

## Asst. Prof. MUHİTTİN BİLGİLİ

### Personal Information

**Office Phone:** [+90 312 582 3405](tel:+903125823405)

**Email:** [bilgili@gazi.edu.tr](mailto:bilgili@gazi.edu.tr)

**Web:** <https://avesis.gazi.edu.tr/bilgili>

**Address:** Gazi Üniversitesi, Mühendislik Fakültesi, Makina Müh. Bölümü, Eti Mah. Yükseliş Sok. No: 5, 06570 Maltepe / Ankara

### International Researcher IDs

ScholarID: VqoGn2cAAAAJ

ORCID: 0000-0003-0692-8646

Publons / Web Of Science ResearcherID: AAG-3851-2021

ScopusID: 56458100300

Yoksis Researcher ID: 46701

### Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (Dr), Turkey 2003 - 2011

Postgraduate, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (YI) (Tezli), Turkey 2001 - 2003

Undergraduate, Gazi University, Mühendislik Fakültesi, Makina Mühendisliği, Turkey 1995 - 2000

### Dissertations

Doctorate, Akış kanalları içerisindeki yarı silindirik blokların PEM yakıt pili performansına etkisinin üç boyutlu analizi, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (Dr), 2011

Postgraduate, Metal hidrid yataklarında hidrojen soğurulmasının sayısal analizi, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (YI) (Tezli), 2003

### Research Areas

Mechanical Engineering, Energy, Renewable Energy Systems, Energy storage technologies, Hydrogen Technologies and Fuel Cells, Heat and Mass Transfer, Heating, Refrigerating and Air Conditioning, Computational fluid dynamics, Thermal Systems, Engineering and Technology

### Academic Titles / Tasks

Assistant Professor, Gazi University, Mühendislik Fakültesi, Makina Mühendisliği, 2014 - Continues

Research Assistant, European Commission, Institute for Energy (The NETHERLANDS), Clean Energy Unit, 2012 - 2013

Research Assistant, Gazi University, Mühendislik Fakültesi, Makina Mühendisliği, 2001 - 2013

Research Assistant, ENEA, Casaccia Research Center (Roma-ITALY), Hydrogen and Fuel Cell Project, 2004 - 2005

### Academic and Administrative Experience

Erasmus Program Department Coordinator, Gazi University, Mühendislik Fakültesi, Makina Mühendisliği, 2019 -

Continues

Deputy Head of Department, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2016 - 2017

## Courses

ME309 Heat Transfer, Undergraduate, 2021 - 2022  
MM5481 PRINCIPLES OF FUEL CELLS, Postgraduate, 2021 - 2022, 2020 - 2021  
ME102 Introduction to Engineering Programming, Undergraduate, 2021 - 2022  
ME479 Process Heat Transfer, Undergraduate, 2021 - 2022  
ME108 Introduction to Mech. Engineering, Undergraduate, 2021 - 2022, 2017 - 2018  
MM215E DIFFERENTIAL EQUATIONS, Undergraduate, 2017 - 2018, 2016 - 2017  
MM548 YAKIT PİLİ PRENSİPLERİ, Postgraduate, 2017 - 2018, 2016 - 2017  
MM401 Isıl Çevre Mühendisliği, Undergraduate, 2017 - 2018  
MM102 MÜHENDİSLİKTE PROGRAMLAMAYA GİRİŞ, Undergraduate, 2017 - 2018  
MM313E INT. TO NUMERICAL ANALYSIS, Undergraduate, 2016 - 2017

## Advising Theses

Bilgili M., Yüksek güç tüketen elektronik bileşenlerin doğrudan hava akışı ile soğutulmasına kanatçık geometri etkisinin incelenmesi, Postgraduate, Y.TEKİN(Student), 2024  
Bilgili M., Investigation of the effect of initial pressure and inlet temperature in the filling process of the compressed hydrogen cylinder on the final temperature and stored hydrogen mass, Postgraduate, M.MERCAN(Student), 2023  
BİLGİLİ M., Cooling Of Electronic Boards Used In Plug-In Modules By Air Flow Through Method, Postgraduate, B.BÜŞRA(Student), 2019  
BİLGİLİ M., Investigation Of The Effects Of Different Compression Methods On Pem Fuel Cell Performance, Postgraduate, A.UZUNDURUKAN(Student), 2019  
BİLGİLİ M., Effect Of Bipolar Plate Gas Flow Channel Pattern Design On The Performance Of Proton Exchange Membrane Fuel Cell, Postgraduate, C.YILMAZ(Student), 2018

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

- I. **Investigation of the effect of operating parameters on Nernst voltage in hydrogen-oxygen fuel cells**  
Bilgili M., Gönülaçar Y. E.  
ISI BILIMI VE TEKNİĞİ DERGİSİ/ JOURNAL OF THERMAL SCIENCE AND TECHNOLOGY, vol.44, no.1, pp.59-69, 2024 (SCI-Expanded)
- II. **Numerical and experimental investigation of fin height effect in plug-in modules cooled by direct airflow through method**  
Tekin Y., Bilgili M.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.39, no.4, pp.2617-2630, 2024 (SCI-Expanded)
- III. **Effects of real gas equations on the fast-filling process of compressed hydrogen storage tank**  
Bilgili M., Yumşakdemir R. F.  
International Journal of Hydrogen Energy, vol.53, pp.816-828, 2024 (SCI-Expanded)
- IV. **IMPACT OF FILLING RATIO AND CELLULOSE NANOFIBER NANOFUID ON THE TOTAL THERMAL RESISTANCE AND THE STARTUP OF A MINIATURE THERMOSYPHON**  
Mekcem M., Berkani M., BİLGİLİ M.  
Heat Transfer Research, vol.55, no.17, pp.1-12, 2024 (SCI-Expanded)
- V. **Examination of compression effects on PEMFC performance by numerical and experimental analyses**

- Uzundurukan A., BİLGİLİ M., Devrim Y.  
International Journal of Hydrogen Energy, vol.45, no.60, pp.35085-35096, 2020 (SCI-Expanded)
- VI. **3D NUMERICAL ANALYSIS OF PEM FUEL CELL AT DIFFERENT MEA THICKNESSES AND OPERATING PRESSURE CONDITIONS**  
BİLGİLİ M., Sivrioglu M.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.31, no.1, pp.51-63, 2016 (SCI-Expanded)
- VII. **Gas flow field with obstacles for PEM fuel cells at different operating conditions**  
Bilgili M., Bosomoiu M., Tsotridis G.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.40, no.5, pp.2303-2311, 2015 (SCI-Expanded)
- VIII. **How carbon affects hydrogen desorption in NaAlH<sub>4</sub> and Ti-doped NaAlH<sub>4</sub>**  
Cento C., Gislou P., Bilgili M., Masci A., Zheng Q., Prosini P. P.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.437, pp.360-366, 2007 (SCI-Expanded)
- IX. **Numerical analysis of hydrogen absorption in a P/M metal bed**  
Bilgili M., Ataer O.  
POWDER TECHNOLOGY, vol.160, no.2, pp.141-148, 2005 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Investigation of the Effect of Stoichiometry Ratio on Two-Cell PEM Fuel Cell Stack Performance**  
Cellek M. S., Bilgili M.  
Gazi Üniversitesi Fen Bilimleri Dergisi Part: C Tasarım ve Teknoloji, vol.9, no.1, pp.134-147, 2021 (Peer-Reviewed Journal)
- II. **İki Hücreli PEM Yakıt Pili Yığının Sayısal Analizi**  
Arıç T., Bilgili M., Özsunar A.  
Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji, vol.7, no.4, pp.999-1011, 2019 (Peer-Reviewed Journal)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Plaka Kanatçıklı Takılabilir Modüllerde Kanatçık Kalınlığının ve Kanatçık Sayısının Isı Transferine Olan Etkisinin Sayısal ve Analitik Olarak İncelenmesi**  
Tekin Y., Bilgili M.  
ULIBTK'24 Uluslararası Katılımlı 23. Isı Bilimi ve Tekniği Kongresi, Ankara, Turkey, 6 - 08 September 2023, vol.2, pp.1043-1051
- II. **Investigation of Initial Pressure and Inlet Temperature on Filling Process of Pressurized Hydrogen Cylinder**  
Mercan M., Bilgili M.  
7th International Hydrogen Technologies Congress, Elazığ, Turkey, 10 - 12 May 2023, pp.29-32
- III. **Effects of nanofluids on capillary limit in heat pipes**  
Mekcem M., Bilgili M., Berkani M.  
1st International Conference on Applied Engineering and Natural Sciences (ICAENS), Konya, Turkey, 1 - 03 November 2021, vol.1, pp.213
- IV. **PEM Yakıt Pillerinde Su İçeriğinin Hücre Performansı Üzerine Etkilerinin Sayısal İncelenmesi**  
Günüşen H., BİLGİLİ M., ÖZSUNAR A.  
22. Isı Bilimi ve Tekniği Kongresi (ULIBTK 2019), Kocaeli, Turkey, 11 - 14 September 2019, vol.3, pp.131-136
- V. **Investigation of Compression Pressure Distribution of Proton Exchange Membrane Fuel Cell**  
Uzundurukan A., BİLGİLİ M., DEVRİM Y.  
4th International Hydrogen Technologies Congress (IHTEC-2019), Edirne, Turkey, 20 - 23 June 2019, pp.48-51

- VI. **Takılabilir Modüllerde Kullanılan Elektronik Kartların Doğrudan Hava Akışı ile Soğutulmasının İncelenmesi**  
Samet B. B., BİLGİLİ M.  
3rd International Symposium on Innovative Approaches in Scientific Studies (ISAS 2019), Ankara, Turkey, 19 - 21 April 2019, pp.316-322
- VII. **Effects of Support Type on a 3-D CFD Modelled Hydrogen Fed Planar SOFC**  
Görürüymaz M. T., BİLGİLİ M.  
16th International Conference on Clean Energy (ICCE-2018), Gazimagusa, Cyprus (Kkct), 9 - 11 May 2018, pp.1-10
- VIII. **Effect of Bipolar Plate Gas Flow Channel Pattern on Proton Exchange Membrane Fuel Cells Performance**  
Yılmaz C., BİLGİLİ M., DEVRİM Y.  
3rd International Hydrogen Technologies Congress, Alanya, Turkey, 15 - 18 March 2018, pp.40-44
- IX. **3-D Modelling of a Single PEM Fuel Cell at the Different Stoichiometric Conditions**  
BİLGİLİ M., Görürüymaz M. T.  
8th International Advanced Technologies Symposium, Elazığ, Turkey, 19 - 22 October 2017, vol.13, pp.2739-2745
- X. **A 3-D CFD Modelling of Different Flow Types for an Anode Supported Hydrogen Fed SOFC**  
BİLGİLİ M., Görürüymaz M. T.  
8th International Advanced Technologies Symposium, Elazığ, Turkey, 19 - 22 October 2017, vol.13, pp.2715-2723
- XI. **Methods of Hydrogen Storage in Energy Conversion Systems**  
BİLGİLİ M.  
2nd International Hydrogen Technologies Congress, Adana, Turkey, 15 - 18 March 2017, pp.96-101
- XII. **X ray computed tomography of gas diffusion layers of PEM fuel cells Determination of the effective thermal conductivities**  
BİLGİLİ M., Bosomoiu M., Tsotridis G.  
International Conference on Thermophysical and Mechanical Properties of Advanced Materials, İzmir, Turkey, 12 - 15 June 2014
- XIII. **Cost Benefit Analysis of Wind Turbines in Smart Grid Systems**  
Colak I., AYAZ M. S., BİLGİLİ M., BORAN K.  
16th International Power Electronics and Motion Control Conference and Exposition (PEMC), Antalya, Turkey, 21 - 24 September 2014, pp.1295-1299

## Supported Projects

Bilgili M., Gönülaçar Y. E., Project Supported by Higher Education Institutions, Elektrikli Taşıtlardaki Bataryanın Soğutucu Plakasında Kullanılan ZnO-TiO<sub>2</sub>-Su Hibrit Nanoakışkanının Soğutma Performansına Etkisinin Sayısal ve Deneysel Olarak İncelenmesi, 2023 - 2025

## Metrics

Publication: 27

Citation (WoS): 112

Citation (Scopus): 127

H-Index (WoS): 5

H-Index (Scopus): 5

## Scholarships

2219 - Yurt Dışı Doktora Sonrası Araştırma Burs Programı, TÜBİTAK, 2012 - 2013

## **Non Academic Experience**

European Commission, European Commission, Joint Research Centre (JRC) (Energy Institute), Clean Energy Unit  
ITALYA ENEA-Roma Casaccia Arařtırma Merkezi