

Prof. AHMET MASUM HAVA

Personal Information

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Education Information

Doctorate, University Of Wisconsin-Madison, Electrical Engineering/ Electrical And Computer Engineering Department, United States Of America 1991 - 1998

Post Graduate, University Of Wisconsin-Madison, Electrical Engineering/ Electrical And Computer Engineering Department, United States Of America 1988 - 1991

Under Graduate, İstanbul Teknik Üniversitesi, Elektrik Fakültesi, Enerji Pr., Turkey 1982 - 1987

Foreign Languages

English, C1 Advanced

Dissertations

Post Graduate, A New Type of Converter For The Switched Reluctance Machines, University Of Wisconsin-Madison, Electrical Engineering/ Electrical And Computer Engineering Department, 1998

Doctorate, Carrier Based PWM-VSI Drives In The Overmodulation Region, University Of Wisconsin-Madison, Electrical Engineering/ Electrical And Computer Engineering Department, 1998

Research Areas

Engineering and Technology

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2015 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2011 - 2015

Assistant Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2002 - 2011

Advising Theses

Hava A. M. , Performance evaluation and comparison of low voltage grid-tied three-phase AC/DC converter configurations with Sli and SiC semiconductor switches, Post Graduate, O.ÖZTOPRAK(Student), 2019

Hava A. M. , High performance current control methods for voltage source converters with saturable inductors, Doctorate, Z.ÖZKAN(Student), 2019

HAVA A. M. , Investigation of modular multilevel converter control methods, Post Graduate, F.ERTÜRK(Student), 2015

HAVA A. M. , Switch mode converter based damping of PWM converter with LCL type filter for grid interface of renewable energy systems, Post Graduate, S.NADİR(Student), 2014

HAVA A. M. , Design and implementation of a 200W microinverter for grid connected energy conversion system, Post Graduate, S.KAVURUCU(Student), 2014

HAVA A. M. , F-L-N parameter based power density optimized design and implementation of a digitally controlled 1-kW interleaved DC-DC step down converter, Post Graduate, İ.ŞAHİN(Student), 2014

HAVA A. M. , Design and control of PWM converter with LCL type filter for grid interface of renewable energy systems, Post Graduate, E.KANTAR(Student), 2014

HAVA A. M. , Selection of suitable PWM switching and control methods for modular multilevel converter drives, Post Graduate, B.ÇİFTÇİ(Student), 2014

HAVA A. M. , Design, application and comparison of single stage Flyback and SEPIC PFC AC/DC converters for power led lighting application, Post Graduate, H.YILMAZ(Student), 2012

HAVA A. M. , The design, control, and performance analysis of ac motor drives with front end diode rectifier utilizing low capacitance dc bus capacitor and comparison with conventional drives, Post Graduate, V.VOLKAN(Student), 2012

HAVA A. M. , Leakage current and energy efficiency analyses of single phase grid connected multi-kva transformerless photovoltaic inverters, Post Graduate, Z.ÖZKAN(Student), 2012

HAVA A. M. , Investigation of DC bus current harmonics in two and three level three-phase inverters, Post Graduate, U.AYHAN(Student), 2012

HAVA A. M. , Design and implementation of advanced pulse width modulation techniques and passive filters for voltage source inverter driven three-phase AC motors, Post Graduate, N.ONUR(Student), 2010

HAVA A. M. , Design and implementation of an ultracapacitor test system, Post Graduate, H.HÜSEYİN(Student), 2010

HAVA A. M. , Shaft transducerless vector control of the interior permanent magnet motor with speed and position estimation using high frequency signal injection and flux observer methods, Post Graduate, Ö.GÖKSU(Student), 2008

HAVA A. M. , Design of an educational purpose multifunctional DC/DC converter board, Post Graduate, F.ONUR(Student), 2008

HAVA A. M. , Design, implementation, and control of a two ? stage AC/DC isolated power supply with high input power factor and high efficiency, Post Graduate, M.CAN(Student), 2008

HAVA A. M. , Parallel active filter design, control, and implementation, Post Graduate, H.ÖZKAYA(Student), 2007

HAVA A. M. , Series active filter design, control, and implementation with a novel load voltage harmonic extraction method, Post Graduate, O.SELÇUK(Student), 2007

HAVA A. M. , Common mode voltage and current reduction in voltage source inverter driven three phase ac motors, Post Graduate, E.ÜN(Student), 2007

HAVA A. M. , Analysis, design, and implementation of a 5 kW zero voltage switching phase-shifted full-bridge DC/DC converter based power supply for arc welding machines, Post Graduate, M.USLU(Student), 2006

HAVA A. M. , Repetitive control of a three-phase uninterruptible power supply with isolation transformer, Post Graduate, S.ÇETİNKAYA(Student), 2006

HAVA A. M. , Output voltage control of a four-leg inverter based three-phase UPS by means of stationary frame resonant filter banks, Post Graduate, E.DEMİRKUTLU(Student), 2006

HAVA A. M. , Analysis, design, and implementation of a two-switch single phase electronic line voltage regulator, Post Graduate, B.ŞİMŞİR(Student), 2005

HAVA A. M. , A novel two-parameter modulation and neutral point potential control method for the three-level neutral point clamped inverter, Post Graduate, B.ÜSTÜNTEPE(Student), 2005

HAVA A. M. , Lowpass broadband harmonic filter design, Post Graduate, H.ZUBI(Student), 2005

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

● Inductor Saturation Compensation With Resistive Decoupling for Single-Phase Controlled VSC Systems
ÖZKAN Z., HAVA A. M.

- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.35, pp.1993-2007, 2020 (Journal Indexed in SCI)
Current control of single-phase VSC systems with inductor saturation using inverse dynamic model-based compensation
Ozkan Z., HAVA A. M.
- IEEE Transactions on Industrial Electronics, vol.66, pp.9268-9277, 2019 (Journal Indexed in SCI)
Optimal Design of Grid-Connected Voltage-Source Converters Considering Cost and Operating Factors
Kantar E., HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol.63, pp.5336-5347, 2016 (Journal Indexed in SCI)
Classification of Grid Connected Transformer less PV Inverters with a Focus on the Leakage Current Characteristics and Extension of Topology Families
Ozkan Z., HAVA A. M.
- JOURNAL OF POWER ELECTRONICS, vol.15, pp.256-267, 2015 (Journal Indexed in SCI)
Common-Mode Voltage Reduction Pulsewidth Modulation Techniques for Three-Phase Grid-Connected Converters
Hou C., Shih C., Cheng P., HAVA A. M.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.28, pp.1971-1979, 2013 (Journal Indexed in SCI)
Control, design, and implementation of a low-cost ultracapacitor test system
Eroglu H. H. , HAVA A. M.
- TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.21, pp.630-648, 2013 (Journal Indexed in SCI)
A Simple Sag Generator Using SSRs
Senturk O. S. , HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.48, pp.172-180, 2012 (Journal Indexed in SCI)
Compatibility Issues Between the Filter and PWM Unit in Three-Phase AC Motor Drives Utilizing the Pure Sine Filter Configuration
Cetin N. O. , HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.47, pp.2559-2569, 2011 (Journal Indexed in SCI)
Performance Enhancement of the Single-Phase Series Active Filter by Employing the Load Voltage Waveform Reconstruction and Line Current Sampling Delay Reduction Methods
Senturk O. S. , HAVA A. M.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.26, pp.2210-2220, 2011 (Journal Indexed in SCI)
A High-Performance PWM Algorithm for Common-Mode Voltage Reduction in Three-Phase Voltage Source Inverters
HAVA A. M. , Un E.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.26, pp.1998-2008, 2011 (Journal Indexed in SCI)
A Generalized Scalar PWM Approach With Easy Implementation Features for Three-Phase, Three-Wire Voltage-Source Inverters
HAVA A. M. , Cetin N. O.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.26, pp.1385-1395, 2011 (Journal Indexed in SCI)
Experimental investigation of shaft transducerless speed and position control of ac induction and interior permanent magnet motors
Goksu O., HAVA A. M.
- TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.18, pp.865-882, 2010 (Journal Indexed in SCI)
High-Performance Harmonic Isolation and Load Voltage Regulation of the Three-Phase Series Active Filter Utilizing the Waveform Reconstruction Method
Senturk O. S. , HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.45, pp.2030-2038, 2009 (Journal Indexed in SCI)
Performance Characteristics of the Reduced Common Mode Voltage Near State PWM Method
Un E., HAVA A. M.

- EPE JOURNAL, vol.19, pp.41-49, 2009 (Journal Indexed in SCI)
A Scalar Resonant-Filter-Bank-Based Output-Voltage Control Method and a Scalar Minimum-Switching-Loss Discontinuous PWM Method for the Four-Leg-Inverter-Based Three-Phase Four-Wire Power Supply
 Demirkutlu E., HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.45, pp.982-991, 2009 (Journal Indexed in SCI)
A Near-State PWM Method With Reduced Switching Losses and Reduced Common-Mode Voltage for Three-Phase Voltage Source Inverters
 Uen E., HAVA A. M.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.45, pp.782-793, 2009 (Journal Indexed in SCI)
Performance Analysis of Reduced Common-Mode Voltage PWM Methods and Comparison With Standard PWM Methods for Three-Phase Voltage-Source Inverters
 HAVA A. M., Un E.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.24, pp.241-252, 2009 (Journal Indexed in SCI)
A novel neutral point potential stabilization technique using the information of output current polarities and voltage vector
 Yamanaka K., Hava A., Kirino H., Tanaka Y., Koga N., Kume T.
- IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, vol.38, pp.1572-1580, 2002 (Journal Indexed in SCI)
The matrix converter drive performance under abnormal input voltage conditions
 Kang J., Hara H., Hava A., Yamamoto E., Watanabe E., Kume T.
- IEEE TRANSACTIONS ON POWER ELECTRONICS, vol.17, pp.721-730, 2002 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- **Evaluation of Grid-Connected PV Converter Power Module Technologies in Terms of Efficiency, Initial Cost, and Return on Investment Time**
 Oztoprak O., HAVA A. M.
 21st European Conference on Power Electronics and Applications (EPE ECCE Europe), Genoa, Italy, 3 - 05 September 2019
- **Comparative Power Loss Analysis of DCM Flyback Transformer Based on FEA, Numeric Simulation, Calculation and Measurements**
 Onay H., Suel V., Ozgen T., Hava A. M.
 21st European Conference on Power Electronics and Applications (EPE ECCE Europe), Genoa, Italy, 3 - 05 September 2019
- **A Basic Power Electronic Laboratory Experiment Allowing Comprehensive and Structured Learning: Multi-Phase Capacitive Loaded Full-Bridge Rectifier**
 Oztoprak O., HAVA A. M.
 18th IEEE International Power Electronics and Motion Control Conference (IEEE PEMC), Budapest, Hungary, 26 - 30 August 2018, pp.881-887
- **LCL-Filter Design for Low-Voltage High-Power Grid-Tied Voltage-Source Converter Considering Various Damping Methods**
 Kantar E., HAVA A. M.
 17th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL), Trondheim, Norway, 27 - 30 June 2016
- **Performance Evaluation and Selection of PWM Switching and Control Methods for Grid Connected Modular Multilevel Converters**
 Ciftci B., HAVA A. M.
 IEEE Energy Conversion Congress and Exposition, Montreal, Canada, 20 - 24 September 2015, pp.3622-3629
- **DC-Bus Ripple Current Characterization of Three-Phase 2/3L-VSIs Considering the Spectral Characteristics**

Ozkan Z., HAVA A. M.

9th International Conference on Power Electronics / Energy Conversion Congress and Exposition Asia (ICPE-ECCE Asia), Seoul, South Korea, 1 - 05 June 2015, pp.667-674

● **Output Ripple Performance Evaluation and Comparison of 2L-VSI and 3L-VSI Considering the Spectral Characteristics**

Ozkan Z., HAVA A. M.

9th International Conference on Power Electronics and ECCE Asia (ICPE-ECCE Asia), Seoul, South Korea, 1 - 05 June 2015, pp.397-404

● **A Detailed Power Loss Analysis of Modular Multilevel Converter**

Erturk F., HAVA A. M.

30th Annual IEEE Applied Power Electronics Conference and Exposition (APEC), Charlottetown, Canada, 15 - 19 March 2015, pp.1658-1665

● **Performance Analysis, Filter Component Sizing, and Controller Structure Selection of Small Capacitor Diode Rectifier Front End Inverter Drives**

Aban V. V. , HAVA A. M.

16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.745-750

● **Investigation on Series Active Filter Compensated High Power Grid-Connected Voltage Source Inverters with LCL Filter**

Usluer S. N. , HAVA A. M.

IEEE Energy Conversion Congress and Exposition (ECCE), Pennsylvania, United States Of America, 14 - 18 September 2014, pp.381-388

● **Performance Evaluation and Comparison of Single-Phase and Two-Phase Interleaving Flyback Micro-Inverters for Grid Connected PV Systems**

Kavurucu S., HAVA A. M.

IEEE 23rd International Symposium on Industrial Electronics (ISIE), İstanbul, Turkey, 1 - 04 June 2014, pp.620-625

● **Series Active Filter Based Resonance Damping of High Power Three-phase, LCL Filtered, Grid Connected Voltage Source Inverters**

Usluer S. N. , HAVA A. M.

IEEE 23rd International Symposium on Industrial Electronics (ISIE), İstanbul, Turkey, 1 - 04 June 2014, pp.643-648

● **Design and Implementation of a 800W Step Down Converter with Optimized F-L-N Parameters**

ŞAHİN İ., HAVA A. M.

IEEE 23rd International Symposium on Industrial Electronics (ISIE), İstanbul, Turkey, 1 - 04 June 2014, pp.2093-2098

● **Selection of Suitable Carrier-Based PWM Method for Modular Multilevel Converter**

Ciftci B., Erturk F., HAVA A. M.

International Power Electronics Conference (IPEC-ECCE-ASIA), Hiroshima, Japan, 18 - 21 May 2014, pp.3734-3741

● **Three-Phase Inverter Topologies for Grid-Connected Photovoltaic Systems**

Ozkan Z., HAVA A. M.

International Power Electronics Conference (IPEC-ECCE-ASIA), Hiroshima, Japan, 18 - 21 May 2014, pp.498-505

● **Design of Grid Connected PWM Converters Considering Topology and PWM Methods for Low-Voltage Renewable Energy Applications**

Kantar E., HAVA A. M.

International Power Electronics Conference (IPEC-ECCE-ASIA), Hiroshima, Japan, 18 - 21 May 2014, pp.2034-2041

● **Volume and Efficiency Optimization of a Step-down DC/DC Converter Based on F-L-N Parameters**

ŞAHİN İ., HAVA A. M.

8th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 28 - 30 November 2013, pp.288-292

● **Control Strategies for Grid Connected PWM-VSI Systems**

Kantar E., Usluer S. N. , HAVA A. M.

8th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 28 - 30 November

2013, pp.220-224

Waveform Quality Comparison of Scalar PWM Methods for Modular Multilevel Converters

Ciftci B., HAVA A. M.

8th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 28 - 30 November

2013, pp.152-156

Design and Performance Analysis of a Grid Connected PWM-VSI System

Kantar E., Usluer S. N. , HAVA A. M.

8th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 28 - 30 November

2013, pp.157-161

Energy Conversion Efficiency of Single-Phase Transformerless PV Inverters

Ozkan Z., HAVA A. M.

8th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 28 - 30 November

2013, pp.283-287

Topology and PWM Method Dependency of High Frequency Leakage Current Characteristics of Voltage Source Inverter Driven AC Motor Drives

Cetin N. O. , HAVA A. M.

IEEE Energy Conversion Congress and Exposition (ECCE), North-Carolina, United States Of America, 15 - 20

September 2012, pp.3430-3437

A Survey and Extension of High Efficiency Grid Connected Transformerless Solar Inverters with Focus on Leakage Current Characteristics

Ozkan Z., HAVA A. M.

IEEE Energy Conversion Congress and Exposition (ECCE), North-Carolina, United States Of America, 15 - 20

September 2012, pp.3453-3460

A DC Bus Capacitor Design Method for Various Inverter Applications

HAVA A. M. , Ayhan U., Aban V. V.

IEEE Energy Conversion Congress and Exposition (ECCE), North-Carolina, United States Of America, 15 - 20

September 2012, pp.4592-4599

Analysis and Characterization of DC Bus Ripple Current of Two-Level Inverters Using The Equivalent Centered Harmonic Approach

Ayhan U., HAVA A. M.

IEEE Energy Conversion Congress and Exposition (ECCE), Arizona, United States Of America, 17 - 22 September

2011, pp.3830-3837

Leakage Current Analysis of Grid Connected Transformerless Solar Inverters with Zero Vector Isolation

Ozkan Z., HAVA A. M.

IEEE Energy Conversion Congress and Exposition (ECCE), Arizona, United States Of America, 17 - 22 September

2011, pp.2460-2466

Environment-friendly Uninterruptible Power Supply (UPS) Systems

Gunes I., Ustuntepe B., Islek M., Ece N., HAVA A. M.

International Exhibition and Conference for Power Electronics, Intelligent Motion and Power Quality (PCIM Europe

2010), Nuremberg, Germany, 4 - 06 May 2010, pp.806-811

High Performance Harmonic Isolation By Means of The Single-phase Series Active Filter Employing The Waveform Reconstruction Method

Senturk O. S. , HAVA A. M.

IEEE Energy Conversion Congress and Exposition, San-Jose, Costa Rica, 20 - 24 September 2009, pp.1383-1384

On the Contribution of PWM Methods to the Common Mode (Leakage) Current in Conventional Three-phase Two-level Inverters as Applied to AC Motor Drives

HAVA A. M. , Cetin N. O. , Uen E.

IEEE Industry-Applications-Society Annual Meeting, Alberta, Canada, 5 - 09 October 2008, pp.146-153

High Performance Harmonic Isolation and Load Voltage Regulation of the Three-Phase Series Active Filter Utilizing the Waveform Reconstruction Method

Sentuerk O. S. , HAVA A. M.

IEEE Industry-Applications-Society Annual Meeting, Alberta, Canada, 5 - 09 October 2008, pp.194-201

● **A High Performance PWM Algorithm for Common Mode Voltage Reduction in Three-phase Voltage Source Inverters**

Uen E., HAVA A. M.

● 39th IEEE Power Electronic Specialists Conference (PESC 08), Rhodes, Greece, 15 - 19 June 2008, pp.1528-1534

● **Output voltage control of a four-leg inverter based three-phase UPS utilizing stationary frame resonant filter banks**

HAVA A. M. , Demirkutlu E.

● 2007 European Conference on Power Electronics and Applications, Aalborg, Denmark, 2 - 05 September 2007, pp.4925-4934

● **Performance characteristics of the reduced common mode voltage Near State PWM method**

Un E., HAVA A. M.

● 12th European Conference on Power Electronics and Applications, Aalborg, Denmark, 2 - 05 September 2007, pp.1061-1070

● **Performance enhancement and comparison of discrete time current regulators for parallel active filters**

Ozkaya H., Senturk O. S. , HAVA A. M.

● 12th European Conference on Power Electronics and Applications, Aalborg, Denmark, 2 - 05 September 2007, pp.3689-3698

● **Output voltage control of a four-leg inverter based three-phase UPS by means of stationary frame resonant filter banks**

Demirkutlu E., Cetinkaya S., HAVA A. M.

● IEEE International Electric Machines and Drives Conference (IEMDC 2007), Antalya, Turkey, 3 - 05 May 2007, pp.880-881

● **A Near State PWM Method With Reduced Switching Frequency And Reduced Common Mode Voltage For Three-Phase Voltage Source Inverters**

Uen E., HAVA A. M.

● IEEE International Electric Machines and Drives Conference (IEMDC 2007), Antalya, Turkey, 3 - 05 May 2007, pp.235-236

● **Performance enhancement of discrete time hysteresis current regulators and comparison with linear current regulators for parallel active filters**

Oezkaya H., Sentuerk O. S. , HAVA A. M.

● IEEE International Electric Machines and Drives Conference (IEMDC 2007), Antalya, Turkey, 3 - 05 May 2007, pp.1282-1283

● **A novel two-parameter modulation and neutral point potential control method for the three-level neutral point clamped inverter**

Uestuntepe B., HAVA A. M.

● IEEE International Electric Machines and Drives Conference (IEMDC 2007), Antalya, Turkey, 3 - 05 May 2007, pp.742-743

● **Performance analysis and comparison of reduced common mode voltage PWM and standard PWM techniques for three-phase voltage source inverters**

Un E., Hava A.

● 21st Annual IEEE Applied Power Electronics Conference (APEC 2006), Texas, United States Of America, 19 - 23 March 2006, pp.303-309

Supported Projects

HAVA A. M. , Project Supported by Higher Education Institutions, YENİLENEBİLİR ENERJİ SİSTEMLERİNDE LCL SÜZGEÇ VE ŞEBEKE BAĞLANTILI AC/DC DÖNÜŞTÜRÜCÜ İÇİN DENETİM YÖNTEMLERİNİN TASARIMI VE KARŞILAŞTIRILMASI,

2017 - 2017

HAVA A. M. , Project Supported by Higher Education Institutions, SI VE SIC YARI İLETKEN ANAHTARLI, ALÇAK GERİLİM 3 FAZ ŞEBEKE BAĞLANTILI AC/DC GÜÇ DÖNÜŞTÜRÜCÜ TOPOLOJİLERİNİN PERFORMANS DEĞERLENDİRMESİ VE KARŞILAŞTIRILMASI, 2017 - 2017

HAVA A. M. , ÖZKAN Z., Project Supported by Higher Education Institutions, MULTİ-KVA TRAFOSUZ FOTOVOLTAİK EVİRİCİLERİN TASARIMI, DENETİMİ VE GERÇEKLENMESİ, 2017 - 2017

HAVA A. M. , Project Supported by Higher Education Institutions, SiC MOSFET'Lİ YÜKSEK PERFORMANSLI TEK FAZLI EVİRİCİLİ 3 KVA PROGRAMLANABİLİR AC GÜÇ KAYNAĞININ TASARIMI VE GERÇEKLENMESİ, 2017 - 2017

HAVA A. M. , Project Supported by Other Private Institutions, Radar Sistemleri Mekatronik Yönlendirme Çözümleri Araştırma-Geliştirme Projesi, 2016 - 2017

HAVA A. M. , Project Supported by Other Private Institutions, Servo motor ve sürücü sistemlerinin geliştirilmesi ve tasarımında teknik destek, 2015 - 2016

HAVA A. M. , Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

HAVA A. M. , Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

HAVA A. M. , ÖZKAN Z., Project Supported by Higher Education Institutions, MULTİ-KVA TRAFOSUZ EVİRİCİLERİN TASARIMI, DENETİMİ VE GERÇEKLENMESİ, 2013 - 2013

HAVA A. M. , ÇAKIR C., Project Supported by Higher Education Institutions, BİRLEŞİK GÜÇ KALİTESİ DENETLEYİCİ SİSTEM DENETİMİ, 2013 - 2013

HAVA A. M. , KANTAR E., Project Supported by Higher Education Institutions, ÜÇ FAZLI, ŞEBEKEYE BAĞLANAN FOTOVOLTAİK EVİRİCİ SİSTEMLERİNİN ANALİZİ, 2013 - 2013

HAVA A. M. , USLUER S. N. , Project Supported by Higher Education Institutions, YÜKSEK GÜÇLÜ EVİRİCİLER İÇİN VERİMLİ ANAHTARLAMA YÖNTEMLERİ, 2013 - 2013

HAVA A. M. , ÇETİN N. O. , Project Supported by Higher Education Institutions, ÜÇ FAZLI, ŞEBEKEYE BAĞLANAN FOTOVOLTAİK EVİRİCİ SİSTEMLERİNİN ANALİZİ, 2013 - 2013

HAVA A. M. , ÇİFTÇİ B., Project Supported by Higher Education Institutions, ORTA GERİLİM REJENERATİF MOTOR SÜRÜCÜLERİ İÇİN BASAMAKLANDIRILMIŞ ÇOK SEVİYELİ EVİRİCİ TOPOLOJİLERİNİN TASARIM VE DENETİMİ, 2013 - 2013

Contractual Researches

Hava A. M. , ELSİS Elektronik Sistemler Sanayi A.Ş., Yenilenebilir Enerji Sistemlerinde Kullanılmak Üzere Akıllı, Yüksek Verimli, Şebekeye Senkronize, Modüler İnvörtör Sisteminin Geliştirilmesi, 2018 - 2019

HAVA A. M. , aselsan, 2018 - 2018

HAVA A. M. , VESTEL A.Ş. AR-GE PROJE, 2016 - 2018

HAVA A. M. , ASELSAN ELEKTRONİK AR-GE PROJESİ, 2016 - 2017

Citations

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