

# Prof. HÜLYA DOĞAN

## Personal Information

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## International Researcher IDs

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Publons / Web Of Science ResearcherID: AAE-8027-2020

ScopusID: 56745058000

Yoksis Researcher ID: 148479

## Dissertations

Doctorate, Isıl olarak tavllanmış Ni/n-GaAs/In schottky diyotların deneysel karakteristiklerinin engel inhomojenlik modeline göre belirlenmesi, Ataturk University, Fen Fakültesi, 2006

Postgraduate, n-tipi GaAs yarı iletkeni üzerine oluşturulan Sn/n-Ga As kontak yapılarında arayüzey parametrelerinin belirlenmesi, Ataturk University, Fen Fakültesi, Fizik, 2001

## Research Areas

Plating, Nanomaterials, Physics, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Natural Sciences

## Academic Titles / Tasks

Professor, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2024 - Continues

Associate Professor, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2017 - 2024

Assistant Professor, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2008 - 2017

## Academic and Administrative Experience

Head of Department, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2024 - Continues

Head of Department, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2020 - Continues

Head of Department, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2020 - 2023

Head of Department, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2008 - 2020

Deputy Head of Department, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2008 - 2015

Farabi Coordinator, Sivas Cumhuriyet University, Mühendislik Fakültesi, Elektrik Elektronik Müh., 2011 - 2013

## Courses

Elektrik Elektronik Mühendisliğinin Temelleri-2, Undergraduate, 2022 - 2023, 2021 - 2022

Yarıiletken Elektronik, Postgraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2009 - 2010  
Elektrik Elektronik Müh. Malzeme Bilgisi, Undergraduate, 2022 - 2023, 2019 - 2020, 2018 - 2019  
Elektromagnetik Alan Teorisi, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020  
Elektrik elektronik mühendisliğine giriş 2, Undergraduate, 2021 - 2022, 2020 - 2021  
Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2012 - 2013, 2011 -  
2012, 2010 - 2011, 2009 - 2010, 2008 - 2009  
Bitirme Ödevi, Undergraduate, 2019 - 2020  
Elektromagnetik Alan Teorisi, Undergraduate, 2019 - 2020  
Bitirme Ödevi, Undergraduate, 2019 - 2020  
Elektromagnetik Dalga Teorisi, Undergraduate, 2018 - 2019  
Elektrik Elektronik Mühendisliği Malzeme Bilgisi, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016,  
2013 - 2014, 2012 - 2013, 2009 - 2010, 2008 - 2009  
Elektrik Elektronik Müh. Malzeme Bilgisi, Undergraduate, 2018 - 2019  
Elektromanyetik Dalga Teorisi, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2012 -  
2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009  
Elektromagnetik Dalga Teorisi, Undergraduate, 2018 - 2019  
Uzmanlık Alan Dersi, Postgraduate, 2018 - 2019  
Tez Çalışması, Postgraduate, 2018 - 2019  
Bitirme Ödevi, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2012 - 2013, 2011 - 2012, 2010 -  
2011, 2009 - 2010  
Temel Elektrik Lab., Undergraduate, 2017 - 2018  
Temel Elektrik Lab., Undergraduate, 2017 - 2018  
Mühendislik Projeleri, Undergraduate, 2017 - 2018  
Mühendislik Projeleri, Undergraduate, 2017 - 2018  
Sayısal Elektronik Laboratuvarı, Undergraduate, 2014 - 2015  
Sayısal Elektronik Laboratuvarı, Undergraduate, 2014 - 2015  
Malzeme Bilgisi, Undergraduate, 2009 - 2010  
Genel Fizik II, Undergraduate, 2009 - 2010  
Genel Fizik II, Undergraduate, 2009 - 2010  
Genel Fizik I, Undergraduate, 2009 - 2010  
Genel Fizik I, Undergraduate, 2009 - 2010

## Advising Theses

Şeker M., DOĞAN H., Dağıtım Şebekelerinde Optimizasyon Teknikleri Yardımıyla Şebeke Teknik Kayıplarının ve Gerilim  
Profillerinin İyileştirilmesi, Postgraduate, S.KOCA(Student), 2023  
Doğan H., Metal/ yarıiletken Schottky diyotlarının elektriksel karakteristiklerinin deneysel ve optimizasyon teknikleri ile  
belirlenmesi, Postgraduate, F.ZEHRA(Student), 2022  
Doğan H., Metal/III-V yarıiletken schottky diyotların karakteristik parametrelerinin deneysel ve teorik olarak  
hesaplanması, Postgraduate, S.KOÇKANAT(Student), 2010

## Jury Memberships

Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Sivas Cumhuriyet Üniversitesi,  
January, 2020  
Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Sivas Cumhuriyet Üniversitesi,  
January, 2020  
Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Sivas Cumhuriyet Üniversitesi,  
September, 2019

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

- I. **Next-Generation Application-Based Artificial Intelligence in Modeling and Estimation for Ni/n-GaAs/In Schottky Barrier Diode**  
DOĞAN H., KOÇKANAT S.  
Physica Status Solidi (A) Applications and Materials Science, vol.220, no.6, 2023 (SCI-Expanded)
- II. **Parameter Estimation of Al/p-Si Schottky Barrier Diode Using Different Meta-Heuristic Optimization Techniques**  
Doğan H.  
SYMMETRY, vol.14, pp.2389-3002, 2022 (SCI-Expanded)
- III. **Neural network estimations of annealed and non-annealed Schottky diode characteristics at wide temperatures range**  
DOĞAN H., Duman S., TORUN Y., AKKOYUN S., Doğan S., ATİCİ U.  
Materials Science in Semiconductor Processing, vol.149, 2022 (SCI-Expanded)
- IV. **The effects of electron irradiation on the current-voltage and capacitance-voltage measurements of Sn/p-GaAs/Au diodes**  
Duman S., Kaya F. Ş., Doğan H., Turgut G., Şahin Y.  
RADIATION PHYSICS AND CHEMISTRY, vol.193, 2022 (SCI-Expanded)
- V. **Modeling of Schottky diode characteristic by machine learning techniques based on experimental data with wide temperature range**  
TORUN Y., DOĞAN H.  
Superlattices and Microstructures, vol.160, 2021 (SCI-Expanded)
- VI. **CURRENT-VOLTAGE CHARACTERISTICS OF THERMALLY ANNEALED Ni/n-GaAs SCHOTTKY CONTACTS**  
Yıldırım N., Türüt A., Doğan H.  
SURFACE REVIEW AND LETTERS, vol.25, 2018 (SCI-Expanded)
- VII. **The interface state density characterization by temperature-dependent capacitance-conductance-frequency measurements in Au/Ni/n-GaN structures**  
Turut A., Dogan H., Yildirim N.  
MATERIALS RESEARCH EXPRESS, vol.2, 2015 (SCI-Expanded)
- VIII. **Capacitance-conductance-frequency characteristics of Au/Ni/n-GaN/undoped GaN Structures**  
Doğan H., Yıldırım N., Orak I., Elagöz S., Türüt A.  
PHYSICA B-CONDENSED MATTER, vol.457, pp.48-53, 2015 (SCI-Expanded)
- IX. **Temperature-dependent electrical transport properties of (Au/Ni)/n-GaN Schottky barrier diodes**  
Doğan H., Elagöz S.  
PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES, vol.63, pp.186-192, 2014 (SCI-Expanded)
- X. **The parameter extraction of the thermally annealed Schottky barrier diode using the modified artificial bee colony**  
KARABOĞA N., KOÇKANAT S., DOĞAN H.  
APPLIED INTELLIGENCE, vol.38, no.3, pp.279-288, 2013 (SCI-Expanded)
- XI. **DEPENDENCE OF CHARACTERISTIC DIODE PARAMETERS IN Ni/n-GaAs CONTACTS ON THERMAL ANNEALING AND SAMPLE TEMPERATURE**  
Yildirim N., Dogan H., Korkut H., Turut A.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS B, vol.23, no.27, pp.5237-5249, 2009 (SCI-Expanded)
- XII. **Analysis of current-voltage-temperature characteristics and T<sub>0</sub> anomaly in Cr/n-GaAs Schottky diodes fabricated by magnetron sputtering technique**  
Korkut H., Yildirim N., Turut A., Dogan H.  
Materials Science and Engineering B: Solid-State Materials for Advanced Technology, vol.157, pp.48-52, 2009 (SCI-

Expanded)

**XIII. Thermally annealed Ni/n-GaAs(Si)/In Schottky barrier diodes**

DOĞAN H., YILDIRIM N., Turut A.

Microelectronic Engineering, vol.85, no.4, pp.655-658, 2008 (SCI-Expanded)

**XIV. Prediction of lateral barrier height in identically prepared Ni/n-type GaAs Schottky barrier diodes**

Doğan H., Korkut H., Yıldırım N., Turut A.

Applied Surface Science, vol.253, pp.7467-7470, 2007 (SCI-Expanded)

**XV. The conductance and capacitance-frequency characteristics of Au/pyronine-B/p-type Si/Al contacts**

Cakar M., Yildirim N., Dogan H., Turut A.

APPLIED SURFACE SCIENCE, vol.253, no.7, pp.3464-3468, 2007 (SCI-Expanded)

**XVI. Determination of the characteristic parameters of Sn/n-GaAs/Al-Ge Schottky diodes by a barrier height inhomogeneity model**

Doğan H., Yıldırım N., Turut A., Biber M., Ayyıldız E., Nuhoglu Ç.

SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.21, no.6, pp.822-828, 2006 (SCI-Expanded)

## Articles Published in Other Journals

**I. Modeling the Thermal Annealing Process of Schottky Barrier Diodes with ANFIS**

DOĞAN H.

Iğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.14, no.2, pp.696-705, 2024 (Peer-Reviewed Journal)

**II. Metal Kompleks Ara Katmanlı Schottky Diyotun Elektriksel ve Optik Parametrelerin Belirlenmesi**

Bayat F. Z., Doğan H., Şeker M.

Journal of Engineering Faculty, vol.1, no.2, pp.16-24, 2023 (Peer-Reviewed Journal)

**III. Structure of Al/Organometallic Complex/p-Si Investigation of Electrical Properties**

Doğan H.

Avrupa Bilim ve Teknoloji Dergisi, no.46, pp.126-141, 2023 (Peer-Reviewed Journal)

**IV. Photovoltaic and Electrical Properties of Al/ Ruthenium (II)-complex / p-Si Photodiode**

Doğan H., Orak İ., Yıldırım N.

Cumhuriyet Science Journal, vol.38, no.2, pp.329, 2017 (Peer-Reviewed Journal)

## Books & Book Chapters

**I. Metal/Yarıiletken Kontaklar**

Doğan H.

in: Fen Bilimleri matematikte araştırma ve değerlendirmeler, Alparslan Dayangaç, Hasan Akgül, Editor, Gece Kitaplığı, Ankara, pp.313-331, 2022

**II. Estimation of neutron irradiation damages in Ni/n-GaAs Schottky contact layers via FLUKA Monte Carlo simulations**

Doğan H.

in: Transworld Research Network, Turgay Korkut, Editor, Nuclear Science and Technology, Karnul, pp.51-58, 2012

## Refereed Congress / Symposium Publications in Proceedings

**I. Silisyum Tabanlı Metal/yarıiletken Fotodiyotların Elektriksel ve Fotoelektriksel Karakteristikleri**

BAYAT F. Z., DOĞAN H.

International Scientific Research Congress Science and Engineering UBAK, Ankara, Turkey, 16 December 2023

**II. Radyal Elektrik Dağıtım Sistemlerinde Gerilim Profillerinin İyileştirilmesi ve İletim Kayıplarının Azaltılması için Sistem Yapılandırmasına Bağlı Optimal Kapasitör Yerleşimi**

Koca S., Şeker M., Doğan H.

IDAP-6th International Artificial Intelligence and Data Processing Symposium, Malatya, Turkey, 8 - 09 September 2022, pp.1-14

- III. **MODELLING of Al/p-Si SCHOTTKY PHOTO DIODE with GAUSSIAN PROGRESS REGRESSION**  
DOĞAN H., TORUN Y.  
7. ULUSLARARASI ZEUGMA BİLİMSEL ARAŞTIRMALAR KONGRESİ 21-23 Ocak 2022 Gaziantep, Gaziantep, Turkey, 21 - 23 January 2022, pp.258-259
- IV. **Controlling The Distributed Energy Resources Using Smart Grid Standards**  
ÜNSAL ÇELİMLİ D. B., DOĞAN H., TORUN Y., KOÇKANAT S.  
International Conference on Innovative Engineering Applications 2018, Sivas, Turkey, 20 - 22 September 2018, pp.578-585
- V. **INVESTIGATION OF CURRENT AND VOLTAGE FLUCTUATIONS IN ELECTRIC ARC FURNACES WITH THE HELP OF PROBABILITY THEORY**  
ŞEKER M., MEMMEDOV A., ÇIKAN M., DOĞAN H., KOÇKANAT S.  
International Conference on Advanced Technology Sciences (ICAT 2017), İstanbul, Turkey, 9 May - 12 September 2017
- VI. **DESIGN OF DIFFERENTIAL RELAY APPLICATION WITH MATLAB SIMULINK FOR PROTECTION OF TRANSFORMER IN ELECTRIC ARC FURNACE EAF LOADS**  
ŞEKER M., ÇIKAN M., ARIF M., KOÇKANAT S., DOĞAN H.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- VII. **ELECTRICAL PARAMETER DETERMINATION OF AL P SI SCHOTTKY DIODE FROM I V AND C V CURVES USING MABC BASED METHOD**  
KOÇKANAT S., DOĞAN H., TÜRKAY Y., ÇIKAN M., ÜNSAL ÇELİMLİ D. B.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- VIII. **INVESTIGATION OF CURRENT AND VOLTAGE FLUCTUATIONS IN ELECTRIC ARC FURNACES WITH THE HELP OF PROBABILITY THEORY**  
ŞEKER M., MEMMEDOV A., ÇIKAN M., DOĞAN H., KOÇKANAT S.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- IX. **ANNEALING TEMPERATURE DEPENDENT CHARACTERIZATION OF NI AU N GAN SCHOTTKY DIODE USING ARTIFICIAL BEE COLONY ALGORITHM**  
DOĞAN H., KOÇKANAT S., TÜRKAY Y., ŞEKER M., ÇIKAN M., ÜNSAL ÇELİMLİ D. B.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- X. **PHOTOELECTRICAL PARAMETER CALCULATION OF METAL ORGANIC INORGANIC PHOTO DIODE USING AN APPROACH BASED MABC ALGORITHM**  
DOĞAN H., KOÇKANAT S., TÜRKAY Y., ÇIKAN M., ÜNSAL ÇELİMLİ D. B.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- XI. **CURRENT VOLTAGE CURVE PREDICTION OF ANNEALED NI N GAAS SI IN SCHOTTKY BARRIER DIODE USING ANFIS**  
KOÇKANAT S., DOĞAN H., TÜRKAY Y., ŞEKER M., ÜNSAL ÇELİMLİ D. B., ÇIKAN M.  
5th International Conference on Advanced Technology Sciences, 9 - 12 May 2017
- XII. **DESIGN OF DIFFERENTIAL RELAY APPLICATION WITH MATLAB SIMULINK FOR PROTECTION OF TRANSFORMER IN ELECTRIC ARC FURNACE EAF LOADS**  
ŞEKER M., ÇIKAN M., MEMMEDOV A., KOÇKANAT S., DOĞAN H.  
International Conference on Advanced Technology Sciences (ICAT 2017), İstanbul, Turkey, 9 - 12 May 2017
- XIII. **Electrical and Photovoltaic Characterization of Al Ru II p Si Heterojunction Structures**  
DOĞAN H., ORAK İ., YILDIRIM N.  
NanoTR-12, 3 - 05 June 2016
- XIV. **ABC method analysis for the Capacitance Voltage characteristics of Ni n GaAs In schottky barrier diode**  
DOĞAN H., KOÇKANAT S., ÜNSAL ÇELİMLİ D. B.  
NanoTR-12, 3 - 05 June 2016

- XV. **The parameter extraction of Al Ruthenium II complex p Type Si Heterojunction diode using optimization method**  
ÜNSAL ÇELİMLİ D. B., DOĞAN H., KOÇKANAT S.  
NANOTR12, 3 - 05 June 2016
- XVI. **ABC Artificial Bee Colony method analysis for the Capacitance Voltage characteristics of Ni n GaAS In schottky barrier diode**  
ÜNSAL ÇELİMLİ D. B., DOĞAN H., KOÇKANAT S.  
NANOTR12, İzmit, Turkey, 3 - 05 June 2016
- XVII. **ABC method analysis for the Capacitance Voltage characteristic of Ni n GaAS In schottky barrier diode**  
DOĞAN H., KOÇKANAT S., ÜNSAL ÇELİMLİ D. B.  
12th International Nanoscience and Nanotechnology Conference, 3 - 05 June 2016
- XVIII. **Characteristic Diode Parameters of Thermally Annealed Ni n GaAs Schottky Contacts Over a Wide Measurement Temperature Range**  
TURUT A., YILDIRIM N., DOĞAN H.  
IPCAP 2016, 25 - 27 February 2016
- XIX. **Fabrication and Electrical Characterization of Al n ZnO p Si Al Heterojunction Diode**  
DOĞAN H., ŞENADIM TÜZEMEN E., DUMAN S.  
IPCAP 2016 (Internatinal physics conference at the anatolian peak), 25 - 27 February 2016
- XX. **Capacitance-Voltage Characteristics Of Ni/Au/n-GaN Contacts**  
Doğan H.  
International Semiconductor Science and Technology Conference-2014, İstanbul, Turkey, 13 January 2014, pp.2014
- XXI. **Parameter determination of the Schottky barrier diode using by artificial bee colony algorithm**  
KARABOĞA N., KOÇKANAT S., DOĞAN H.  
2011 International Symposium on INnovations in Intelligent SysTems and Applications, INISTA 2011, Istanbul-Kadikoy, Turkey, 15 - 18 June 2011, pp.6-10

## Supported Projects

Doğan H., Project Supported by Higher Education Institutions, Dört Rotorlu Döner Kanatlı İnsansız Hava Aracının Afet Yönetimi için Tasarımı ve Kontrolü, 2022 - 2023

Doğan H., Project Supported by Higher Education Institutions, Metal Organik inorganik fotodiyot yapıların elektriksel ve fotovoltaiik parametrelerinin deneysel ve ABC Artificial Bee Colony optimizasyon yöntemi ile hesaplanması ve karşılaştırılması, 2016 - 2019

Doğan H., Şenadım Tüzemen E., Project Supported by Higher Education Institutions, Metal Organik Kimyasal Buhar Depolama yöntemiyle üretilen GaN ve AlN ince filmlerinin optik geçirgenlik ve soğurma katsayılarının incelenmesi, 2010 - 2015

Doğan H., Türüt A., TUBITAK Project, Nanometre kalınlıklı reaktif metal III V yarıiletken kontakların potansiyel engelinin ısıl tavlama ve numune sıcaklığına bağlılığı ve bu yapıların MESFET ve MOSFET devre elemanlarındaki kullanılabilirliğinin araştırılması, 2006 - 2009

## Activities in Scientific Journals

Turkish Journal of Engineering and Environmental Sciences, Committee Member, 2020 - Continues

## Scientific Refereeing

AVRUPA BİLİM VE TEKNOLOJİ DERGİSİ, National Scientific Refreed Journal, January 2022

JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, SCI Journal, August 2020

Project Supported by Higher Education Institutions, BAP Research Project, Bingol University, Turkey, June 2020

JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS, SCI Journal, April 2020

JOURNAL OF ELECTRONIC MATERIALS, SCI Journal, February 2020

Project Supported by Higher Education Institutions, BAP MSc, Bingol University, Turkey, April 2017

## **Metrics**

Publication: 43

Citation (WoS): 231

Citation (Scopus): 257

H-Index (WoS): 8

H-Index (Scopus): 8

## **Scholarships**

Nanometre kalınlıklı reaktif metal III V yarıiletken kontakların potansiyel engelinin ısıl tavlamaya ve numune sıcaklığına bağlılığı ve bu yapıların MESFET ve MOSFET devre elemanlarındaki kullanılabilirliğinin araştırılması, TUBITAK, 2006 - 2009

## **Non Academic Experience**

National Education Directorate, Dersane, Özel Okul, Öğretmenlik