

Assoc. Prof. ORHAN KAPLAN

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: ABI-4037-2020

ScopusID: 16070230100

Yoksis Researcher ID: 134343

Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Elektrik Eğitimi (Dr), Turkey 2005 - 2011

Postgraduate, Gazi University, Fen Bilimleri Enstitüsü, Elektrik Eğitimi (YI) (Tezli), Turkey 2002 - 2005

Undergraduate, Gazi University, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, Turkey 1997 - 2001

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Bir Fazlı Paralel Aktif Güç Filtreleri için Sensörsüz DA Gerilim Kontrolü, Gazi University, Fen Bilimleri Enstitüsü, Elektrik Eğitimi (Dr), 2011

Postgraduate, PIC Denetimli Kondansatör Grupları ile Güç Katsayısının Düzeltilmesi, Gazi University, Fen Bilimleri Enstitüsü, Elektrik Eğitimi (YI) (Tezli), 2005

Research Areas

Renewable energy, Electrical Machine Theory and Design, Electric Motor Drivers, Power Apparatus (transformers,reactors,switchgear,etc.), Power Quality

Academic Titles / Tasks

Associate Professor, Gazi University, Teknoloji Fakültesi, Elektrik - Elektronik Mühendisliği, 2019 - Continues

Academic and Administrative Experience

Gazi University, Teknoloji Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2020 - Continues

Gazi University, Teknoloji Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2016 - 2017

Gazi University, Teknik Bilimler Meslek Yüksekokulu, 2014 - 2015

Gazi University, Ostim Meslek Yüksekokulu, 2013 - 2014

Courses

EE 210-SİNYALLER VE SİSTEMLER, Undergraduate, 2017 - 2018, 2016 - 2017

EE 316- ELEKTRİK MAKİNELERİ LAB.-II, Undergraduate, 2017 - 2018, 2016 - 2017

EE 314-ELEKTRİK MAKİNELERİ-II, Undergraduate, 2017 - 2018, 2016 - 2017

GÜÇ KALİT. DÜZ VE GÜÇ FİLTRELERİ, Postgraduate, 2017 - 2018, 2016 - 2017

EE-315 ELEKTRİK MAKİNELERİ LAB-I, Undergraduate, 2017 - 2018

EE-313 ELEKTRİK MAKİNELERİ-I, Undergraduate, 2017 - 2018

EE-313 ELEKTRİK MAKİNALARI I, Undergraduate, 2016 - 2017

EE-315 ELEKTRİK MAKİNALARI LAB I, Undergraduate, 2016 - 2017

Advising Theses

KAPLAN O., Design And Application Of Magnetic Resonant Coupling Wireless Charging System For Electric Vehicles Using Adaptive Impedance Matching Network, Doctorate, F.ISSI(Student), 2021

KAPLAN O., Photosensitivity Performance Of Al Doped N-Zno/P-Si Heterojunction Devices, Postgraduate, Ö.FARUK(Student), 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **FEM-based analysis of rotor cage material and slot geometry on double air gap axial flux induction motors**
Özsoy M., KAPLAN O., Akar M.
Ain Shams Engineering Journal, vol.15, no.2, 2024 (SCI-Expanded)
- II. **Super twisting controller using proportional integral-based sliding surface for buck converter with disturbances**
BODUR F., KAPLAN O.
Asian Journal of Control, 2024 (SCI-Expanded)
- III. **An Experimental and Simulation Study of Load Matching in Class-E Inverters using Adaptive Neuro-Fuzzy Controller**
Issi F., KAPLAN O.
Electric Power Components and Systems, vol.51, no.11, pp.1040-1050, 2023 (SCI-Expanded)
- IV. **Second-order sliding mode controller design of buck converter with constant power load**
Kaplan O., Bodur F.
INTERNATIONAL JOURNAL OF CONTROL, vol.96, no.5, pp.1210-1226, 2023 (SCI-Expanded)
- V. **Implementation of Different 2D Finite Element Modeling Approaches in Axial Flux Induction Motors**
Özsoy M., KAPLAN O., Akar M.
ELECTRIC POWER COMPONENTS AND SYSTEMS, vol.51, no.19, pp.2385-2396, 2023 (SCI-Expanded)
- VI. **The effect of stator slot number and pole number on motor performance in double-sided axial flux induction motors for electric vehicles**
Ozsoy M., Kaplan O., Akar M.
ELECTRICAL ENGINEERING, vol.104, no.6, pp.4289-4304, 2022 (SCI-Expanded)
- VII. **Design and application of wireless power transfer using Class-E inverter based on Adaptive Impedance-Matching Network**

- Issi F., KAPLAN O.
ISA TRANSACTIONS, vol.126, pp.415-427, 2022 (SCI-Expanded)
- VIII. **Sol-gel prepared ZnO:Al thin films for heterojunction diodes**
Goktas O. F., Koksall N. E., Kaplan O., Yildiz A.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, vol.32, no.6, pp.7791-7800, 2021 (SCI-Expanded)
- IX. **Zero-current switching technique for constant voltage constant frequency sinusoidal PWM inverter**
ÖZTÜRK N., KAPLAN O., Celik E.
ELECTRICAL ENGINEERING, vol.100, no.2, pp.1147-1157, 2018 (SCI-Expanded)
- X. **The Determination of Load Profiles and Power Consumptions of Home Appliances**
ISSI F., KAPLAN O.
ENERGIES, vol.11, no.3, 2018 (SCI-Expanded)
- XI. **Simplified Model and Genetic Algorithm Based Simulated Annealing Approach for Excitation Current Estimation of Synchronous Motor**
KAPLAN O., Celik E.
ADVANCES IN ELECTRICAL AND COMPUTER ENGINEERING, vol.18, no.4, pp.75-84, 2018 (SCI-Expanded)
- XII. **A novel method based on Weibull distribution for short-term wind speed prediction**
KAPLAN O., Temiz M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.42, no.28, pp.17793-17800, 2017 (SCI-Expanded)
- XIII. **Fuzzy PI controlled inverter for grid interactive renewable energy systems**
Sefa İ., Altin N., ÖZDEMİR Ş., KAPLAN O.
IET Renewable Power Generation, vol.9, no.7, pp.729-738, 2015 (SCI-Expanded)
- XIV. **SENSORLESS DC VOLTAGE CONTROL FOR A SINGLE PHASE ACTIVE FILTER**
Colak I., Kaplan O.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.26, no.1, pp.223-232, 2011 (SCI-Expanded)

Articles Published in Other Journals

- I. **Super Twisting Algorithm Based Sliding Mode Controller for Buck Converter Feeding Constant Power Load**
Kaplan O., Bodur F.
International Journal of Renewable Energy Research, vol.12, no.1, pp.134-145, 2022 (ESCI)
- II. **Power loss and voltage stability optimization with meta-heuristic algorithms in power system**
Iscan S., KAPLAN O., Lokman G.
PAMUKKALE UNIVERSITY JOURNAL OF ENGINEERING SCIENCES-PAMUKKALE UNIVERSITESI MUHENDISLIK BILIMLERI DERGISI, vol.27, no.2, pp.199-209, 2021 (ESCI)
- III. **Manyetik Rezonans Kuplajlı Kablosuz Enerji Transfer Sistemi için Empedans Analizi ve Değişken Kapasite Dizisi Uygulaması**
ISSI F., KAPLAN O.
Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji, 2020 (Peer-Reviewed Journal)
- IV. **Kablosuz Güç Aktarımı için Karşılıklı Endüktans Hesaplama Aracının Geliştirilmesi**
KAPLAN O.
Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji, vol.7, no.1, pp.37-48, 2019 (Peer-Reviewed Journal)
- V. **Internet Based Speed Control and Torque Analysis of a 3 Phase Induction Motor**
KAPLAN O.
Przegląd Elektrotechniczny, vol.89, pp.159-165, 2013 (Scopus)
- VI. **Internet based speed control and torque analysis of a 3-phase induction motor, Zdalne sterowanie prędkością i momentem trójfazowej maszyny indukcyjnej poprzez połączenie internetowe**

- Kaplan O.
Przeglad Elektrotechniczny, vol.89, pp.159-165, 2013 (Scopus)
- VII. **An Interactive Platform for Switched Reluctance Motor**
BAYINDIR R., VADİ S., KAPLAN O.
Ever Monaco-2012, pp.1-4, 2012 (Peer-Reviewed Journal)
- VIII. **PLC ve SCADA kullanılarak bir endüstriyel sistemin otomasyonu**
BAYINDIR R., KAPLAN O., CEM B., SARIKAYA Y., HALLAÇLIOĞLU M.
Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.1, no.1, pp.107-115, 2011 (Peer-Reviewed Journal)
- IX. **Simulation of The DC Capacitor Voltage Controlled Single Phase Shunt Active Power Filters for PowerQuality Improvement**
ÇOLAK İ., BAYINDIR R., KAPLAN O.
GAZI UNIVERSITY JOURNAL OF SCIENCE, vol.23, no.2, pp.177-186, 2010 (Scopus)
- X. **PIC Denetimli Reaktif Güç Rölesi Tasarımı**
BAYINDIR R., KAPLAN O.
Journal Of The Faculty Of Engineering And Architecture Of Gazi University, vol.22, no.1, pp.47-56, 2007 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Comparative Study of Different Deep Learning Approaches for State of Charge Estimation in Lithium Iron Phosphate Battery**
Korbaa N. E. H., BOUCHETATA N., BELARBI A. W., KAYIŞLI K., KAPLAN O.
2024 12th IEEE International Conference on Smart Grid (icSmartGrid), Setúbal, Portugal, 27 - 29 May 2024, pp.714-718
- II. **Fixed-Time Reaching Law-Based Sliding Mode Control for PMSM Speed Control**
Bodur F., Kaplan O.
2024 12th International Conference on Smart Grid (icSmartGrid), Setúbal, Portugal, 27 May - 29 August 2024, pp.1-6
- III. **Modeling of Aircraft Electrical System with Lithium-Ion Battery in Emergency Phase and Static Electrical Load Analysis**
Ersoy B., KAPLAN O.
12th International Conference on Smart Grid, icSmartGrid 2024, Hybrid, Setubal, Portugal, 27 - 29 May 2024, pp.812-817
- IV. **Electric Vehicle Projection and Incentive Recommendations in Türkiye**
Bildirici M., KAPLAN O.
12th International Conference on Smart Grid, icSmartGrid 2024, Hybrid, Setubal, Portugal, 27 - 29 May 2024, pp.835-839
- V. **Optimizing Energy Scheduling and Power Flow in the Power System Using Coronavirus Algorithm**
Albaaj B., KAPLAN O.
6th IEEE Global Power, Energy and Communication Conference, GPECOM 2024, Budapest, Hungary, 4 - 07 June 2024, pp.571-576
- VI. **Fixed-Time Sliding Mode Control for DC-DC Converters with both Matched and Mismatched Disturbances Based on Disturbance Observer**
Bodur F., Kaplan O.
2023 12th International Conference on Renewable Energy Research and Applications (ICRERA), Oshawa, Canada, 29 August - 01 September 2023, pp.1-6
- VII. **A Novel Sliding Mode Control Based on Super Twisting Reaching Law for PMSM Speed Controller with Fixed-Time Disturbance Observer**
Bodur F., Kaplan O.
23 12th International Conference on Renewable Energy Research and Applications (ICRERA), Oshawa, Canada, 29 August - 01 September 2023, pp.1-6

- VIII. **Super Twisting Observer based Second Order Sliding Mode Control for Power Converter with Disturbance**
Bodur F., Kaplan O.
2023 11th International Conference on Smart Grid (icSmartGrid), Paris, France, 4 - 07 July 2023, pp.1-6
- IX. **Integral Sliding Mode Control with Improved Reaching Law for Brushless DC Motor Speed Control**
Bodur F., Kaplan O.
11th International Conference on Smart Grid (icSmartGrid), Paris, France, 4 - 07 July 2023, pp.1-7
- X. **Second-Order Sliding Mode Control Algorithms in DC/DC Buck Converter**
BODUR F., KAPLAN O.
2022 10th International Conference on Smart Grid (icSmartGrid), İstanbul, Turkey, 27 June 2022, pp.380-386
- XI. **An Experimental Study for Load Matching in Wireless Power Transfer System using Class-E Inverter and Capacitor Array**
Issi F., KAPLAN O.
11th IEEE International Conference on Renewable Energy Research and Applications, ICRERA 2022, İstanbul, Turkey, 18 - 21 September 2022, pp.552-556
- XII. **Simulation of a Wireless Charging Multiple E-Scooters using PV Array with Class-E Inverter Fed by PI Controlled Boost Converter for Constant Output Voltage**
Issi F., KAPLAN O.
10th International Conference on Smart Grid, icSmartGrid 2022, İstanbul, Turkey, 27 - 29 June 2022, pp.61-65
- XIII. **A Review on the Efficiency Increment in a Power System Using Smart Grid Technologies**
Çolak A. M., KAPLAN O.
9th IEEE International Conference on Smart Grid, Setúbal, Portugal, 29 June 2021, pp.192-196
- XIV. **Super twisting algorithm based sliding mode controller for buck converter with constant power load**
KAPLAN O., BODUR F.
9th International Conference on Smart Grid, icSmartGrid 2021, Virtual, Setubal, Portugal, 29 June - 01 July 2021, pp.137-142
- XV. **The Comparing of Linear Damping Methods for Constant Power Loads and Stability Analysis**
BODUR F., KAPLAN O., ÖZTÜRK N.
10th IEEE International Conference on Renewable Energy Research and Applications, ICRERA 2021, İstanbul, Turkey, 26 - 29 September 2021, pp.294-300
- XVI. **Artificial Neural Network Based Automatic Voltage Regulator for a Stand-Alone Synchronous Generator**
BAL G., KAPLAN O., Yalçın S. S.
International Conference on Renewable Energy Research and Applications, 3 - 06 November 2019
- XVII. **Design and Implementation of Sensorless DC Voltage Regulation for Shunt Active Power Filter Based Single Phase P-Q Theory**
ÇOLAK İ., KAPLAN O.
8th International Conference on Renewable Energy Research and Applications, Brasov, Romania, 3 - 06 November 2019
- XVIII. **Farklı Yük Akışı Analizi Teknikleri Kullanılarak Gerçek Bir Dağıtım Şebekesinin Değerlendirilmesi**
İŞCAN S., KAPLAN O.
INTERNATIONAL EURASIAN CONFERENCE ON SCIENCE, ENGINEERING AND TECHNOLOGY, Ankara, Turkey, 22 - 23 November 2018
- XIX. **Elektrik Dağıtım Hatları Aktif Ve Reaktif Güç Kayıplarının Azaltılmasında Kullanılan Optimizasyon Teknikleri: Bir Literatür Taraması**
İŞCAN S., KAPLAN O.
Uluslararası Mesleki Bilimler Sempozyumu / International Vocational Science Symposium, Antalya, Turkey, 18 - 20 October 2017, vol.1, pp.167
- XX. **VIRTUAL LABORATORY STUDY FOR ENERGY EFFICIENCY: ASYNCHRONOUS MOTOR'xxS REAL-TIME TORQUE / POWER EXCHANGE EXPERIMENT**
ISSI F., KARHAN M., KAPLAN O.

- Computational and Statistical Methods in Applied Sciences COSTAS 2017, 9 - 11 November 2017
- XXI. **DEVELOPMENT OF AN ANDROID BASED DATA LOGGING SOFTWARE FOR ENERGY PRODUCTION AND CONSUMPTION AT SMART HOMES**
ISSI F., KARHAN M., KAPLAN O.
Computational and Statistical Methods in Applied Sciences COSTAS 2017, 9 - 11 November 2017
- XXII. **ANDROID BASED ONLINE INDUCTION MOTOR TORQUE ANALYSIS AND CONTROL TOOL**
ISSI F., KAPLAN O., KARHAN M.
Arama Sonuçları INTERNATIONAL SCIENTIFIC CONFERENCE - UNITECH, 17 - 18 November 2017
- XXIII. **An Android Based Application and Simulation of Multiple Photovoltaic Panels**
KAPLAN O., ISSI F.
6th IEEE International Conference on Renewable Energy Research and Applications (ICRERA), California, United States Of America, 5 - 08 November 2017, pp.925-930
- XXIV. **A New Method Based on Weibull Distribution to Generate Stochastic Wind Speed**
TEMİZ M., KAPLAN O.
European Conference on Renewable Energy Systems, İstanbul, Turkey, 28 - 31 August 2016
- XXV. **Empedans Kaynaklı Bir Eviricinin Modellenmesi ve Simülasyonu**
İŞCAN S., KAPLAN O.
5th International Vocational Schools Symposium, Bosnia And Herzegovina, 18 - 20 May 2016
- XXVI. **The Analysis of Wind Speed Potential and Energy Density in Ankara**
KAPLAN O., Temiz M.
5th IEEE International Conference on Renewable Energy Research and Applications (ICRERA), Birmingham, United Kingdom, 20 - 23 November 2016, pp.919-923
- XXVII. **ANN Controlled Single Phase Inverter For Solar Energy Systems**
DEMİRTAŞ M., ÇETİNBAŞ İ., Serefoğlu S., KAPLAN O.
16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.768-772
- XXVIII. **Three-Phase Three-Level Inverter Based Shunt Active Power Filter**
ALTIN N., KAPLAN O., ÖZDEMİR Ş.
16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.799-804
- XXIX. **A high efficient driver design for LED lighting system**
KAPLAN O., ISSI F., MUSTAFA E.
4th International Conference on Power Engineering, Energy and Electrical Drives, Istanbul, Turkey, Turkey, 13 - 17 May 2013, pp.1548-1552
- XXX. **C.NET and MATLABsupx00AE/sup based simulation program for basic electrical circuits**
BAYINDIR R., KAPLAN O., CAN C.
International Aegean Conference on Electrical Machines and Power Electronics and Electromotion, Joint Conference, Istanbul, Turkey, 8 - 10 September 2011
- XXXI. **Analysing the efficient use of energy in a small smart grid system**
ÇOLAK İ., Heinz W., Fulli G., Vasiljevska J., ISSI F., KAPLAN O.
2012 International Conference on Renewable Energy Research and Applications (ICRERA), Nagasaki, Japan, 11 - 14 November 2012
- XXXII. **Intelligent Decision Support System For Energy Investments**
YAVANOĞLU U., KAPLAN O., Atli H., Tanis G., Milletsever O., Inal U.
12th International Conference on Machine Learning and Applications (ICMLA), Florida, United States Of America, 4 - 07 December 2013, pp.224-231
- XXXIII. **Country Study of Renewable Energy Resources**
KAPLAN O., YAVANOĞLU U.
1th International Conference on Renewable Energy Research and Applications, Japan, 11 - 14 November 2012
- XXXIV. **An Intelligent Power Factor Correction Approach Based on Linear Regression and Ridge Regression Methods**

BAYINDIR R., GÖK M., KABALCI E., KAPLAN O.

2011 10th International Conference on Machine Learning and Applications and Workshops, Honolulu, HI, 18 - 21 December 2011

XXXV. Microcontroller Based Electrical Machines Training Set

BAYINDIR R., KABALCI E., Kaplan O., Oz Y. E.

15th International Power Electronics and Motion Control Conference and Exposition (EPE-PEMC ECCE Europe), Novi-Sad, Serbia, 4 - 06 September 2012

XXXVI. Country Study on Renewable Energy Sources in Turkey

KAPLAN O., Yavanoglu U., Issi F.

1st International Conference on Renewable Energy Research and Applications (ICRERA), Nagasaki, Japan, 11 - 14 November 2012

XXXVII. A comparative study of harmonic extraction methods for single phase shunt active power filter

ÇOLAK İ., BAYINDIR R., IRMAK E., KAPLAN O.

2011 International Conference on Power Engineering, Energy and Electrical Drives, Malaga, Spain, 11 - 13 May 2011

XXXVIII. Design and Application of a Novel Zero Crossing Detector Circuit

IRMAK E., ÇOLAK İ., KAPLAN O., GÜLER N.

International Conference on Power Engineering, Energy and Electrical Drives~POWERENG2011, 11 - 13 May 2011

XXXIX. MATLAB GUI based simulation for photovoltaic systems

BAYINDIR R., ÇOLAK İ., KAPLAN O., CAN C.

2011 International Conference on Power Engineering, Energy and Electrical Drives, Malaga, Spain, Spain, 11 - 13 May 2011, pp.1-4

XL. A novel technique for power factor calculation using a PLC

BAYINDIR R., ÇOLAK İ., KAPLAN O.

6th International Conference and Exhibition on Ecological Vehicles and Renewable Energies (EVER'11), 31 March - 03 April 2011

XLI. C#.NET and MATLAB((R)) Based Simulation Program for Basic Electrical Circuits

BAYINDIR R., KAPLAN O., Can C.

International Aegean Conference on Electrical Machines and Power Electronics / Electromotion Joint Conference, İstanbul, Turkey, 8 - 10 September 2011, pp.430-435

XLII. Development of a Real Time Monitoring and Control System for PLC Based Elevator

Irmak E., Colak I., Kaplan O., Köse A.

14th European Conference on Power Electronics and Applications (EPE)/ECCE Europe Conference on Power Electronics and Adjustable Speed Drives - Towards the 20-20-20 Target, Birmingham, United Kingdom, 30 August - 01 September 2011

XLIII. DC Bus Voltage Regulation of an Active Power Filter Using a Fuzzy Logic Controller

ÇOLAK İ., BAYINDIR R., KAPLAN O., Taş F.

2010 Ninth International Conference on Machine Learning and Applications, Washington, DC, USA, United States Of America, 12 - 14 December 2010, pp.692-696

XLIV. Development of an Intelligent Decision Support System for Determining the Efficiency of Shunt Active Power Filter

SAĞIROĞLU Ş., BAYINDIR R., KAPLAN O., Kahraman H. T.

8th International Conference on Machine Learning and Applications, Florida, United States Of America, 13 - 15 December 2009, pp.626-628

XLV. Reaktif Güç Kompanzasyonu Uygulamalarının Eğitim Amaçlı Benzetimi

ÇOLAK İ., KAPLAN O., BAYINDIR R., KUNDAKOĞLU H.

ELECO 2008, Bursa, Turkey, 26 - 30 November 2008

Supported Projects

Ünal K., Bal G., Kaplan O., Yenipınar B., Çelik E., Ocak C., Bekirođlu E., Bodur F., Öztürk N., Project Supported by Higher Education Institutions, Elektrikli Araçlar ve Güç sistemleri için Kompakt Yapılı Menzil Arttırıcı, 2024 - 2025
KAPLAN O., Project Supported by Higher Education Institutions, ELEKTRİKLİ ARAÇLAR İÇİN ADAPTİF EMPEDANS EŞLEŞTİRMESİ KULLANILARAK MANYETİK REZONANS KUPLAJLI KABLOSUZ ŞARJ SİSTEMİ TASARIMI VE UYGULAMASI, 2018 - 2020

Activities in Scientific Journals

Gazi Üniversitesi Fen Bilimleri Dergisi: PART:C Tasarım ve Teknoloji, Assistant Editor/Section Editor, 2019 - Continues

Metrics

Publication: 70

Citation (WoS): 245

Citation (Scopus): 392

H-Index (WoS): 7

H-Index (Scopus): 11