

# Prof. ATILLA BIYIKOĞLU

## Personal Information

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## International Researcher IDs

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## Biography

Gazi Üniversitesi Mühendislik Mimarlık Fakültesi Makina Mühendisliği Bölümü'nden 1989 yılında lisans derecesi aldı. 1992 yılında Orta Doğu Teknik Üniversitesi Makina Mühendisliği Bölümü'nden Yüksek Lisans derecesi ve 1998 yılında Gazi Üniversitesi Makina Mühendisliği Bölümü'nden doktora derecesi aldı. 2003-2007 Yılları arasında Yardımcı Doçent, 2007-2013 yılları arasında Doçent olarak Gazi Üniversitesi Makina Mühendisliği Bölümü'nde görev yaptı, ve 2013-2017 yılları arasında Gazi Üniversitesi Makina Mühendisliği Bölüm Başkanı olarak görev yaptı.

Gazi Üniversitesi Temiz Enerji Araştırma ve Uygulama Merkezi (TEMENAR)'nin kurucuları arasındadır ve 2018 yılından bu yana başkan yardımcısı olarak görev yapmaktadır. 2018 -2021 yılları arasında Türk Isı Bilimi ve Tekniği Derneği (TIBTD) Başkanı olarak görev yapmıştır. American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) Turkish Chapter 2019-20 dönem başkanı olarak görev yapmıştır. Halen ASHRAE Turkish Chapter 2020-21 dönem başkanı olarak görevine devam etmektedir. Termodinamik kanunların uygulamaları, entropi üretimi, yanma, reaktif akışlar, yakıt hücreleri, bor üretimi, doğal taşınım, soğutma sistemleri ve kömür gazlaştırması alanlarında çalışmaları bulunmaktadır.

## Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (Dr), Turkey 1992 - 1998

Postgraduate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Makine Mühendisliği (YI) (Tezli), Turkey 1989 - 1992

Undergraduate, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey 1984 - 1989

## Foreign Languages

English, C1 Advanced

## Dissertations

Doctorate, Sabit yataklı bir kazandaki yanmanın matematiksel modellemesi, Gazi University, Fen Bilimleri Enstitüsü, Makine Mühendisliği (Dr), 1998

Postgraduate, Termodinamik analysis and optimization of a thermal energy storage system, Middle East Technical University, Analiz ve Fonksiyonlar Teorisi, Makine Mühendisliği (YI) (Tezli), 1992

## Research Areas

Mechanical Engineering, Energy, Fluid Mechanics, Pressure Vessels and Piping, Pipeline Engineering and Technology, Conventional Energy Systems and Their Technology, Fluid Machinery, Renewable Energy Systems, Alternative Energy Resources, Energy storage technologies, Solar energy, Hydrogen Technologies and Fuel Cells , Advanced Energy Technologies, Geothermal energy, Wind power, Thermodynamics, Heat and Mass Transfer, Fuels and Combustion, Heating, Refrigerating and Air Conditioning, Computational fluid dynamics, Thermal Systems, Thermal machines, Engineering and Technology

## Academic Titles / Tasks

Professor, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2013 - Continues  
Associate Professor, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2007 - 2013  
Assistant Professor, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2003 - 2007  
Lecturer, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2002 - 2003  
Research Assistant, Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 1989 - 2002

## Academic and Administrative Experience

Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2013 - 2016  
Gazi University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2013 - 2016

## Advising Theses

BIYIKOĞLU A., Performance Analysis Of An Organic Rankine Cycle System Using Concentrated Solar System Coupled With Photovoltaic Panels, Postgraduate, M.ÖZ(Student), 2020  
BIYIKOĞLU A., Investigation Of The Effect Of Synthetic Jet Use On Wing Flow For Control Of Unmanned Aircraft, Postgraduate, V.AŞICI(Student), 2019  
BIYIKOĞLU A., Determination Of U-Value Limits Based On Cost Effectiveness For Residential Buildings In Turkey Under The Effect Of Heating And Cooling, Postgraduate, N.AYDIN(Student), 2019  
BIYIKOĞLU A., Analytical Investigation Of The Effects Of Oxidation Formation On Heat Transfer Under The Effect Of Spray Cooling, Postgraduate, H.GEZER(Student), 2019  
BIYIKOĞLU A., Design Of A Building Which Produces Self Electricity With The Organic Rankine Cycle System With Storage Module Supported, Postgraduate, A.ARIK(Student), 2019  
BIYIKOĞLU A., The Aerothermodynamical Design And Simulation Of Radial Turbines Used In Low Temperature Organic Rankine Cycle, Postgraduate, M.Erbaş(Student), 2016  
BIYIKOĞLU A., Düşük sıcaklık organik rankine çevrim uygulamalarında kullanılan radyal türbinin aerotermodinamik tasarımı ve simülasyonu, Postgraduate, M.ERBAŞ(Student), 2016  
BIYIKOĞLU A., An Analytical Solution Of A 2-D Model Of Cathode Side For A Proton Exchange Membrane Fuel Cell, Postgraduate, S.ÇETİN(Student), 2015  
BIYIKOĞLU A., Thermodynamic analysis of geothermal sourced power production system, Postgraduate, R.YALÇINKAYA(Student), 2012  
BIYIKOĞLU A., A numerical analysis of heat transfer in a micro channel heat sink, Postgraduate, İ.BURAK(Student), 2012  
BIYIKOĞLU A., NUMERICAL SOLUTION OF A PROTON EXCHANGE MEMBRANE FUEL CELL WITH STRAIGHT CHANNELS, Postgraduate, C.ÖZGE(Student), 2007  
BIYIKOĞLU A., THE EFFECT OF BAFFLE BLOCKS IN FLOW CHANNEL TO PROTON EXCHANGE MEMBRANE FUEL CELL CHARACTERISTICS, Postgraduate, H.ÖZTOPRAK(Student), 2007  
BIYIKOĞLU A., Disodyum tetraborat üretiminde kullanılacak bir fırının tasarımı ve imalatı, Postgraduate, E.YEKSAN(Student), 2006  
BIYIKOĞLU A., Proton geçiren membranlı bir yakıt hücresinin katot tarafının 1-b modelinin analitik çözümü,

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

- I. **The effects of CuO/CeO<sub>2</sub> mixture nanoparticles on the performance of a vapor compression refrigeration system**  
Mohamed H. A., ÇAMDALI Ü., BIYIKOĞLU A., AKTAŞ M.  
SCIENTIFIC REPORTS, vol.12, no.1, 2022 (SCI-Expanded)
- II. **Performance analysis of R134a vapor compression refrigeration system based on CuO/CeO<sub>2</sub> mixture nanorefrigerant**  
Mohamed H. A., ÇAMDALI Ü., BIYIKOĞLU A., Aktas M.  
JOURNAL OF THE BRAZILIAN SOCIETY OF MECHANICAL SCIENCES AND ENGINEERING, vol.44, no.5, 2022 (SCI-Expanded)
- III. **Determination of optimum PV/T configuration on horizontal plane for maximum exergy output**  
Bas H., BIYIKOĞLU A., Kilkis B.  
INTERNATIONAL JOURNAL OF EXERGY, vol.39, no.3, pp.280-302, 2022 (SCI-Expanded)
- IV. **Enhancing the Performance of a Vapour Compression Refrigerator System Using R134a with a CuO/CeO<sub>2</sub> Nano-refrigerant**  
Mohamed H., ÇAMDALI Ü., BIYIKOĞLU A., Actas M.  
STROJNISKI VESTNIK-JOURNAL OF MECHANICAL ENGINEERING, vol.68, no.6, pp.395-410, 2022 (SCI-Expanded)
- V. **Development of thermal model for the determination of SLM process parameters**  
ÖKTEN K., BIYIKOĞLU A.  
OPTICS AND LASER TECHNOLOGY, vol.137, 2021 (SCI-Expanded)
- VI. **Determination of optimum insulation thickness by life cycle cost analysis for residential buildings in Turkey**  
Aydin N., BIYIKOĞLU A.  
SCIENCE AND TECHNOLOGY FOR THE BUILT ENVIRONMENT, vol.27, no.1, pp.2-13, 2021 (SCI-Expanded)
- VII. **HEAT REMOVAL IMPROVEMENT IN AN ENCLOSURE WITH ELECTRONIC COMPONENTS FOR AIR CONDITIONING DEVICES**  
YILMAZOĞLU M. Z., Gokalp O., BIYIKOĞLU A.  
JOURNAL OF ENHANCED HEAT TRANSFER, vol.26, no.1, pp.1-14, 2019 (SCI-Expanded)
- VIII. **EFFECT OF AIR BUBBLE INJECTION ON THE OVERALL HEAT TRANSFER COEFFICIENT**  
Oktent K., BIYIKOĞLU A.  
JOURNAL OF ENHANCED HEAT TRANSFER, vol.25, no.3, pp.195-210, 2018 (SCI-Expanded)
- IX. **Design and multi-objective optimization of organic Rankine turbine**  
ERBAŞ M., BIYIKOĞLU A.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.40, no.44, pp.15343-15351, 2015 (SCI-Expanded)
- X. **Effects of different reservoir conditions on carbon-dioxide power cycle**  
BIYIKOĞLU A., Yalcinkaya R.  
ENERGY CONVERSION AND MANAGEMENT, vol.72, pp.125-133, 2013 (SCI-Expanded)
- XI. **ON USAGE OF SUPER-CRITICAL CARBON-DIOXIDE IN A GEOTHERMAL POWER CYCLE**  
Yalcinkaya R., BIYIKOĞLU A.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.27, no.3, pp.557-568, 2012 (SCI-Expanded)
- XII. **A parametric study on coal gasification for the production of syngas**  
GÜNGÖR A., Ozbayoglu M., KASNAKOĞLU C., BIYIKOĞLU A., Uysal B. Z.  
CHEMICAL PAPERS, vol.66, no.7, pp.677-683, 2012 (SCI-Expanded)
- XIII. **Enhancement of cell characteristics via baffle blocks in a proton exchange membrane fuel cell**  
BIYIKOĞLU A., Oztoprak H.  
SADHANA-ACADEMY PROCEEDINGS IN ENGINEERING SCIENCES, vol.37, no.2, pp.207-222, 2012 (SCI-Expanded)

## Articles Published in Other Journals

- I. **RESEARCH ON THE INFLUENCE OF ONION OIL AS ADDITIVE ON THE OPERATION OF DIESEL ENGINE POWERED BY BIODIESEL**  
Kapilan N., BIYIKOĞLU A., Reddy R. P.  
Journal of Chemical Technology and Metallurgy, vol.59, no.5, pp.1139-1144, 2024 (Scopus)
- II. **Determination of Optimum Insulation Thickness Based on Heating Load by Life-Cycle Cost Analysis for Residential Buildings in Turkey**  
Aydin N., BIYIKOĞLU A.  
JOURNAL OF POLYTECHNIC-POLITEKNİK DERGISI, vol.22, no.4, pp.901-911, 2019 (ESCI)
- III. **Parametric Study of A Single Cell Proton Exchange Membrane Fuel Cell For A Bundle of Straight Gas Channels**  
BIYIKOĞLU A., Alpat C. Ö.  
Gazi Üniversitesi Fen Bilimleri Dergisi Part: C Tasarım ve Teknoloji, vol.24, no.4, pp.883-899, 2011 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **PROGRAMMING BOOK FOR FORTRAN77**  
BIYIKOĞLU A., GÜNAY E.  
Gazi Üniversitesi, Ankara, 2016
- II. **WORKBOOK FOR FORTRAN77**  
GÜNAY E., BIYIKOĞLU A.  
Gazi Üniversitesi, Ankara, 2016

## Refereed Congress / Symposium Publications in Proceedings

- I. **Retrofit of Buildings for Low-Temperature Heating and High-Temperature Sensible Cooling with Heat Pipe Technology**  
Kilkis B., BIYIKOĞLU A., Caglar M.  
2023 ASHRAE Winter Conference, Georgia, United States Of America, 4 - 08 February 2023, vol.129, pp.782-791
- II. **Thermodynamic Analysis of Kalina Cycle with TI-PTES System**  
Ökten K., Natesan K., BIYIKOĞLU A.  
3rd International Conference on Emerging Research in Civil, Aeronautical and Mechanical Engineering, ERCAM 2021, Bangalore, India, 16 - 17 December 2021, vol.2615
- III. **Parametric Analysis and Optimization of Low Temperature Organic Rankine Cycle Scenarios**  
öz M., BIYIKOĞLU A.  
5th International Conference on Advances in Mechanical Engineering ICAME2019, İstanbul, Turkey, 17 - 19 December 2019
- IV. **Ekserji ve Optimizasyon**  
BIYIKOĞLU A.  
14. Ulusal Tesisat Mühendisliği Kongresi, TESKON 2019, İzmir, Turkey, 17 - 20 April 2019
- V. **Effect of water and air bubble injection to heat transfer**  
ÖKTEN K., BIYIKOĞLU A.  
4th International Conference on Innovations and Emerging Trends in Mechanical Engineering, 26 - 27 March 2019
- VI. **Thermodynamic Limits for Buildings: Energy vs. Exergy**  
KILKIŞ b., BIYIKOĞLU A.  
2019 ASHRAE Winter Conference, United States Of America, 12 - 16 January 2019
- VII. **Ozsunar A Biyikoglu A Kilkis B Determination of Heat Transfer Coefficient between Heated Floor and**

### **Space Using the Principles of ANSI ASHRAE Standard 138 Test Chamber**

EVREN M. F., ÖZSUNAR A., BIYIKOĞLU A., KILKIŞ B.

ASHRAE Winter Conference, 28 January - 01 February 2017

- VIII. **Determination of Heat Transfer Coefficient Between Heated Floor and Space Using the Principles of ANSI/ASHRAE Standard 138 Test Chamber**  
Evren M. F., ÖZSUNAR A., BIYIKOĞLU A., Kilkis B.  
ASHRAE Winter Conference, Nevada, United States Of America, 28 January - 01 February 2017, vol.123, pp.71-81
- IX. **A Newborn Incubator with a Laminar Flow Unit**  
YILMAZOĞLU M. Z., BIYIKOĞLU A.  
ASHRAE Winter Conference, Nevada, United States Of America, 28 January - 01 February 2017
- X. **PROTON GEÇİRGEN MEMBRANLI BİR YAKIT HÜCRESİNİN KATOT TARAFINDAKİ 2B TRANSPORT OLAYLARININ ANALİTİK MODELLEMESİ**  
selahattin ç., BIYIKOĞLU A.  
ULIBTK'15 20. Ulusal Isı Bilimi ve Tekniği Kongresi, Balıkesir, Turkey, 2 - 05 September 2015
- XI. **ATIK ISI GERİ KAZANIMI İÇİN GELİŞTİRİLEN KOMBİNE ELEKTRİK ÜRETİM SİSTEMİNİN TERMODİNAMİK ANALİZİ**  
sevginur t., BIYIKOĞLU A., HORUZ İ.  
ULIBTK'15 20. Ulusal Isı Bilimi ve Tekniği Kongresi, Balıkesir, Turkey, 2 - 05 September 2015
- XII. **DEVELOPMENT OF A SWIRL NOZZLE FOR POWDER TECHNOLOGY**  
Sofuoglu M. A., ERBAŞ M., USLAN İ., BIYIKOĞLU A.  
ASME International Mechanical Engineering Congress and Exposition (IMECE2013), California, United States Of America, 15 - 21 November 2013
- XIII. **DESIGN AND OPTIMIZATION OF A LOW TEMPERATURE ORGANIC RANKINE CYCLE AND TURBINE**  
ERBAŞ M., Sofuoglu M. A., BIYIKOĞLU A., USLAN İ.  
ASME International Mechanical Engineering Congress and Exposition (IMECE2013), California, United States Of America, 15 - 21 November 2013
- XIV. **DESIGN OF A NOZZLE FOR THE PRODUCTION OF METAL POWDER VIA GAS ATOMIZATION**  
Sofuoglu M. A., ERBAŞ M., USLAN İ., BIYIKOĞLU A.  
ASME International Mechanical Engineering Congress and Exposition (IMECE2013), California, United States Of America, 15 - 21 November 2013
- XV. **Design of low temperature Organic Rankine Cycle and turbine**  
ERBAŞ M., BIYIKOĞLU A.  
4th International Conference on Power Engineering, Energy and Electrical Drives, Istanbul, Turkey, Turkey, 13 - 17 May 2013, pp.1065-1070
- XVI. **Split Klima ile Desteklenmiş Bir Termosifonun İncelenmesi**  
CÖMERT A. S., KAYA V., DİNCER H., BIYIKOĞLU A., SİVRİOĞLU M., DİNLER N.  
ULIBTK'13-19. Ulusal Isı Bilimi ve Tekniği Kongresi, Samsun, Turkey, 9 - 12 September 2013, pp.1067-1074
- XVII. **SENTEZ GAZI ÜRETİMİNE YÖNELİK KÖMÜR GAZLAŞTIRMA PARAMETRELERİNİN TAYİNİ**  
BIYIKOĞLU A., KASNAKOĞLU C., ÖZBAYOĞLU A. M., GÜNGÖR A., ÖZGÜR D., UYSAL B. Z.  
9. Ulusal Kimya Mühendisliği Kongresi, Turkey, 22 - 25 June 2010
- XVIII. **Effect of operation parameters on gasification for the production of synthesis gas**  
BIYIKOĞLU A., GÜNGÖR A., KASNAKOĞLU C., ÖZBAYOĞLU A. M., UYSAL B. Z.  
27th Annual International Pittsburg Coal Conference 2010, 11 - 14 October 2010
- XIX. **Optimization of a sensible heat-thermal energy storage system by lumped capacity method**  
BIYIKOĞLU A.  
Isı Bilimi ve Tekniği Dergisi, Kocaeli, Turkey, 10 - 12 November 2003, vol.21, pp.1-8

### **Supported Projects**

BIYIKOĞLU A., Project Supported by Higher Education Institutions, Metal- dışı Esnek Kanallardaki Statik Basınç

Kayıplarının Belirlenmesi, 2010 - 2012

BIYIKOĐLU A., Project Supported by Higher Education Institutions, Alev Sıcaklıđının Ölçümü ve Alev Karakteristiklerinin Belirlenmesi, 2005 - 2007

## **Metrics**

Publication: 37

Citation (WoS): 54

Citation (Scopus): 52

H-Index (WoS): 4

H-Index (Scopus): 6