

Asst. Prof. RAMİZ GÜLTEKİN AKAY

Personal Information

Office Phone: [+90 026 230 3353](tel:+900262303353) Extension: 7

Fax Phone: [+90 +90 533 315 2768](tel:+90905333152768)

Email: gultekin.akay@kocaeli.edu.tr

Web: <https://avesis.kocaeli.edu.tr/gultekin.akay>

Address: Kimya Mühendisliği Bölümü, Kocaeli Üniversitesi, Umutepe Yerleşkesi, 41380, İzmit-Kocaeli

International Researcher IDs

ORCID: 0000-0001-6625-4044

Publons / Web Of Science ResearcherID: A-8649-2018

Yoksis Researcher ID: 192183

Biography

Dr. R. Gültekin Akay kimya mühendisliği lisans derecesini Ortadoğu Teknik Üniversitesi (ODTÜ)'den 1998 yılında almıştır. 2001 yılında aynı programdan yüksek lisans ve 2008 yılında doktora derecelerini almıştır. Öğretim Üyesi Yetiştirme Programı (ÖYP) kapsamında 2009-2010 eğitim döneminde Kocaeli Üniversitesi Kimya Mühendisliğinde göreve başlamıştır. O tarihten bu yana bu bölümde yakıt pili komponent geliştirme ve elektrokimyasal teknolojiler araştırmaları yürütmüş ve yürütmektedir. Temel lisans derslerinin yanında "elektrokimyasal teknolojiler ve uygulamalar" seçmeli lisans dersi ve yüksek lisans seviyesinde "Yakıt Pili Teknolojileri ve Uygulamaları" ile "Elektrokimyasal Karakterizasyon Yöntemleri" derslerini vermektedir. Hidrojen Teknolojileri, Yakıt Pilleri, Elektroliz ve Elektrokimyasal Teknolojiler ve Karakterizasyon konularında araştırma çalışmalarına aynı kurumda devam etmektedir.

Education Information

Doctorate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2002 - 2008

Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 1998 - 2001

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 1993 - 1998

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Yakıt Pili Uygulamaları için Kompozit Membran Geliştirilmesi ve Karakterizasyonu, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2008

Postgraduate, Benzine Çalışan Motorlu Taşıtlardan Kaynaklanan Emisyonların Değerlendirilmesi, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2001

Research Areas

Hydrogen Technologies and Fuel Cells , Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Kocaeli University, Mühendislik Fakültesi, Kimya Mühendisliği, 2018 - Continues

Assistant Professor, Kocaeli University, Mühendislik Fakültesi, Kimya Mühendisliği, 2014 - 2018

Lecturer PhD, Kocaeli University, Mühendislik Fakültesi, Kimya Mühendisliği, 2008 - 2014

Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2002 - 2008

Courses

Fuel Cell Technologies and Applications, Doctorate, 2019 - 2020

Elektrochemical Technologies and Applications, Postgraduate, 2019 - 2020, 2018 - 2019

COMPUTER PROGRAMMING, Undergraduate, 2019 - 2020

Electrochemical Technology and Application, Undergraduate, 2018 - 2019

Matematik Modelleme, Undergraduate, 2017 - 2018

Advising Theses

Akay R. G., EFFECT OF MICROALGAE SUPPORT ON ELECTRICAL CONDUCTIVITY PROPERTIES IN MICROBIAL FUEL CELLS (MFCs) AND EVALUATION OF MICROALGAE DENSITY, Postgraduate, E.ÖDEK(Student), 2021

Akay R. G., DOĞRUDAN GLİSEROL YAKIT HÜCRELERİ İÇİN MEMBRAN GELİŞTİRME, Postgraduate, C.Elif(Student), 2021

Akay R. G., FARKLI DESTEK MALZEMELERİ İLE HAZIRLANMIŞ KOBALT MAKROHALKALI KATALİZÖRLERİN PEM YAKIT PİLİ TESTLERİ, Postgraduate, S.Dursun(Student), 2019

Akay R. G., ÇÖP SIZINTI SULARINDAN MİKROBİYAL YAKIT HÜCRELERİ İLE ELEKTRİK ÜRETİMİ SIRASINDA ATIKSUYUN ARITILMASI VE POLİMER ELEKTROLİT MEMBRANLARIN İNCELENMESİ, Postgraduate, Ö.Faruk(Student), 2019

Akay R. G., Doğrudan borhidrür yakıt pilleri için polivinil alkol/kitosan harman anyon değişim membranı geliştirilmesi ve karakterizasyonu, Postgraduate, T.KADIOĞLU(Student), 2019

Akay R. G., Vollaştonit dolgulu poliamitin krom kaplama sürecinin iyileştirilmesi ve termal çevrim dayanımının değerlendirilmesi, Postgraduate, H.YAZICI(Student), 2019

Akay R. G., Doğrudan sodyum borhidrür yakıt pilleri için katyon değişim membranları geliştirilmesi ve karakterizasyonu, Postgraduate, K.CAN(Student), 2018

Jury Memberships

Doctoral Examination, Doctoral Examination, Kocaeli Üniversitesi, September, 2020

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Simultaneous optimization of electric production, azo dye, and yeast wastewater treatment in microbial fuel cell: Selection of the most suitable optimal conditions by PROMETHEE**
DURNA PIŞKİN E., GENÇ N., AKAY R. G.
Renewable Energy, vol.237, 2024 (SCI-Expanded)
- II. **Compression performance of an electrochemical hydrogen compressor at low and high**

temperatures

Aykut Y., AKAY R. G., BAYRAKÇEKEN YURTCAN A.

International Journal of Hydrogen Energy, vol.75, pp.222-228, 2024 (SCI-Expanded)

- III. **Components Used in Microbial Fuel Cells for Renewable Energy Generation: A Review of Their Historical and Ecological Development**
Altın N., AKAY R. G.
Journal of Electrochemical Energy Conversion and Storage, vol.21, no.2, 2024 (SCI-Expanded)
- IV. **Investigation into the influence of boron nitride addition on the properties of SPEEK/PBI based electrolyte membrane**
Harameen H. M. A., AKAY R. G.
International Journal of Hydrogen Energy, vol.54, pp.189-199, 2024 (SCI-Expanded)
- V. **Investigation of glycerol electrooxidation activity of carbon supported PdCu bimetallic electrocatalyst**
Ağtoprak K., ÖZCAN M., AKIN A. N., AKAY R. G.
TURKISH JOURNAL OF CHEMISTRY, vol.46, no.6, pp.2102-2111, 2022 (SCI-Expanded)
- VI. **Preparation and characterization of bimetallic Pd-Zn nanoparticles on carbon for borohydride electrooxidation**
Dogan Ozcan M., AKAY R. G., ÇELİK C., AKIN A. N.
REACTION KINETICS MECHANISMS AND CATALYSIS, vol.134, no.1, pp.163-177, 2021 (SCI-Expanded)
- VII. **The effect of Ag, ZnO, and CuO nanoparticles on the properties of the compatibilized polyethylene/thermoplastic starch blend films**
Ozdemir E., ORKAN UÇAR İ., AKAY R. G., AYTAÇ A.
JOURNAL OF VINYL & ADDITIVE TECHNOLOGY, vol.27, no.3, pp.543-554, 2021 (SCI-Expanded)
- VIII. **CVD graphene supported cobalt (II) phthalocyanine as cathode electrocatalyst for PEM fuel cells**
Dursun S., AKAY R. G., Yazici M. S.
International Journal of Hydrogen Energy, vol.45, pp.34837-34844, 2020 (SCI-Expanded)
- IX. **Investigation of the performance of a direct borohydride fuel cell with low Pt/C catalyst loading under different operating conditions**
Kadioglu T., Turkmen A. C., Ata K. C., Akay R. G., Tıkız İ., Çelik C.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.45, no.60, pp.35006-35012, 2020 (SCI-Expanded)
- X. **Investigation of the effects of SPEEK and its clay composite membranes on the performance of Direct Borohydride Fuel Cell**
Ata K. C., Kadioğlu T., Türkmen A. C., Çelik C., Akay R. G.
International Journal of Hydrogen Energy, vol.45, pp.5430-5437, 2020 (SCI-Expanded)
- XI. **Evaluation of SPEEK/PBI blend membranes for possible direct borohydride fuel cell (DBFC) application**
AKAY R. G., ATA K. C., KADIOGLU T., ÇELİK C.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.40, pp.18702-18711, 2018 (SCI-Expanded)
- XII. **Effects of sulfonated polyether-etherketone (SPEEK) and composite membranes on the proton exchange membrane fuel cell (PEMFC) performance**
Erce Şengül S., Erdener H., Akay R. G., YÜCEL H., Baç N., Eroğlu I.
International Journal of Hydrogen Energy, vol.34, no.10, pp.4645-4652, 2009 (SCI-Expanded)

Articles Published in Other Journals

- I. **Simulation And Optimization Of Hydrogen Production By Steam Reforming Of Natural Gas**
KHOSHNOUDI A., Akay R. G.
Journal of the Turkish Chemical Society Section B: Chemical Engineering, vol.6, no.2, pp.123-136, 2023 (Peer-Reviewed Journal)
- II. **Chromium Coating of Wollastonite Filled Polyamide 6 and Evaluation of Thermal Cycle Strength**

Akay R. G., YAZICI H.

Journal of the Turkish Chemical Society Section B: Chemical Engineering, vol.6, no.2, pp.107-122, 2023 (Peer-Reviewed Journal)

Books & Book Chapters

- I. **Enerji Dönüşümünde Hidrojen**
AKAY R. G., GÜRÜN Z., Çavdar I., Dilaver M., Ercan N., Gezerman A. O., Kızıldaş R., Şahin K. Y.
TMMOB Kimya Mühendisleri Odası, Ankara, 2022
- II. **Direct Liquid Fuel Cells**
AKAY R. G., BAYRAKÇEKEN YURTCAN A.
ELSEVIER, London, 2021
- III. **Ch9-Introduction to inorganic fuel-based direct liquid fuel cells**
AKAY R. G., KADIOĞLU T.
in: Direct Liquid Fuel Cells-Fundamentals, Advances and Future, Akay, Ramiz Gültekin, Yurtcan, Ayşe Bayrakçeken, Editor, Academic Press , Londrina, pp.1-8, 2020
- IV. **Chapter 13 - Conclusions: Current state and future**
AKAY R. G., BAYRAKÇEKEN YURTCAN A.
in: Direct Liquid Fuel Cells: Fundamentals, Advances and Future, AKAY R, BAYRAKÇEKEN YURTCAN A, Editor, Academic Press , pp.275-305, 2020
- V. **Ch1-Introduction to fuel cells**
ÖZTÜRK A., AKAY R. G., Erkan S., BAYRAKÇEKEN YURTCAN A.
in: Direct Liquid Fuel Cells Fundamentals, Advances and Future, Akay Ramiz Gültekin, Yurtcan Ayşe Bayrakçeken, Editor, Academic Press , pp.1-47, 2020
- VI. **Ch13-Conclusions: Current state and future**
AKAY R. G., KADIOĞLU T.
in: Direct Liquid Fuel Cells- Fundamentals, Advances and Future, Akay Ramiz Gültekin, Yurtcan Ayşe Bayrakçeken, Editor, Academic Press , pp.1-33, 2020

Refereed Congress / Symposium Publications in Proceedings

- I. **YAŞLANDIRMAYA MARUZ KALMIŞ POLİPROPİLEN ŞERİT İPLİKLERİN MEKANİK ÖZELLİKLERİNİN İNCELENMESİ**
Çoban S., Şahin T., Akay R. G.
12. ULUSLARARASI MÜHENDİSLİK MİMARLIK VE TASARIM KONGRESİ, Samsun, Turkey, 23 - 25 December 2023, pp.1
- II. **Developments in the use of Functionalized Boron Nitride in Composite Membranes for PEM Fuel Cells Applications**
AKAY R. G., Huzaifa Mohammed Adam H.
7 th International Symposium on Materials for Energy Storage and Conversion, Muğla, Turkey, 17 July 2023
- III. **INVESTIGATION OF WASTE WATER IN VARIOUS SECTORS AND INVESTIGATION OF THE PERFORMANCE OF IDENTIFIED WASTE WATER IN MICROBIAL FUEL CELLS**
AKAY R. G., YAYLA M.
VI. HAGIA SOPHIA INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY SCIENTIFIC STUDIES, İstanbul, Turkey, 02 June 2023
- IV. **INVESTIGATION OF LOW-TEMPERATURE POLYMER ELECTROLYTE MEMBRANE FOR ELECTROCHEMICAL HYDROGEN COMPRESSOR**
Türkmen A. C., Meydan C. E., Ađtoprak K., Acidereli H., Akay R. G., Kibar M. E., Çelik C.
23th World Hydrogen Energy Conference (WHEC 2022), İstanbul, Turkey, 26 June 2022, pp.80

- V. **Investigation of carbon supported PdCu catalyst activity in glycerol electrooxidation**
Ağtoprak K., Doğan Özcan M., Akın A. N., Akay R. G.
NCC-8 National Catalysis Congress, 8. Ulusal Kataliz Kongresi, Ankara, Turkey, 9 - 12 September 2021, pp.106
- VI. **"Doğrudan gliserol yakıt hücreleri için karbon destekli PdCu katalizörünün sentezi ve karakterizasyonu"**
AKAY R. G., AKIN A. N., AĞTOPRAK K., ÖZCAN M. D.
International Congress OF ACADEMIC RESEARCH, ONLINE, Turkey, 23 August 2021
- VII. **Low-Cost Membrane-Electrode-Assembly (MEA) Production for Direct Borohydride Fuel Cell**
Ata K. C., Çağlayan İ., Türkmen A. C., Kadioğlu T., Akay R. G., Çelik C.
5th International Hydrogen Technologies Congress - Online, Niğde, Turkey, 26 - 28 May 2021, pp.61-63
- VIII. **Sitrik Asit İle Çapraz Bağlanmış Yeni Nanofibril Selüloz Esaslı Hidrojeller**
BEKTAŞ Ç., ÖZKOÇ G., AKAY R. G.
2nd International Eurasian Conference on Science, Engineering and Technology, Gaziantep, Turkey, 7 - 09 October 2020
- IX. **INVESTIGATION OF THE EFFECTS OF METAL NANOPARTICULES ON THE PROPERTIES OF COMPATIBILIZED PE TPS FILMS**
Özdemir E., AKAY R. G., AYTAÇ A.
9th International Conference on Advanced Technologies, (ICAT'xx20), İstanbul, Turkey, 10 - 12 August 2020
- X. **METAL NANOPARTİKÜL KARIŞIMLARININ UYUMLAŞTIRILMIŞ PE/TPS FİMLERİNE ETKİSİ,**
Özdemir E., AKAY R. G., AYTAÇ A.
International Marmara Sciences Congress (Spring), Kocaeli, Turkey, 19 - 20 June 2020
- XI. **CVD Graphene Supported CobaltMacrocylic Complex as Electrocatalyst for PEM Fuel Cell**
AKAY R. G., DURSUN S., YAZICI M. S.
4th International Hydrogen Technologies Congress, Edirne, Turkey, 20 - 23 June 2019, pp.90-93
- XII. **Investigation of the Performance of a Direct Borohydride Fuel Cell with Low Pt/CCatalyst Loading**
ÇELİK C., TIKIZ İ., AKAY R. G.
4th International Hydrogen Technologies Congress (IHTEC-2019), 20 - 23 June 2019
- XIII. **Investigation of applicability of PVA based membranes sulfated by different sulfonation agents for DMFC**
Yenihan Yüzer N., Tuncay K., AKAY R. G., HİLMİOĞLU N.
4th International Hydrogen Technologies, 20 - 23 June 2019, pp.125
- XIV. **Comparison of Pd-Co/C Catalysts Prepared By Modified Polyol and Supercritical CO₂ Deposition Methods for Direct Borohydride Fuel Cells**
gözlü c., AKAY R. G., AKIN A. N., ULUSAL F., GÜZEL B., ERÜNAL E.
4 Edirne, Turkey th International Hydrogen Technologies Congress, Edirne, Turkey, 20 - 23 June 2019
- XV. **Kinetics of Sodium Borohydride Oxidation Reaction on Carbon-Supported Pd-Zn Catalysts**
Özcan M. D., ÇELİK C., AKAY R. G., AKIN A. N.
4th International Hydrogen Technologies Congress, Edirne, Turkey, 20 - 23 June 2019, pp.219
- XVI. **Preparation And Characterization Of Polyvinyl Alcohol/Chitosan Blend Membranes For Direct Borohydride Fuel Cells**
AKAY R. G., ÇELİK C., KADIOĞLU T., Turkmen A. C.
22nd World Hydrogen Energy Congress (WHEC 2018), Rio de Janeiro, Brazil, 17 - 20 June 2018
- XVII. **Development Of Novel Cation Exchange Blend Membranes For Direct-Abstract**
AKAY R. G., ÇELİK C., Turkmen A. C., Ata K. C.
22nd World Hydrogen Energy Congress (WHEC 2018), Rio de Janeiro, Brazil, 17 - 20 June 2018
- XVIII. **Preparation And Characterization Of Carbon-Supported Pd-Zn Nanoparticles As Anode Catalyst For Direct Borohydride Fuel Cell**
DOĞAN ÖZCAN M., ÇELİK C., AKIN A. N., AKAY R. G.
22nd World Hydrogen Energy Congress (WHEC 2018), Rio-De-Janeiro, Brazil, 17 - 22 June 2018
- XIX. **Development and Electrochemical Characterization of Pd-Co/C Bimetallic Alloy Electrocatalysts**
GÖZLÜ C., ÇELİK C., AKIN A. N., AKAY R. G.

22nd World Hydrogen Energy Congress (WHEC 2018), Rio-De-Janeiro, Brazil, 17 - 22 June 2018

- XX. **Electricity Generation and Wastewater Treatment with Microbial Fuel Cells Using Homemade Beer Wastewater**
AKAY R. G., COŞKUN Ö. F.
3rd International Hydrogen Technologies Congress, ALANYA, Turkey, 15 March 2018
- XXI. **Preparation and Characterization of Polyvinyl Alcohol/Chitosan Blended Anion Exchange Membranes for Direct Borohydride Fuel Cells**
AKAY R. G., KADIOĞLU T., ÇELİK C.
3. International Hydrogen Technologies Congress, ALANYA, Turkey, 15 March 2018
- XXII. **Electrochemical Characterization of Carbon-Supported Bimetallic PdZn Nanoparticles as-Tam metin**
AKAY R. G., AKIN A. N., ÇELİK C., Özcan M. D.
3. International Hydrogen Technologies Congress, ALANYA, Turkey, 15 - 18 March 2018
- XXIII. **A Comparative Study on the Determination of Borohydride Permeability of Cation Exchange Membranes for DBFC**
AKAY R. G., ÇELİK C., Ata K. C., Kadioğlu T.
3. International Hydrogen Technologies Congress, ALANYA, Turkey, 15 - 18 March 2018
- XXIV. **Novel Pd-Co/C Bimetallic Alloy Electrocatalyst for Direct Borohydride Fuel Cell**
GÖZLÜ C., ÇELİK C., AKIN A. N., AKAY R. G.
3rd International Hydrogen Technologies Congress (IHTEC-2018), Alanya, Turkey, 15 - 18 March 2018
- XXV. **Electrochemical Characterization of Carbon-Supported Bimetallic Pd-Zn Nanoparticles as Anode Catalyst for Direct Borohydride Fuel Cells**
AKAY R. G., ÖZCAN DOĞAN M., ÇELİK C., AKIN A. N.
3rd International Hydrogen Technologies Congress (IHTEC-2018), Alanya, Turkey, 15 - 18 March 2018
- XXVI. **Novel Direct Borohydride Fuel Cell Membranes Based on Polybenzimidazoleand Sulfonated Polyether-ether-ketone**
AKAY R. G., Ata K. C., Çelik C.
2nd Int. Symposium on Materials for Energy Storage and Conversion, Nevşehir, Turkey, 26 - 28 September 2017
- XXVII. **Development of a Direct Borohydride Fuel Cell (DBFC) Consisting of Novel Membrane Electrode Assemblies**
GÖZLÜ C., AKAY R. G., ÇELİK C., AKIN A. N.
nd World Conference On Technology, Innovation and Enterpreneurship, 12 - 14 May 2017
- XXVIII. **Producibility of Bio hydrogen from Organic Fraction of Municipal Solid Waste Using Dry Fermentation and Tri Reforming Techniques in Kocaeli**
KAPLAN Ö., YİĞİT K. S., AKAY R. G., AKIN A. N.
The 13th International Conference on Clean Energy (ICCE-2014), 8 - 10 June 2014
- XXIX. **Producibility of bio hydrogen from organic fraction of municipal solid waste using dry fermentation and tri reforming techniques in Turkey**
KAPLAN Ö., YİĞİT K. S., AKAY R. G., AKIN A. N.
13th International Conference on Clean Energy, İstanbul, Turkey, 8 - 12 June 2014
- XXX. **Composite and blend membranes for Direct Methanol Fuel Cells DMFC Effects on proton conductivity and methanol permeability**
AKAY R. G., HİLMİOĞLU N., ÜNLÜ D.
13th International Conference on Clean Energy, 8 - 12 June 2014, pp.86
- XXXI. **Hidrojen Sülfürden Elektroliz Yöntemi İle Hidrojen Üretim Teknolojisinin İncelenmesi**
Özcan O., Akay R. G., Akın A. N.
İleri Teknolojiler Çalıştayı (İTÇ 2011), İstanbul, Turkey, 09 December 2011, pp.81-88

Expert Reports

I. BİLİRKİŞİ RAPORU

Akay R. G.

T.C. KOCAELİ 1. ASLİYE TİCARET MAHKEMESİ, pp.13, Kocaeli, 2018

II. BİLİRKİŞİ RAPORU

Akay R. G.

GEBZE 4. İŞ MAHKEMESİ , pp.11, Kocaeli, 2018

Metrics

Publication: 56

Citation (WoS): 214

Citation (Scopus): 219

H-Index (WoS): 6

H-Index (Scopus): 6