

## Prof. MÜSLÜM ARKAN

### Personal Information

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**Address:** İnönü Üniversitesi Mühendislik Fakültesi Elektrik-Elektronik Müh. Böl. Malatya

### International Researcher IDs

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Publons / Web Of Science ResearcherID: A-5114-2016

ScopusID: 7801529067

Yoksis Researcher ID: 114924

### Education Information

Doctorate, The University of Sussex, School of Engineering, Elektrik, England 1996 - 2000

Undergraduate, Gaziantep University, Faculty Of Engineering, 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

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.  
IEEE 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 Senkron Motorlarda Stator Akım ve Kaçak Akımın 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., EKİNCİ İ., 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 on Science, 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 and Electromagnetic 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., MAMIŞ 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., MAMIŞ 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., MAMIŞ 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., MAMIŞ 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., MAMIŞ M. S., ARKAN M., Ertugrul O. F.  
23rd 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., MAMIŞ M. S., ARKAN M., TAĞLUK M. E.  
23rd 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): 532

Citation (Scopus): 828

H-Index (WoS): 12

H-Index (Scopus): 16