Prof. MÜSLÜM ARKAN

Personal Information

Office Phone: +90 422 377 4829
Fax Phone: +90 422 341 0046
Email: muslum.arkan@inonu.edu.tr
Web: https://avesis.inonu.edu.tr/muslum.arkan
Address: İnönü Üniversitesi Mühendislik Fakültesi Elektrik-Elektronik Müh. Böl. Malatya

International Researcher IDs
ScholarID: Ye2ySswAAAAJ
ORCID: 0000-0001-5313-2400
Publons / Web Of Science ResearcherID: A-5114-2016
ScopusID: 7801529067
Yoksis Researcher ID: 114924

Education Information

Doctorate, The University of Sussex, School of Enginering, Elektrik, England 1996 - 2000
Undergraduate, Gaziantep University, Faculty Of Engıneerıng, Elektrik-Elektronik Müh, Turkey 1989 - 1994

Dissertations

Doctorate, Stator fault diagnosis in induction motors, The University of Sussex, School Of Engineering, 2000

Research Areas

Electrical and Electronics Engineering, Energy, Power Electronics, Electrical Machine Theory and Design, Electric Motor Drivers, Engineering and Technology

Academic Titles / Tasks

Professor, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2016 - Continues
Associate Professor, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2009 - 2016
Assistant Professor, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2005 - 2009

Academic and Administrative Experience

Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2005 - Continues
Head of Department, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2017 - 2020
Inonu University, Mühendislik Fakültesi, 2013 - 2016
Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2010 - 2014

Courses

Courses

Elektrik-Elektronik Mühendisliğinde Nümerik Analiz Uygulamaları, Undergraduate Double Major, 2023-2024
Power Electronics, Undergraduate, 2023-2024
Güç Elektroniği Laboratuvarı, Undergraduate, 2023-2024
Electrical Machines Laboratory, Undergraduate, 2022-2023
Electrical Machines II, Undergraduate, 2022-2023
Electrical Machines I, Undergraduate, 2022-2023
Güç Elektroniği Uygulamaları, Undergraduate, 2022-2023
Alternatif Akım Sürücülerin Analizi, Undergraduate Minor, 2021-2022
Yarı-İletken Kontrollü Elektrik Makinaları, Undergraduate Double Major, 2018-2019
Elektrik Makinalarının Genel Teorisi, Undergraduate Minor, 2017-2018
Elektrik Makinaları II, Undergraduate, 2013-2014
Güç Elektroniği, Undergraduate, 2013-2014
Gömülü Sistem Tasarımı, Undergraduate, 2013-2014
Elektrik Makinaları I, Undergraduate, 2013-2014
Özel Elektrik Makinaları, Undergraduate, 2012-2013

Advising Theses

ARKAN M., Sürekli Mıknatıslı Senkron Motorun Stator Kısa Devre Arızasının Tespiti ve Arıza Şiddetinin Otomatik Olarak Belirlenmesi, Doctorate, F.Çıra(Student), 2017
ARKAN M., Yük Salınımı Durumunda Asenkron Motorda Rotor Çubuk Arızasının Gerçek Zamanlı Tespiti, Doctorate, T.Göktaş(Student), 2015

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Performance enhancement of single-phase induction motor using GA based multi-objective Optimisation**
Bin Younas M., Khalid H. A., Javed A., Yetis H., Goktas T., Arkan M.
INTERNATIONAL JOURNAL OF ELECTRONICS, vol.109, no.9, pp.1473-1492, 2022 (SCI-Expanded)
II. **Design and development of travelling-wave-frequency-based transmission line fault locator using TMS320 DSP**
ARKAN M., AKMAZ D., MAMİŞ M. S., TAĞLUK M. E.
IET SCIENCE MEASUREMENT & TECHNOLOGY, vol.13, no.4, pp.518-522, 2019 (SCI-Expanded)
III. **Transmission line fault location using traveling wave frequencies and extreme learning machine**
Akmaz D., MAMİŞ M. S., ARKAN M., TAĞLUK M. E.
ELECTRIC POWER SYSTEMS RESEARCH, vol.155, pp.1-7, 2018 (SCI-Expanded)
IV. **Discerning broken rotor bar failure from low-frequency load torque oscillation in DTC induction motor drives**
GÖKTAŞ T., ARKAN M.
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.40, no.1, pp.279-286, 2018 (SCI-Expanded)
V. **Fault location determination for transmission lines with different series-compensation levels using transient frequencies**
Akmaz D., MAMİŞ M. S., ARKAN M., TAĞLUK M. E.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.25, no.5, pp.3764-3775, 2017 (SCI-Expanded)
VI. **Lightning surge analysis of Faraday cage using alternative transient program-electromagnetic transients program**
MAMİŞ M. S., KELEŞ C., ARKAN M., Kaya R.

IET GENERATION TRANSMISSION & DISTRIBUTION, vol.10, no.4, pp.1016-1022, 2016 (SCI-Expanded)

VII. **Detection of Stator Winding Inter-Turn Short Circuit Faults in Permanent Magnet Synchronous Motors and Automatic Classification of Fault Severity via a Pattern Recognition System**
Cira F., ARKAN M., Gumus B.
JOURNAL OF ELECTRICAL ENGINEERING & TECHNOLOGY, vol.11, no.2, pp.416-424, 2016 (SCI-Expanded)

VIII. **Detection of rotor fault in three-phase induction motor in case of low-frequency load oscillation**
Goktas T., ARKAN M., OZGUVEN O. F.
ELECTRICAL ENGINEERING, vol.97, no.4, pp.337-345, 2015 (SCI-Expanded)

IX. **Transmission lines fault location using transient signal spectrum**
MAMİŞ M. S., ARKAN M., KELEŞ C.
INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS, vol.53, pp.714-718, 2013 (SCI-Expanded)

X. **Sensorless speed estimation in induction motor drives by using the space vector angular fluctuation signal**
Arkan M.
IET ELECTRIC POWER APPLICATIONS, vol.2, no.2, pp.113-120, 2008 (SCI-Expanded)

XI. **Modelling and simulation of induction motors with inter-turn faults for diagnostics**
Arkan M., KOSTIC-PEROVIC D., UNSWORTH P. J.
ELECTRIC POWER SYSTEMS RESEARCH, vol.75, no.1, pp.57-66, 2005 (SCI-Expanded)

XII. **Bearing and misalignment fault detection in induction motors by using the space vector angular fluctuation signal**
Arkan M., CALIS H., TAGLUK M. E.
ELECTRICAL ENGINEERING, vol.87, no.4, pp.197-206, 2005 (SCI-Expanded)

XIII. **Internal ionization process in polymer dielectrics in strong electrical field**
Alisoy G., Alisoy H., Rustamov S., ARKAN M.
PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS, vol.335, pp.59-69, 2004 (SCI-Expanded)

XIV. **Online stator fault diagnosis in induction motors**
Arkan M., Perovic D., UNSWORTH P. J.
IEE PROCEEDINGS-ELECTRIC POWER APPLICATIONS, vol.148, no.6, pp.537-547, 2001 (SCI-Expanded)

Articles Published in Other Journals

I. **The Dynamic Effects of Stator Turn-to-Turn Short Circuit Fault on the Electrical, Mechanical and Magnetical Motor Parameters in Induction Motors**
Akbayır K., GÖKTAŞ T., ARKAN M.
Dokuz Eylül Üniversitesi Mühendislik Fakültesi Fen ve Mühendislik Dergisi, vol.24, no.72, pp.815-824, 2022 (Peer-Reviewed Journal)

II. **Design, Simulation and Application of Buck Converter with Digital PI Controller**
SUCU H., GÖKTAŞ T., ARKAN M.
Balkan Journal of Electrical and Computer Engineering, vol.9, no.2, pp.106-113, 2021 (Peer-Reviewed Journal)

III. **Güç Transformatörlerinin Yıldırım Darbe Analizlerinin ANSYS@Maxwell-3D ile Gerçekleştirilmesi**
ÖZÜPAK Y., MAMİŞ M. S., GÖKTAŞ T., ARKAN M.
Kırklareli Üniversitesi Mühendislik ve Fen Bilimleri Dergisi, vol.5, no.2, pp.147-158, 2019 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

I. **IoT based Multi-Environmental Sensing System: Monitoring of Rotor Fault in Induction Motors**
GÖKTAŞ T., ER R., ALTUN F., ARKAN M.
2023 IEEE 14th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives

(SDEMPED), Chania, Greece, 28 August 2023, pp.285-290

II. **Reliable Detection of Broken Bar Fault through Negative Sequence of Stray Flux in Induction Motors**
GÖKTAŞ T., ARKAN M.
2023 IEEE International Electric Machines & Drives Conference (IEMDC), San-Francisco, Costa Rica, 15 - 18 May 2023, pp.1-5

III. **Detection of Rotor Bar Fault through Stray Flux Based Analytical Signal Angular Fluctuation Method**
GÖKTAŞ T., ARKAN M.
2023 IEEE International Electric Machines & Drives Conference (IEMDC), San-Francisco, Costa Rica, 15 - 18 May 2023, pp.1-6

IV. **A Comparative Study of Current, Vibration and Stray Magnetic Flux Based Detection for Parallel Misalignment Fault in Induction Motors**
GÖKTAŞ T., ARKAN M., V. G.
2021 IEEE 13th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives (SDEMPED), Dallas, United States Of America, 22 - 25 August 2021, vol.1, pp.11-16

V. **The Performance Evaluation of Machine Learning based Techniques via Stator Current and Stray Flux for Broken Bar Fault in Induction Motors**
M. B. Y., N. U., GÖKTAŞ T., ARKAN M., V. G.
2021 IEEE 13th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives (SDEMPED), Dallas, United States Of America, 22 - 25 August 2021, vol.1, pp.180-185

VI. **Design, Simulation and Application of Microcontroller based DC-DC Buck Converter**
SUCU H., GÖKTAŞ T., YETİŞ GÜNAY H., ARKAN M.
International ICONTECH SYMPOSIUM-3 on Innovative Surveys in Positive Sciences, Oujda, Morocco, 28 January 2021, vol.1

VII. **Eksantriklik Arızası Durumunda Sürekli Mıknatıslı SenkronMotorlarda Stator Akım ve Kaçak Akının İzlenmesi**
GÜR M., GÖKTAŞ T., ARKAN M.
6. International Multidisciplinary Studies Congress, Gaziantep, Turkey, 26 - 27 April 2019, pp.183-188

VIII. **Monitoring of Leakage Flux for Rotor Fault Detection under non-adjacent broken rotor bars in Induction Motors**
GÖKTAŞ T., Ekinci I., YÜKLÜ N., ARKAN M., MAMİŞ M. S.
3rd International Conference on Applied Automation and Industrial Diagnostics (ICAAID), Elazığ, Turkey, 25 - 27 September 2019

IX. **Güç Transformatörlerinde Elektromanyetik Akı Dağılımının ve Nüve Kayıplarının Analizi**
ÖZÜPAK Y., DİKMEN S., GÖKTAŞ T., ARKAN M., MAMİŞ M. S.
Elektrik-Elektronik ve Biyomedikal Mühendisliği Konferansı (ELECO 2018), Bursa, Turkey, 30 November - 01 December 2018, pp.102-105

X. **Detection of eccentricity fault in permanent magnet synchronous motors through torque and speed spectrums**
GÜR M., GÖKTAŞ T., ARKAN M.
International Eurasian Conference onScience, Engineering and Technology, Ankara, Turkey, 22 - 23 November 2018, pp.2517-2522

XI. **Quartz Dolgulu, Dökme Reçineli, Kuru Tip Transformatör Prototipinin Tasarımı ve Gerçekleştirilmesi**
GÖKTAŞ T., DİKMEN S., MAMİŞ M. S., ARKAN M.
Güç Sistemleri Konferansı, Ankara, Turkey, 15 - 16 November 2018, pp.47-50

XII. **Design of Medium Voltage-36kV Cold Shrink Cable Joint andElectromagnetic Field Analysis**
GÖKTAŞ T., UZEL S., CÖMERT S., EMRE A., MAMİŞ M. S., ARKAN M.
International Conference on Energy Research, Alanya, Turkey, 31 October - 02 November 2018, pp.254-259

XIII. **Detection of Broken Bar Fault based on the Sidebands of Rotor Slot Harmonics in Leakage Flux**
EKİNCİ İ., GÖKTAŞ T., ARKAN M., MAMİŞ M. S.
International Conference on Energy Research, Alanya, Turkey, 31 October - 02 November 2018, pp.248-253

XIV. **Discriminating of rotor fault and low frequency load torque oscillation using motor square current**

signature analysis
GÖKTAŞ T., ARKAN M.
23rd International Conference on Electrical Machines, ICEM 2018, Alexandroupoli, Greece, 3 - 06 September 2018, pp.2365-2370

XV. **Series Compensation with Constant Capacitors in Transmission Lines**
AKMAZ D., MAMİŞ M. S., ARKAN M., TAĞLUK M. E.
8th,International advanced technology symposium, (Iats2017), Elazığ, Turkey, 19 - 22 October 2017

XVI. **Separation of Induction Motor Rotor Faults and Low Frequency Load Oscillations Through the Radial Leakage Flux**
GÖKTAŞ T., ARKAN M., MAMİŞ M. S., Akin B.
9th Annual IEEE Energy Conversion Congress and Exposition (ECCE), Ohio, United States Of America, 1 - 10 October 2017, pp.3165-3170

XVII. **Broken Rotor Bar Fault Monitoring based on Fluxgate Sensor Measurement of Leakage Flux**
GÖKTAŞ T., ARKAN M., MAMİŞ M. S., Akin B.
IEEE International Electric Machines and Drives Conference (IEMDC), Florida, United States Of America, 20 - 24 May 2017

XVIII. **Analysis of Stator Inter-turn Short-circuit Fault Signatures for Inverter-fed Permanent Magnet Synchronous Motors**
ÇIRA F., ARKAN M., GÜMÜŞ B., GÖKTAŞ T.
42nd Annual Conference of the IEEE-Industrial-Electronics-Society (IECON), Florence, Italy, 24 - 27 October 2016, pp.1453-1457

XIX. **Travelling wave Based Fault Distance Estimation for Series Compensated Transmission Lines using ATP EMTP**
AKMAZ D., MAMİŞ M. S., TAĞLUK M. E., ARKAN M.
European EMTP-ATP Conference, EEUG Meeting, Grenoble, France, 14 - 18 September 2015, pp.151-161

XX. **A New Approach to Detect Stator Fault in Permanent Magnet Synchronous Motors**
Cira F., ARKAN M., Gumus B.
10th IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics, and Drives (SDEMPED), Guarda, Portugal, 1 - 04 September 2015, pp.316-321

XXI. **Separation Harmonics for Detecting Broken Bar Fault in case of Load Torque Oscillation**
Goktas T., ARKAN M., Zafarani M., AKIN B.
IEEE International Electric Machines and Drives Conference, Idaho, United States Of America, 10 - 13 May 2015, pp.1452-1458

XXII. **Detecting Fault Type and Fault Location in Power Transmission Lines by Extreme Learning Machines**
TAĞLUK M. E., MAMİŞ M. S., ARKAN M., Ertugrul O. F.
23nd Signal Processing and Communications Applications Conference (SIU), Malatya, Turkey, 16 - 19 May 2015, pp.1090-1093

XXIII. **Fault Location on Series Compensated Power Transmission Lines Using Transient Spectrum**
Akmaz D., MAMİŞ M. S., ARKAN M., TAĞLUK M. E.
23nd Signal Processing and Communications Applications Conference (SIU), Malatya, Turkey, 16 - 19 May 2015, pp.951-954

XXIV. **Diagnosis of Broken Rotor Fault in Inverter-Fed IM by Using Analytical Signal Angular Fluctuation**
Goktas T., ARKAN M.
16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.337-342

XXV. **Yenilenebilir Enerji Kaynakları ile Uyumlu Yüksek Güçlü Yükseltici Tip İki Paralel Kollu Konvertörün Tasarımı Gerçekleştirilmesi ve Kontrolü**
GÖKTAŞ T., ARKAN M., Murat İ. E.
Otomatik Kontrol Ulusal Toplantısı, TOK2013, Malatya, Turkey, 26 - 28 September 2013

XXVI. **A New Method to Separate Broken Rotor Failures and Low Frequency Load Oscillations in Three-Phase Induction Motor**

Goktas T., ARKAN M., Ozguven O. F.
9th IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives (SDEMPED), Valencia, Spain, 27 - 30 August 2013, pp.122-127

XXVII. **ATP Simulation of A Faraday Cage for The Analysis of Lightning Surges**
MAMİŞ M. S., KELEŞ C., ARKAN M., KAYA R.
European EMTP-ATP Conference, EEUG'12, Zwickau, Germany, 17 - 18 September 2012, pp.30-39

XXVIII. **FFT Based Fault Location Algorithm for Transmission Lines**
MAMİŞ M. S., ARKAN M.
2011 7th International Conference on Electrical and Electronics Engineering (ELECO), 1 - 04 November 2011

XXIX. **Investigation of Negative sequence Components for Stator Shorted Turn Detection in Induction Motors**
Bakhri S., Ertugrul N., Soong W. L., ARKAN M.
20th Australasian Universities Power Engineering Conference (AUPEC) - Power Quality for the 21st Century, Christchurch, New Zealand, 5 - 08 December 2010

XXX. **Modelling and Simulation of Induction Motors for Stator Fault Diagnosis**
ARKAN M., Kostic Perovic D., Unsworth P. J.
IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives, 1 - 03 September 2001

XXXI. **Analysis of a SVAF Rotor Fault Index**
Kostic Perovic D., ARKAN M., Unsworth P. J.
IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives, 1 - 03 September 2001

XXXII. **Closed rotor slot effect on negative sequence impedance**
Arkan M., KOSTIC-PEROVIC D., UNSWORTH P.
36th Annual Meeting of the Industry-Application-Society (IAS), Illinois, United States Of America, 30 September - 04 October 2000, pp.751-753

XXXIII. **Induction motor fault detection by space vector angular fluctuation**
KOSTIC-PEROVIC D., Arkan M., UNSWORTH P. J.
35th IAS Annual Meeting and World Conference on Industrial Applications of Electrical Energy, Rome, Italy, 8 - 12 October 2000, pp.388-394

XXXIV. **Stator Fault Diagnosis in Induction Motors Using Power Decomposition**
ARKAN M., Unsworth P. J.
IEEE Industry Applications Conference 34th Annual Meeting, 3 - 07 October 1999

Supported Projects

Arkan M., Mamiş M. S., Göktaş T., TUBITAK Project, Asenkron Motorlarda Kaçak Akı ile Arızanın Türü, Büyüklüğü ve Arıza Noktasının Tespiti Kablosuz Anlık Durum İzleme Sisteminin Geliştirilmesi, 2018 - 2020

GÖKTAŞ T., ARKAN M., Project Supported by Higher Education Institutions, Asenkron Motorlarda Rotor Çubuk Arızası ile Düşük Frekanslı Yük Salınımının Motor Faz Akımının Karesi Metoduyla Ayrıştırılması, 2018 - 2019

MAMİŞ M. S., ÖZÜPAK Y., GÖKTAŞ T., ARKAN M., Project Supported by Higher Education Institutions, Geçici Rejim Altındaki Ölçü Transformatörlerinin Elektromanyetik Alan ve Isıl Analizlerinin Gerçekleştirilmesi, 2017 - 2019

MAMİŞ M. S., ARKAN M., Project Supported by Other Private Institutions, 12 kV, 24 kV ve 36 kV Orta Gerilim Soğuk Büzüşmeli Kablo Eki Tasarımı, Geliştirilmesi ve İmalatı, 2016 - 2017

ARKAN M., Project Supported by Other Private Institutions, Dağıtım Şebekelerinde Arıza Noktası Belirleme ve Otomasyon Sisteminin Geliştirilmesi, 2015 - 2017

ARKAN M., Project Supported by Higher Education Institutions, SÜREKLİ MIKNATISLI SENKRON MOTORUN STATOR KISA DEVRE ARIZASININ TESPİTİ VE ARIZA ŞİDDETİNİN OTOMATİK OLARAK BELİRLENMESİ, 2013 - 2017

TAĞLUK M. E., MAMİŞ M. S., ARKAN M., TUBITAK Project, İletim hatlarında arıza noktasının geçici rejim frekans domeni analizi ile belirlenmesi arıza sınıflandırma DSP uygulaması ve GPS ile arıza noktasını görüntüleme, 2014 - 2016

Metrics

Publication: 52
Citation (WoS): 526
Citation (Scopus): 815
H-Index (WoS): 12
H-Index (Scopus): 15