pp.154-160

XXII. **Analysis of a Hybrid Energy Storage System Composed from Battery and Ultra-capacitor**

ERHAN K., AKTAŞ A., ÖZDEMİR E.

7th International Ege Energy Symposium Exhibition, Uşak, Turkey, 18 - 20 June 2014, vol.1, pp.177-185

XXIII. **Modeling and Analysis of a Battery Energy Storage System Supplied from Photovoltaic Power Source**

Kırçıçek Y., AKTAŞ A., UÇAR M., ÖZDEMİR Ş., ÖZDEMİR E.

7th International Ege Energy Symposium Exhibition, Uşak, Turkey, 18 - 20 June 2014, vol.1, pp.872-884

XXIV. **A Three-Phase Three-Level NPC Inverter Based Grid-Connected Photovoltaic System With Active Power Filtering**

SEZEN S., AKTAŞ A., Ucar M., ÖZDEMİR E.

16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.1331-1335

## Supported Projects

Aktaş A., Akça H., TUBITAK Project, FV Tabanlı Elektrikli Araç Kablosuz Şarj Ve Dinamik Enerji Yönetim Sistemi Geliştirilmesi, 2021 - 2024

Aktaş A., TUBITAK Project, Açık deniz rüzgâr ve akıntı enerjisinden oluşan hibrit güç üretim sistemine batarya ve ultrakapasitörden oluşan hibrit enerji depolama sisteminin entegre edilerek hibrit sistemlerin akıllı enerji yönetimi, 2018 - 2020

Özdemir E., TUBITAK Project, Fotovoltaik kaynaktan beslenen 3-fazlı 4-telli akıllı mikro şebeke yapısının batarya ve ultrakapasitörden oluşan hibrit enerji depolama sistemi ile geliştirilmesi, 2013 - 2015

## Metrics

Publication: 48

Citation (WoS): 161

Citation (Scopus): 326

H-Index (WoS): 5

H-Index (Scopus): 7