

## **Prof. AHMET YOZGATLIGİL**

### **Personal Information**

**Email:** ahmety@metu.edu.tr

### **Biography**

Dr. Ahmet Yozgatligil is an associate professor at Mechanical Engineering Department of Middle East Technical University. He is also appointed as the assistant to the president at the Middle East Technical University. He conducted his PhD studies at Department of Mechanical Engineering and Mechanics in Drexel University with emphasis on burning and sooting behavior of droplet combustion under microgravity conditions. Results of his study provided important insights on the influence of pressure, oxygen indices, and inert variation on the effective control of sooting behavior of practical biomass-derived fuels. He also performed microgravity droplet combustion research at NASA-Glenn Research Center in Cleveland, Ohio as well as experiments in the drop-tower and logged parabolas in NASA's reduced gravity KC-135 aircraft and JAMIC (Japan Microgravity Center) drop tower in Hokkaido, Japan. His fellowship research at University of Maryland and NIST was aimed at design and manufacturing of small scale reactor for nanoparticle generation as well as conducting specialized experiments to understand the growth rate of carbon based nanoparticles. Since 2008, his research attention has turned towards analysis and characterization Turkish lignite combustion and pyrolysis using TGA-FTIR methods and investigating different approaches to improve coal combustion as well as tunnel fire studies. His research group has conducted extensive research on oxy-fuel combustion/SO<sub>2</sub> capturing of lignite and biochar fuels using TGA and circulating fluidized bed combustion systems in recent years.

### **Education Information**

Doctorate, Drexel University, College Of Engineering, Makine Mühendisliği Ve Mekanik Bölümü, United States Of America  
2000 - 2005

Post Graduate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 1996 -  
1998

Undergraduate Minor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey  
1992 - 1996

### **Foreign Languages**

English, C1 Advanced

### **Dissertations**

Doctorate, Burning and Sooting Behavior of Ethanol Droplet Combustion under Microgravity Conditions, Drexel  
University, Makine Mühendisliği Ve Mekanik Bölümü, Makine Mühendisliği Ve Mekanik Bölümü, 2005

Post Graduate, determination of the size of the air pollution across Turkey ceated by vehicles in the land transport  
sector, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1998

### **Research Areas**

Technical Sciences, Mechanical Engineering, Energy, Fluid Mechanics, Conventional Energy Systems and Their Technology, Alternative Energy Resources, Advanced Energy Technologies, Machine Theory and Dynamics, Machine Dynamics, Thermodynamics, Fuels and Combustion, Internal Combustion Engines

## Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2014 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2008 - 2014

Lecturer, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2007 - 2008

Research Assistant PhD, University Of Maryland, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 2005 - 2006

Research Assistant, Drexel University, Mühendislik Fakültesi, Makine Mühendisliği Ve Mekanik Bölümü, 2000 - 2005

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 1996 - 2000

## Professional Experience

Director of Vocational School, Middle East Technical University, Vocational School, 2017 - Continues

Rector's Advisor, Middle East Technical University, Presidency Office, 2016 - Continues

Vice Dean, Middle East Technical University, Faculty of Engineering, 2015 - 2016

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2011 - 2014

## Advising Theses

Yozgatligil A., Yavuz M. M. , Flow characterization study and fire experiments in a reduced scaled tunnel, Post Graduate, M.BASIL(Student), 2019

YOZGATLIGİL A., Türkiye'de bir Güneş-Biyokütle Hibrit Santralinin Modellenmesi Ve Finansal Analizi, Post Graduate, M.Özdemir(Student), 2017

YOZGATLIGİL A., Tünellerde Gerçekleşen Havuz Yangınlarının Yanma Karakteristikleri Üzerine Deneysel ve Sayısal Çalışma, Doctorate, S.Shafee(Student), 2017

YOZGATLIGİL A., Modeling and financial analysis of a solar-biomass hybrid power plant in Turkey, Post Graduate, M.ÖZDEMİR(Student), 2017

YOZGATLIGİL A., An experimental and numerical study on the combustion characteristics of pool fires in tunnels, Doctorate, S.SHAFEE(Student), 2017

YOZGATLIGİL A., Gaz türbini yanma odası performansının tahmini için bir eşlenik akış ve kimyasal reaktör modeli, Doctorate, E.Hataysal(Student), 2016

YOZGATLIGİL A., A COUPLED FLOW AND CHEMICAL REACTOR NETWORK MODEL FOR PREDICTING GAS TURBINE COMBUSTOR PERFORMANCE, Doctorate, S.ERTAN(Student), 2016

YOZGATLIGİL A., Modifiye Edilmiş Değişken Sıkıştırma Oranlı Motor Kullanarak Gaz Yakıtların Oktan Sayılarının Belirlenmesi, Post Graduate, İ.İmran(Student), 2015

YOZGATLIGİL A., Tünellerde N-Heptan ve Etanol Havuz Yangınlarının Yanma Özellikleri Üzerine Deneysel Bir Çalışma, Post Graduate, T.Uluç(Student), 2015

YOZGATLIGİL A., An experimental study on the pool fire burning characteristics of n-heptane and ethanol in the tunnels, Post Graduate, T.JULUÇ(Student), 2015

YOZGATLIGİL A., Knock rating of gaseous fuels in a modified cooperative fuel research (CFR) engine, Post Graduate, İ.İMRAN(Student), 2015

YOZGATLIGİL A., Türk Linyitlerinin ve Biyoyakıt Karışımlarının Çeşitli Atmosfer Koşullarında Piroliz ve Yanma Özellikleri

Hakkında Bir Çalışma, Post Graduate, E.Abbasi(Student), 2012  
YOZGATLIGİL A., A study on the catalytic pyrolysis and combustion characteristics of Turkish lignite and co-processing effects with biomass under various ambient conditions, Post Graduate, E.ABBASİ(Student), 2012  
YOZGATLIGİL A., Tünel Yangınları Üzerine Deneysel ve Nümerik Çalışmalar, Makina Mühendisliği Bölümü, Post Graduate, A.Çelik(Student), 2011  
YOZGATLIGİL A., Experimental and numerical studies on fire in tunnels, Post Graduate, A.ÇELİK(Student), 2011  
YOZGATLIGİL A., Dizel Enjektörü Tasarımı Üzerinde Bir Araştırma, Post Graduate, E.Bey(Student), 2010  
YOZGATLIGİL A., Mevcut Dizel Yakıtları ve Dizel-Etanol Karışımları İçin Motor Performans ve Emisyonlarının Karşılaştırılması, Post Graduate, G.Erkal(Student), 2010  
YOZGATLIGİL A., AN INVESTIGATION ON THE DESIGN METHOD FOR DIESEL INJECTION NOZZLE, Post Graduate, E.BEY(Student), 2010  
YOZGATLIGİL A., Comparison of engine performance and emissions for conventional petroleum diesel fuel and diesel-ethanol blends, Post Graduate, G.ERKAL(Student), 2010  
YOZGATLIGİL A., Kanola Yağının Dizel Yakıt Olarak Kullanılmasının Deneysel Olarak İncelenmesi, Post Graduate, A.Özdemir(Student), 2008  
YOZGATLIGİL A., Experimental investigation of use of canola oil as a diesel fuel, Post Graduate, A.ÖZDEMİR(Student), 2008

### Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **TGA and kinetic study of different torrefaction conditions of wood biomass under air and oxy-fuel combustion atmospheres**  
Barzegar R., YOZGATLIGİL A., OLGUN H., ATİMTAY A.  
JOURNAL OF THE ENERGY INSTITUTE, vol.93, pp.889-898, 2020 (Journal Indexed in SCI)
- II. **A COUPLED FLOW AND CHEMICAL REACTOR NETWORK MODEL FOR PREDICTING GAS TURBINE COMBUSTOR PERFORMANCE**  
Hataysal S. E. , YOZGATLIGİL A.  
THERMAL SCIENCE, vol.24, pp.1977-1989, 2020 (Journal Indexed in SCI)
- III. **Combustion characteristics of Turkish lignites at oxygen-enriched and oxy-fuel combustion conditions**  
Barzegar R., YOZGATLIGİL A., ATİMTAY A.  
JOURNAL OF THE ENERGY INSTITUTE, vol.92, pp.1440-1450, 2019 (Journal Indexed in SCI)
- IV. **An analysis of tunnel fire characteristics under the effects of vehicular blockage and tunnel inclination**  
SHAFEE S., YOZGATLIGİL A.  
TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY, vol.79, pp.274-285, 2018 (Journal Indexed in SCI)
- V. **An experimental study on the burning rates of interacting fires in tunnels**  
SHAFEE S., YOZGATLIGİL A.  
FIRE SAFETY JOURNAL, vol.96, pp.115-123, 2018 (Journal Indexed in SCI)
- VI. **Pyrolysis characteristics of Turkish lignites in N-2 and CO2 environments**  
BARZEGAR R., Avşaroğlu S., YOZGATLIGİL A., ATİMTAY A.  
ENERGY SOURCES PART A-RECOVERY UTILIZATION AND ENVIRONMENTAL EFFECTS, vol.40, pp.2467-2475, 2018 (Journal Indexed in SCI)
- VII. **Experimental Investigation on the Mass Loss Rates of Thin-Layered n-Heptane Pool Fires in Longitudinally Ventilated Reduced Scale Tunnel**  
Shafee S., Yamali U., YOZGATLIGİL A.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.189, pp.1907-1923, 2017 (Journal Indexed in SCI)
- VIII. **A study on the effects of catalysts on pyrolysis and combustion characteristics of Turkish lignite in oxy-fuel conditions**  
ABBASI-ATİBEH E., YOZGATLIGİL A.

FUEL, vol.115, pp.841-849, 2014 (Journal Indexed in SCI)

- IX. **EFFECT OF VENTILATION AND GEOMETRICAL PARAMETERS OF THE BURNING OBJECT ON THE HEAT RELEASE RATE IN TUNNEL FIRES**  
KAYILI S., YOZGATLIGİL A., ERALP O. C.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.184, pp.165-177, 2012 (Journal Indexed in SCI)
- X. **An experimental study on the effects of blockage ratio and ventilation velocity on the heat release rate of tunnel fires**  
KAYILI S., YOZGATLIGİL A., ERALP O. C.  
JOURNAL OF FIRE SCIENCES, vol.29, pp.555-575, 2011 (Journal Indexed in SCI)
- XI. **Fuel-dependent Effects on Droplet Burning and Sooting Behaviors in Microgravity**  
MANZELLO S. L. , PARK S., YOZGATLIGİL A., Choi M. Y.  
ENERGY & FUELS, vol.23, pp.3586-3591, 2009 (Journal Indexed in SCI)
- XII. **NANOSTRUCTURE OF SOOT COLLECTED FROM ETHANOL DROPLET FLAMES IN MICROGRAVITY**  
Park S., Choi M. Y. , YOZGATLIGİL A.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.181, pp.1164-1186, 2009 (Journal Indexed in SCI)
- XIII. **New observations of isolated ethanol droplet flames in microgravity conditions**  
Park S., Choi S., Choi M. Y. , YOZGATLIGİL A.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.180, pp.631-651, 2008 (Journal Indexed in SCI)
- XIV. **Measurement of soot surface growth kinetics**  
Yozgatligil A., ZACHARIAH M. R.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.180, pp.941-949, 2008 (Journal Indexed in SCI)
- XV. **Influence of oxygen concentration on the sooting behavior of ethanol droplet flames in microgravity conditions**  
Yozgatligil A., Park S., Choi M. Y. , Kazakov A., Dryer F. L.  
PROCEEDINGS OF THE COMBUSTION INSTITUTE, vol.31, pp.2165-2173, 2007 (Journal Indexed in SCI)
- XVI. **Soot particle size distributions in a well-stirred reactor/plug flow reactor**  
Manzello S. L. , Lenhart D. B. , YOZGATLIGİL A., Donovan M. T. , Mulholland G. W. , Zachariah M. R. , Tsang W.  
PROCEEDINGS OF THE COMBUSTION INSTITUTE, vol.31, pp.675-683, 2007 (Journal Indexed in SCI)
- XVII. **Effects of engine operating conditions on morphology, microstructure, and fractal geometry of light-duty diesel engine particulates**  
ZHU J., LEE K. O. , Yozgatligil A., CHOI M. Y.  
PROCEEDINGS OF THE COMBUSTION INSTITUTE, vol.30, pp.2781-2789, 2005 (Journal Indexed in SCI)
- XVIII. **An experimental investigation of sootshell formation in microgravity droplet combustion**  
MANZELLO S. L. , Yozgatligil A., CHOI M. Y.  
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.47, pp.5381-5385, 2004 (Journal Indexed in SCI)
- XIX. **Burning and sooting behavior of ethanol droplet combustion under microgravity conditions**  
Yozgatligil A., PARK S. H. , CHOI M. Y. , KAZAKOV A., DRYER F. L.  
COMBUSTION SCIENCE AND TECHNOLOGY, vol.176, pp.1985-1999, 2004 (Journal Indexed in SCI)
- XX. **Sooting behavior of ethanol droplet combustion at elevated pressures under microgravity conditions**  
URBAN B. D. , KROENLEİN K., KAZAKOV A., DRYER F. L. , Yozgatligil A., CHOI M. Y. , MANZELLO S. L. , LEE K. O. , DOBASHI R.  
MICROGRAVITY SCIENCE AND TECHNOLOGY, vol.15, pp.12-18, 2004 (Journal Indexed in SCI)

### **Refereed Congress / Symposium Publications in Proceedings**

- I. **An Experimental Study on the Burning Rates and Smoke Layer Temperatures in Tunnel Fires under Steady State Burning Condition Using a Reduced Scale Model**  
Shafee S., YOZGATLIGİL A.  
37th International Symposium on Combustion, Dublin, Ireland, 29 July - 02 August 2018

- II. **TÜRK LİNYİTLERİNİN YANMA KİNETİĞİNİN OKSİYANMA KOŞULLARINDA TERMAL GRAVİMETRİ ANALİZ YÖNTEMİ İLE İNCELENMESİ**  
AVŞAROĞLU S., BARZEGAR R., YOZGATLIGİL A., Atımtay A.  
VII. ULUSAL HAVA KİRLİLİĞİ VE KONTROLÜ SEMPOZYUMU, Antalya, Turkey, 1 - 03 November 2017
- III. **A SCALED STUDY ON THE EFFECT OF BLOCKAGE ON TUNNEL FIRES**  
SHAFEE S., YOZGATLIGİL A.  
MCS-10: Tenth Mediterranean Combustion Symposium, Napoli, Italy, 17 - 21 September 2017
- IV. **Investigation of Combustion Kinetics Of Two Turkish Lignites Under Oxy-Fuel Combustion Conditions by Thermal Gravimetry Analysis**  
Avşaroğlu S., Barzegar R., Kaymak B., YOZGATLIGİL A., Atımtay A.  
6th IEA CCC Workshop on Cofiring Biomass with Coal, Sardinia, Italy, 14 - 15 September 2016
- V. **AN EXPERIMENTAL STUDY ON THE EFFECT OF WALL COATING MATERIAL ON THE RADIATIVE HEAT LOSS FROM ETHANOL POOL FIRES IN TUNNELS**  
SHAFEE S., YOZGATLIGİL A.  
13. Uluslararası Yanma Sempozyumu, Bursa, Turkey, 9 - 11 September 2015
- VI. **Modeling of a Solar Biomass Hybrid Power Plant in Turkey**  
ÖZDEMİR M., YOZGATLIGİL A., GÖKALP İ.  
13. Uluslararası Yanma Sempozyumu, Bursa, Turkey, 9 - 11 September 2015
- VII. **AN EXPERIMENTAL STUDY ON THE CHARACTERISTICS OF n HEPTANE ETHANOL MIXTURE POOL FIRE IN A REDUCED SCALE TUNNEL**  
YAMALI U., SHAFEE S., YOZGATLIGİL A.  
13. Uluslararası Yanma Sempozyumu, Bursa, Turkey, 9 - 11 September 2015
- VIII. **THE EFFECT OF PRIMARY AIR SECONDARY AIR DISTRIBUTION ON THE COMBUSTION CHARACTERISTICS OF A LOW NOX PULVERIZED COAL BURNER USING CFD ANALYSIS**  
KAPUSUZ E., YÜKSELENTÜRK Y., YILMAZ B., YILMAZ A., YOZGATLIGİL A., GÖKALP İ.  
NINTH MEDITERRANEAN COMBUSTION SYMPOSIUM, Rodos, Greece, 7 - 11 June 2015
- IX. **Reduced Scale Experimental Study on Square Rectangle n Heptane Pool Fires in Tunnels**  
YAMALI U., SHAFEE S., YOZGATLIGİL A.  
7th European Combustion Symposium, Budapest, Hungary, 30 March - 02 April 2015
- X. **Fires in Tunnels**  
YOZGATLIGİL A.  
University of Orleans, Orleans, France, 26 January 2015
- XI. **COMBUSTION CHARACTERISTICS OF BIOMASS ASH AND LIGNITE BLEND UNDER OXY-FUEL CONDITIONS**  
Atibeh E. A. , YOZGATLIGİL A.  
ASME International Mechanical Engineering Congress and Exposition (IMECE2013), California, United States Of America, 15 - 21 November 2013
- XII. **Thin filament pyrometry temperature measurements in microgravity droplet combustion**  
YOZGATLIGİL A., PARK S. H. , CHOI M. Y.  
ASME International Mechanical Engineering Congress and Exposition, Washington, United States Of America, 11 - 15 November 2007, pp.825-826
- XIII. **Sootshell formation in microgravity droplet combustion**  
YOZGATLIGİL A., Choi M., Manzello S.  
4th Asia-Pacific Conference on Combustion, Nanjing, China, 23 - 26 November 2003, pp.503-508

## Supported Projects

YOZGATLIGİL A., KEÇECİOĞLU Ö. T. , Project Supported by Higher Education Institutions, LPG Kompozisyonunun Yanma, Vuruntu ve Emisyonu Üzerindeki Etkilerinin Deneysel olarak İncelenmesi ve Matematiksel Modellerin Geliştirilmesi, 2017 - 2020

YOZGATLIGİL A., ABUAIŞEH M. B. A. M. , YAVUZ M. M. , Project Supported by Higher Education Institutions, Farklı Tünel Yangın Senaryoları İçin Rüzgar Tüneli Geliştirme Çalışması, 2018 - 2019  
YOZGATLIGİL A., Project Supported by Higher Education Institutions, Tünel Yangınlarında Eğim, Blokaj-Yangın Mesafesi ve Çoklu Havuz Yangın Yüklerinin Deneysel ve Numerik Analizi, 2015 - 2017  
YOZGATLIGİL A., Yamalı U., Project Supported by Higher Education Institutions, Tünel Yangını Sırasında Taşıt Blokajının Farklı Havalandırma Hızlarında Yangın Yüküne Etkisi, 2013 - 2014  
YOZGATLIGİL A., Project Supported by Higher Education Institutions, Linyit Kömürünün Piroliz Ve Yanma Özelliklerinin Deneysel Ve Sayısal Olarak Analizi, 2011 - 2011  
YOZGATLIGİL A., TUBITAK Project, Tünel Yangınlarında Blokaj Oranının Etkisinin Araştırılması, 2009 - 2010  
YOZGATLIGİL A., Project Supported by Higher Education Institutions, Türk Linyit Kömürünün Yanma Özelliklerinin İncelenmesi, 2009 - 2010

## Citations

Total Citations (WOS):349

h-index (WOS):10