

## Res. Asst. PhD Ayşenur ÖZTÜRK AYDIN

### Personal Information

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### International Researcher IDs

ScholarID: GzRQ6QoAAAAJ

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Publons / Web Of Science ResearcherID: O-8731-2019

ScopusID: 57209121929

Yoksis Researcher ID: 123314

### Education Information

Undergraduate, Ataturk University, Fen Fakültesi, Kimya, Turkey 2018 - 2022

Doctorate, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, Turkey 2016 - 2022

Postgraduate, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, Turkey 2013 - 2016

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği, Turkey 2007 - 2013

### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, PEM Yakıt Pilleri İçin Isıl İşlem Görmüş Farklı Karbon Siyahları Destekli Pt ve PtCo Katalizörlerin Geliştirilmesi, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, 2022

Postgraduate, PEM Yakıt Pillerinde Su Yönetiminin İyileştirilmesi İçin Hidrofobik Malzeme Geliştirilmesi, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, 2016

### Research Areas

Chemical Engineering and Technology, Process and Reactor Design, Catalysis and Catalytic Processes, Engineering and Technology

### Academic Titles / Tasks

Research Assistant PhD, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, 2023 - Continues

Research Assistant, Ataturk University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği Anabilim Dalı, 2014 - 2022

## Academic and Administrative Experience

Program Accreditation-Self-Assessment Committee Member, Ataturk University, Mühendislik Fakültesi, Kimya Mühendisliği, 2023 - Continues

Labsis Veri Kaydı, Ataturk University, Mühendislik Fakültesi, Kimya Mühendisliği, 2023 - 2023

Program Koordinatörü, Ataturk University, Mühendislik Fakültesi, Kimya Mühendisliği, 2018 - 2022

## Courses

Genel Kimya Laboratuvarı, Undergraduate, 2023 - 2024, 2020 - 2021

Kimya Mühendisliği Laboratuvarı-II, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022

Kimya Mühendisliği Laboratuvarı-III, Undergraduate, 2021 - 2022

Kimya Mühendisliği Laboratuvarı-I, Undergraduate, 2021 - 2022, 2020 - 2021

Organik Kimya Laboratuvarı, Undergraduate, 2021 - 2022

Fizik Laboratuvarı-II, Undergraduate, 2013 - 2014

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

- I. **Low surface area carbon black as PEMFC catalyst support: heat treatment effect on the physical and electrocatalytic properties**  
Aydin A., BAYRAKÇEKEN A.  
JOURNAL OF MATERIALS SCIENCE, 2024 (SCI-Expanded)
- II. **Modulation of the Shape of Platinum Nanoparticles by Using Different Oleylamine/Polyvinylpyrrolidone Amounts**  
Öztürk A., Bayrakçeken Yurtcan A.  
JOURNAL OF NANO RESEARCH, vol.73, pp.31-50, 2022 (SCI-Expanded)
- III. **Raw and pyrolyzed (with and without melamine) graphene nanoplatelets with different surface areas as PEM fuel cell catalyst supports**  
Öztürk A., Bayrakçeken Yurtcan A.  
CARBON LETTERS, vol.31, no.6, pp.1191-1214, 2021 (SCI-Expanded)
- IV. **Electrocatalytical Application of Platinum Nanoparticles Supported on Reduced Graphene Oxide in PEM Fuel Cell: Effect of Reducing Agents of Dimethylformamide or Hydrazine Hydrate on the Properties**  
Daş E., Öztürk A., Bayrakçeken Yurtcan A.  
ELECTROANALYSIS, vol.33, no.7, pp.1721-1735, 2021 (SCI-Expanded)
- V. **Preparation and characterization of melamine-led nitrogen-doped carbon blacks at different pyrolysis temperatures**  
Öztürk A., Bayrakçeken Yurtcan A.  
JOURNAL OF SOLID STATE CHEMISTRY, vol.296, 2021 (SCI-Expanded)
- VI. **Platinum/graphene nanoplatelets/silicone rubber composites as polymer electrolyte membrane fuel cell catalysts**  
Öztürk A., Özçelik N., Bayrakçeken Yurtcan A.  
MATERIALS CHEMISTRY AND PHYSICS, vol.260, 2021 (SCI-Expanded)
- VII. **Utilization of the graphene aerogel as PEM fuel cell catalyst support: Effect of polypyrrole (PPy) and polydimethylsiloxane (PDMS) addition**  
Öner E., Öztürk A., Bayrakçeken Yurtcan A.  
International Journal of Hydrogen Energy, vol.45, no.60, pp.34818-34836, 2020 (SCI-Expanded)
- VIII. **Investigation of synergetic effect of PDMS polymer hydrophobicity and polystyrene-silica particles roughness in the content of microporous layer on water management in PEM fuel cell**  
Öztürk A., Bayrakçeken Yurtcan A.  
APPLIED SURFACE SCIENCE, vol.511, 2020 (SCI-Expanded)

- IX. **Evaluation of Low and High Surface Area TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> Metal Oxides-Carbon Hybrids in Terms of Polymer Electrolyte Membrane Fuel Cell Catalyst Support**  
Çelik M. K., Öztürk A., Çögenli M. S., Bayrakçeken Yurtcan A.  
JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, vol.20, pp.1189-1208, 2020 (SCI-Expanded)
- X. **Synthesis of polypyrrole (PPy) based porous N-doped carbon nanotubes (N-CNTs) as catalyst support for PEM fuel cells**  
Öztürk A., Bayrakçeken Yurtcan A.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.40, pp.18559-18571, 2018 (SCI-Expanded)
- XI. **Facilitation of water management in low Pt loaded PEM fuel cell by creating hydrophobic microporous layer with PTFE, FEP and PDMS polymers: Effect of polymer and carbon amounts**  
Öztürk A., Fıçıcılar B., Eroğlu İ., Bayrakçeken Yurtcan A.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.42, no.33, pp.21226-21249, 2017 (SCI-Expanded)
- XII. **Effect of calcination temperature on hydrophobicity of microporous layers prepared with two different molecular weights of PDMS polymer on PEM fuel cell performance with low Pt loading**  
Öztürk A., Bayrakçeken Yurtcan A.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.42, no.9, pp.6250-6261, 2017 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Alternative Support Material to Platinum Catalyst Used for Oxygen Reduction Reaction: Nonporous Carbon**  
Öztürk A., Bayrakçeken Yurtcan A.  
GAZI UNIVERSITY JOURNAL OF SCIENCE, vol.36, no.4, pp.1463-1478, 2023 (ESCI)
- II. **Nonporous Carbon-Supported Platinum Catalyst for Polymer Electrolyte Membrane Fuel Cell**  
Öztürk Aydın A., Bayrakçeken Yurtcan A.  
NanoEra, vol.3, no.2, pp.53-60, 2023 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Green Hydrogen: A Clean Energy Solution for Electricity and Heat**  
Öztürk Aydın A., Bozkurt G., Daş E.  
in: Advancements in Renewable Energy and Green Hydrogen, Maria Simona Raboaca, Saheb Djohra, Omar Moussaoui, Traian Candin Mihaltan, Mustapha Koussa, Editor, IGI Global yayınevi, Pennsylvania, pp.84-105, 2024
- II. **Prospects for Hydrogen and Fuel Cells**  
Öztürk Aydın A., Bayrakçeken Yurtcan A.  
in: Prospects of Hydrogen Fueled Power Generation, Shukla Anoop Kumar, Singh Onkar, Chamkha Ali J., Sharma Meeta, Editor, River Publishers, New York, pp.81-121, 2024
- III. **Hydrogen Safety Issues: The Inherent Challenges of Hydrogen and Possible Precautions**  
Öztürk Aydın A., Bayrakçeken Yurtcan A.  
in: Hydrogen Fuel Cell Technology for Mobile Applications, Raluca Andreea Felseghi, Editor, IGI Global yayınevi, Pennsylvania, pp.207-237, 2023
- IV. **Nitrogen-Doped Graphene Foam as Carbon Composites Catalysis Catalysts: Preparation, Properties and Applications**  
Öztürk A., Bayrakçeken Yurtcan A.  
in: Carbon Composite Catalysts (Preparation, Structural and Morphological Property and Applications), Mohammad Jawaid, Anish Khan, Editor, Springer Nature, Singapore, pp.1-40, 2022
- V. **Introduction to fuel cells**  
Öztürk A., Akay R. G., Erkan S., Bayrakçeken Yurtcan A.  
in: Direct Liquid Fuel Cells Fundamentals, Advances and Future, Ramiz Gültekin Akay, Ayşe Bayrakçeken Yurtcan,

## Refereed Congress / Symposium Publications in Proceedings

- I. **PEMFC Performance of Pt Catalyst Decorated on Heat-Treated Carbon Black**  
Öztürk Aydın A., Bayrakçeken A.  
8th International Hydrogen Technologies Congress (IHTEC 2024), Diyarbakır, Turkey, 12 - 15 May 2024, pp.245-248
- II. **Physical and Electrochemical Characterization of Micro Porous Layers Prepared With Functionalized Carbon Nanotubes and Evaluation of The Use In Pem Fuel Cell**  
Öztürk A., Bayrakçeken Yurtcan A.  
ISPEC 5th International Conference on Engineering & Natural Sciences, Van, Turkey, 20 - 22 December 2019, vol.2, pp.428-435
- III. **Raw and Calcined Graphenes with Different Surface Areas as PEM Fuel Cell Catalyst Support**  
Öztürk A., Bayrakçeken Yurtcan A.  
Electrochemistry Conference - 2019, İstanbul, Turkey, 30 September - 02 October 2019, pp.66
- IV. **Synthesis of Platinum Nanocrystals in Cubic Shapes Supported on N-Doped Carbon as PEM Fuel Cell Catalyst**  
Öztürk A., Bayrakçeken Yurtcan A.  
4th International Symposium On Materials For Energy Storage and Conversion, Muğla, Turkey, 11 - 13 September 2019, pp.122-125
- V. **Synthesis of Platinum Nanocrystals in Different Shapes Assisted by Various Reductant Concentration and Utilization as PEM Fuel Cell Catalyst**  
Öztürk A., Bayrakçeken Yurtcan A.  
4th International Symposium On Materials For Energy Storage and Conversion, Muğla, Turkey, 11 - 13 September 2019, pp.132-134
- VI. **Effect of Hydrophobic PDMS-OH/CTAB Catalyst Layer Coating on Water Management in PEM Fuel Cell**  
Öztürk A., Bayrakçeken Yurtcan A.  
4th International Hydrogen Energy Congress (IHTEC-2019), Edirne, Turkey, 20 - 23 June 2019, pp.507-510
- VII. **Effects of PPy and PDMS Polymers Addition On GA as Electrical Conductivity and Hydrophobicity Improvement Agents**  
Öner E., Öztürk A., Bayrakçeken Yurtcan A.  
4th International Hydrogen Energy Congress (IHTEC-2019), Edirne, Turkey, 20 - 23 June 2019, pp.516-519
- VIII. **Improvement water management in PEM fuel cell by using microporous layer with PDMS polymer and polystyrene-silica nanoparticles**  
Öztürk A., Bayrakçeken Yurtcan A.  
ISASE 2018 International Symposium on Applied Sciences and Engineering, Erzurum, Turkey, 26 - 28 November 2018, pp.158-159
- IX. **3D Grafen Sentezi, Karakterizasyonu ve PEM Yakıt Pillerinde Kullanımı**  
Öner E., Öztürk A., Bayrakçeken Yurtcan A.  
13. Ulusal Kimya Mühendisliği Kongresi, Van, Turkey, 3 - 06 September 2018, pp.7048-7052
- X. **Utilization of Functionalized Multiwalled Carbon Nanotubes with Polypyrrole, Polyvinylpyrrolidone and Polydimethylsiloxane in Microporous Layer for PEM Fuel Cell**  
Öztürk A., Bayrakçeken Yurtcan A.  
13th Nanoscience Nanotechnology Conference, Antalya, Turkey, 22 - 25 October 2017, pp.400
- XI. **Utilization of Different Surface Area Graphenes as Catalyst Support and PDMS Polymer as Catalyst Binder in PEM Fuel Cell**  
Öztürk A., Özçelik N., Bayrakçeken Yurtcan A.  
2nd International Symposium on Materials for Energy Storage and Conversion, Nevşehir, Turkey, 26 - 28

September 2017, vol.1, pp.71

- XII. **Synthesis of Polypyrrole (PPy) based Porous N-Doped Carbon Nanotubes (N-CNTs) as Catalyst Support for PEM Fuel Cells**  
Öztürk A., Bayrakçeken Yurtcan A.  
2nd International Symposium on Materials for Energy Storage & Conversion, Nevşehir, Turkey, 26 - 28 September 2017, vol.1, pp.20
- XIII. **Investigation of PEM Fuel Cell Performance of TiO<sub>2</sub>-Carbon Composite Supported Pt Catalyst**  
Çelik M. K., Öztürk A., Çögenli M. S., Bayrakçeken Yurtcan A.  
4th Anatolian School of Catalysis, İzmir, Turkey, 11 - 14 September 2017, vol.1, pp.110-111
- XIV. **Utilization of N-Doped Carbon Materials Obtained from ZIF as Catalyst Support for PEM Fuel Cell**  
Özçelik N., Öztürk A., Bozkurt G., Çögenli M. S., Bayrakçeken Yurtcan A.  
2nd International Hydrogen Technologies Congress (IHTEC 2017), Adana, Turkey, 15 - 18 March 2017, pp.138
- XV. **Facilitation of Water Management in PEM Fuel Cell by Creating Hydrophobic Micro Porous Layer with Polytetrafluoroethylene (PTFE) and Fluorinated Ethylene Propylene (FEP) Polymers**  
Öztürk A., Bayrakçeken Yurtcan A.  
IMSEC 1st International Mediterranean Science and Engineering Congress, Adana, Turkey, 26 - 28 October 2016, vol.1, pp.3908
- XVI. **Reduced Graphene Oxide (rGO) Supported Pt Nanoparticles : Effect of Different Reducing Agents on rGO**  
Daş E., Öztürk A., Bayrakçeken Yurtcan A.  
NCC6-6th Catalysis Conference, Bursa, Turkey, 27 March - 30 April 2016, pp.44
- XVII. **PtCu/C Bimetallic Catalysts For PEM Fuel Cells**  
Öztürk A., Daş E., Bozkurt G., Bayrakçeken Yurtcan A.  
NCC6-6th Catalysis Conference, Bursa, Turkey, 27 - 30 March 2016, pp.96
- XVIII. **Superhydrophobic polydimethylsiloxane/silica coating for micro porous layer of PEM fuel cell and effects of calcination temperature on the wetting behavior**  
Öztürk A., Bayrakçeken Yurtcan A.  
mESC-IS 1st International Symposium on Materials for Energy Storage & Conversion, Ankara, Turkey, 7 - 09 September 2015, vol.1, pp.108
- XIX. **Utilization of polystyrene/SiO<sub>2</sub> core-shell particles covered with PDMS as superhydrophobic material in MPL of PEM fuel cells**  
Öztürk A., Bayrakçeken Yurtcan A.  
mESC-IS 1st International Symposium on Materials for Energy Storage & Conversion, Ankara, Turkey, 7 - 09 September 2015, vol.1, pp.107
- XX. **Experimental and modeling studies on the effect of inclusion of hydrophobic nanoparticles in cathode microporous and catalyst layer for enhanced water management in PEMFCs**  
Avcıoğlu S. G., Öztürk A., Fıçıcılar B., Bayrakçeken Yurtcan A., Kıncal S., Eroğlu İ.  
20 th World Hydrogen Energy Conference (WHEC 2014), Gwangju, South Korea, 15 - 20 June 2014, vol.2, pp.1247-1255
- XXI. **PEM Yakıt Pillerinde Su ve Isı Yönetiminin İyileştirilmesi için Hidrofobik Nanoparçacıklar ile Yüksek Performanslı ve Dayanıklı Yakıt Pili Bileşenlerinin Geliştirilmesi**  
Öztürk A., Fıçıcılar B., Eroğlu İ., Bayrakçeken Yurtcan A.  
UKMK-11 11. Ulusal Kimya Mühendisliği Kongresi, Eskişehir, Turkey, 2 - 05 September 2014, vol.1, pp.1
- XXII. **Effect of hydrophilic Organic and Inorganic Material Addition to Catalyst Layer of PEM Fuel Cell on Water Management**  
Öztürk A., Özçelik N., Bayrakçeken Yurtcan A.  
NANOTR-10 10th Nanoscience & Nanotechnology Conference, İstanbul, Turkey, 17 - 21 June 2014, vol.1, pp.223

## Supported Projects

Öztürk A., Bayrakçeken Yurtcan A., Project Supported by Higher Education Institutions, PEM Yakıt Pilleri İçin Isıl İşlem Görmüş Farklı Karbon Siyahları Destekli Pt ve PtCo Katalizörlerin Geliştirilmesi, 2021 - 2023

Kishalı N., Öztürk A., Project Supported by Higher Education Institutions, Avokado Çekirdek Ve Kabuk Ekstresinin Fotofiziksel Özelliklerinin Belirlenmesi, 2021 - 2022

BAYRAKÇEKEN A., ÖZTÜRK A., YILMAZ H., Project Supported by Higher Education Institutions, Polidimetilsiloksan PDMS Polimerinin Farklı Miktarlarda PEM Yakıt Pili Katalizör Tabakasında Uygulanması ile Hidrofobik Özelliklerin ve Pil Performansının Geliştirilmesi, 2019 - 2022

BAYRAKÇEKEN A., ÇÖGENLİ M. S., ÖZTÜRK A., Project Supported by Higher Education Institutions, MİKRODALGA YÖNTEMİYLE KARBON DESTEKLİ BİMETALİK KATALİZÖRLERİN HAZIRLANMASI VE FORMİK ASİT VE METANOL YAKIT PİLLERİ İÇİN KULLANILMASI, 2016 - 2018

BAYRAKÇEKEN A., ÇÖGENLİ M. S., ÖZTÜRK A., Project Supported by Higher Education Institutions, MCM-41 DESTEKLİ PLATİN NANOPARÇACIKLARIN SENTEZİ, KARAKTERİZASYONU VE PEM YAKIT PİLİNDE KULLANIMI, 2016 - 2017

BAYRAKÇEKEN A., ÖZTÜRK A., Project Supported by Higher Education Institutions, PEM YAKIT PİLİNDE MİKRO GÖZENEKLİ KATMAN OLARAK SÜPERHİDROFOBİK POLİDİMETİLSİLOKSAN (PDMS)/SİLİKA YÜZEY KAPLAMASININ YAPILMASI, 2015 - 2017

BAYRAKÇEKEN YURTCAN A., TUBITAK Project, PEM yakıt pillerinde su ve ısı yönetiminin iyileştirilmesi için hidrofobik nanoparçacıklar ile yüksek performanslı ve dayanıklı yakıt pili bileşenlerinin geliştirilmesi, 2013 - 2016

## Patent

Bayrakçeken Yurtcan A., Öztürk A., Ungan H., "FARKLI MİKTARLARDA HİDROFOBİK POLİDİMETİLSİLOKSAN (PDMS) POLİMERİNİN PEM YAKIT PİLİ KATALİZÖR TABAKASINDA UYGULANMASI", Patent, CHAPTER H Electricity, The Invention Recourse Number: 2019/08785 , Standard Registration, 2019

## Scientific Refereeing

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, March 2024

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, September 2022

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, August 2022

INTERNATIONAL JOURNAL OF ENERGY RESEARCH, SCI Journal, April 2022

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, February 2021

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, December 2020

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, SCI Journal, June 2018

## Metrics

Publication: 41

Citation (WoS): 193

Citation (Scopus): 195

H-Index (WoS): 7

H-Index (Scopus): 7

## Congress and Symposium Activities

8th International Hydrogen Technologies Congress (IHTEC 2024), Attendee, Diyarbakır, Turkey, 2024

ISPEC 5th International Conference on Engineering & Natural Sciences, Attendee, Van, Turkey, 2019

Electrochemistry Conference - 2019, Attendee, İstanbul, Turkey, 2019

mESC-IS 4th International Symposium on Materials for Energy Storage and Conversion, Attendee, Muğla, Turkey, 2019

ASC-5 5th Anatolian School of Catalysis, Attendee, İzmir, Turkey, 2019  
4th International Hydrogen Technologies Congress (IHTEC-2019), Attendee, Edirne, Turkey, 2019  
ISASE 2018 International Symposium on Applied Sciences and Engineering, Attendee, Erzurum, Turkey, 2018  
Bilimsel Araştırmalarda X-Işınları Analiz Teknikleri - I (biXat-2018), Attendee, Bursa, Turkey, 2018  
Ulusal Kimya Mühendisliği Kongresi (UKMK-13), Attendee, Van, Turkey, 2018  
NANOTR-13 13th Nanoscience & Nanotechnology Conference, Attendee, Antalya, Turkey, 2017  
mESC-IS 2nd International Symposium on Materials for Energy Storage & Conversion, Attendee, Nevşehir, Turkey, 2017  
ASC-4 4th Anatolian School of Catalysis, Attendee, İzmir, Turkey, 2017  
2nd International Hydrogen Technologies Congress (IHTEC-2017), Attendee, Adana, Turkey, 2017  
IMSEC 1st International Mediterranean Science and Engineering Congress, Attendee, Adana, Turkey, 2016  
NCC-6 The 6th Catalysis Conference, Attendee, Bursa, Turkey, 2016  
mESC-IS 1st International Symposium on Materials for Energy Storage & Conversion, Attendee, Ankara, Turkey, 2015  
International Summer School on Materials for Energy Storage and Conversion, Attendee, Ankara, Turkey, 2015  
UKMK-11 11. Ulusal Kimya Mühendisliği Kongresi, Attendee, Eskişehir, Turkey, 2014  
NANOTR-10 10th Nanoscience & Nanotechnology Conference, Attendee, İstanbul, Turkey, 2014

## **Scholarships**

Lisans Bölümü Snav Başarı Bursu, Foundation, 2018 - 2020  
1001 Projesi Bursiyer Öğrenci, TÜBİTAK, 2013 - 2014

## **Awards**

Öztürk A., Kimya Bölümü Bölüm Üçüncülüğü, Atatürk Üniversitesi , June 2022  
DAŞ E., ÖZTÜRK A., En İyi Poster Ödülü, International Symposium on Materials for Energy Storage and Conversion (mESC-IS 2015), September 2015

## **Non Academic Experience**

University, Atatürk Üniversitesi, Kimya Mühendisliği