

## Assoc. Prof. Hasan Kayhan KAYADELEN

### Personal Information

**Email:** hkayhan@yildiz.edu.tr

**Web:** <https://avesis.yildiz.edu.tr/hkayhan>

### International Researcher IDs

ScholarID: RDQO6IEAAAAJ

ORCID: 0000-0003-4292-3770

Publons / Web Of Science ResearcherID: L-7475-2013

ScopusID: 53981507100

Yoksis Researcher ID: 38630

### Biography

Hasan Kayhan Kayadelen was born in 1984 in Istanbul, Turkey. He graduated from "Istanbul Lisesi" (German School of Istanbul) in 2003 and started his undergraduate studies in Yıldız Technical University, Department of Civil Engineering. As a consequence of his outstanding performance he was accepted in his second major in Naval Architecture and Marine Engineering Department. In 2005, he was awarded a grant for an exchange programme in Fachhochschule Gelsenkirchen in Germany. In 2006 he was awarded another grant from "Center for European Union Education and Youth Programmes" to continue one year of his undergraduate study in the University of Portsmouth, United Kingdom. After graduating both from Civil Engineering Department and Naval Architecture and Marine Engineering Department of Yıldız Technical University with honors degrees, he started his career as a naval ship design engineer in a national navy project in 2008. In 2009 he took his master's degree from the Department of Naval Architecture and Marine Engineering of Yıldız Technical University. He was awarded a scholarship from The Scientific and Technological Council of Turkey for his PhD which he worked on the effects of steam/water injection on the thermoeconomic performance and emissions of gas turbines and their optimization. In April 2012, he was awarded another grant from The Council of Higher Education of Turkey to continue his research in the United States at Princeton University, Mechanical and Aerospace Engineering Department and collaborating a research on High Hydrogen Fuels for Gas Turbine Combustion project funded by the U.S. Department of Energy. In 2014 he concluded his Ph.D. and now working as a full time professor in Yıldız Technical University, Istanbul.

### Education Information

Doctorate, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, Gemi İnşaatı Ve Gemi Makineleri, Turkey 2009 - 2014

Doctorate, Princeton University, School Of Engineering & Applied Sciences, Mechanical & Aerospace Engineering, United States Of America 2012 - 2013

Postgraduate, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, Gemi İnşaatı Ve Gemi Makineleri, Turkey 2008 - 2009

Undergraduate, Yıldız Technical University, Faculty Of Civil Engineering, İnşaat Mühendisliği, Turkey Continues

Undergraduate, Yıldız Technical University, Faculty Of Mechanical Engineering, Gemi İnşaatı Ve Gemi Makineleri, Turkey Continues

Undergraduate, University of Portsmouth, Civil Engineering, Civil Engineering, United Kingdom 2004 - 2005

### Foreign Languages

## Foreign Languages

German, C1 Advanced

English, C1 Advanced

## Research Areas

Marine Sciences and Technology, Mechanical Engineering, Petroleum And Natural Gas Engineering, Naval Architecture and Marine Engineering, Engineering and Technology

## Academic Titles / Tasks

Associate Professor, Yildiz Technical University, Naval Architecture And Maritime Faculty, Department Of Marine Engineering Operations, 2018 - Continues

Assistant Professor, Yildiz Technical University, Naval Architecture And Maritime Faculty, Department Of Marine Engineering Operations, 2014 - 2018

Research Assistant, Yildiz Technical University, Naval Architecture And Maritime Faculty, Department Of Marine Engineering Operations, 2009 - 2014

Research Assistant, Princeton University, Department of Aerospace Engineering, 2012 - 2013

## Courses

Buhar ve Gaz Türbinleri, Undergraduate, 2017 - 2018

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

- I. **Thermodynamic performance analysis of state of the art gas turbine cycles with inter-stage turbine reheat and steam injection**  
Kayadelen H. K., Üst Y., Başhan V.  
Energy, vol.222, pp.1-14, 2021 (SCI-Expanded)
- II. **Comparative Energy and Emission Analysis of Oxy-Combustion and Conventional Air Combustion**  
Özsarı İ., Üst Y., Kayadelen H. K.  
Arabian Journal For Science And Engineering, vol.46, no.1, pp.2477-2492, 2021 (SCI-Expanded)
- III. **Environmental impact and cost analysis of gas turbine cycles with steam injection and inter-stage turbine reheat**  
KAYADELEN H. K., ÜST Y., BAŞHAN V.  
INTERNATIONAL JOURNAL OF GLOBAL WARMING, vol.21, no.4, pp.356-372, 2020 (SCI-Expanded)
- IV. **Thermoenviromonic evaluation of simple, intercooled, STIG, and ISTIG cycles**  
Kayadelen H. K., Üst Y.  
INTERNATIONAL JOURNAL OF ENERGY RESEARCH, vol.42, pp.3780-3802, 2018 (SCI-Expanded)
- V. **A multi-featured model for estimation of thermodynamic properties, adiabatic flame temperature and equilibrium combustion products of fuels, fuel blends, surrogates and fuel additives**  
KAYADELEN H. K.  
ENERGY, vol.143, pp.241-256, 2018 (SCI-Expanded)
- VI. **Effect of natural gas components on its flame temperature, equilibrium combustion products and thermodynamic properties**  
KAYADELEN H. K.  
JOURNAL OF NATURAL GAS SCIENCE AND ENGINEERING, vol.45, pp.456-473, 2017 (SCI-Expanded)
- VII. **Thermoeconomic Optimization and Performance Analysis of a Regenerative Closed Brayton Cycle with Internal Irreversibilities and Pressure Losses**

Durmuşoğlu Y., Üst Y., Kayadelen H. K.

IRANIAN JOURNAL OF SCIENCE AND TECHNOLOGY-TRANSACTIONS OF MECHANICAL ENGINEERING, vol.41, pp.61-70, 2017 (SCI-Expanded)

- VIII. **Thermodynamic, environmental and economic performance optimization of simple, regenerative, STIG and RSTIG gas turbine cycles**  
Kayadelen H. K., Üst Y.  
ENERGY, vol.121, pp.751-771, 2017 (SCI-Expanded)
- IX. **Performance and environment as objectives in multi-criterion optimization of steam injected gas turbine cycles**  
Kayadelen H. K., Üst Y.  
APPLIED THERMAL ENGINEERING, vol.71, pp.184-196, 2014 (SCI-Expanded)
- X. **Prediction of equilibrium products and thermodynamic properties in H<sub>2</sub>O injected combustion for C alpha H beta O gamma N delta type fuels**  
Kayadelen H. K., Ust Y.  
FUEL, vol.113, pp.389-401, 2013 (SCI-Expanded)
- XI. **Heat transfer effects on the performance of an air-standard irreversible dual cycle**  
ÜST Y., ŞAHİN B., KAYADELEN H. K., GONCA G.  
INTERNATIONAL JOURNAL OF VEHICLE DESIGN, vol.63, no.1, pp.102-116, 2013 (SCI-Expanded)
- XII. **Determination of the optimum reheat pressures for single and double reheat irreversible Rankine cycle**  
Üst Y., Gonca G., Kayadelen H. K.  
Journal Of The Energy Institute, vol.84, no.4, pp.215-219, 2011 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Thermodynamic properties of unburned reactant mixtures for different kind of fuels**  
KAYADELEN H. K.  
JEMS Journal of ETA Maritime Science, vol.5, no.3, pp.220-232, 2017 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Chapter 19 - Thermodynamic properties of engine exhaust gas for different kind of fuels**  
KAYADELEN H. K., Ust Y.  
in: Computational Problems in Engineering, Nikos Mastorakis, Valeri Mladenov, Editor, Springer, London, pp.247-260, 2014
- II. **19 - Thermodynamic Properties of Engine Exhaust Gas for Different Kind of Fuels**  
KAYADELEN H. K., ÜST Y.  
in: Computational Problems in Science and Engineering, Nikos Mastorakis, Valeri Mladenov, Editor, Springer, pp.247-260, 2014

## Refereed Congress / Symposium Publications in Proceedings

- I. **Numerical Simulation of Ammonia/Hydrogen Combustion and Effects of NO<sub>x</sub> Emissions in Bunsen Burner**  
ÇİFTÇİ A., KAYADELEN H. K.  
II-International Conference on Global Practice of Multidisciplinary Scientific Studies, Batumi, Georgia, 26 - 28 July 2022, vol.1, pp.1260-1275
- II. **THERMODYNAMIC PROPERTIES OF UNBURNED CHON TYPE FUELS, FUEL MIXTURES AND REACTANT**

## **MIXTURES**

KAYADELEN H. K.

INTERNATIONAL CONFERENCE ON ENERGY AND THERMAL ENGINEERING, İstanbul, Turkey, 25 April 2017, pp.574-579

- III. **COMPARATIVE EXERGETIC PERFORMANCE EVALUATION OF GASEOUS AND LIQUID FUELS**  
GONCA G., SAFA A., KAYADELEN H. K., KALE F. M.  
INTERNATIONAL CONFERENCE ON ADVANCES IN SCIENCE ICAS 2016, 31 August - 02 September 2016
- IV. **Thermoeconomic Analysis of Heat Recovery Steam Generators For Steam Injected Gas Turbine Cycles**  
Kayadelen H. K.  
The International Centre for Heat and Mass Transfer (ICHMT), Convective Heat and Mass Transfer, CONV-14., 01 June 2014
- V. **Thermodynamic properties of engine exhaust gas for different kind of fuels**  
Kayadelen H. K.  
Europment, 01 February 2014
- VI. **Marine Gas Turbines**  
Kayadelen H. K.  
7th International Advanced Technologies Symposium (IATS'13), 01 October 2013
- VII. **Computer Simulation Of Steam Water Injected Gas Turbine Engines The International Centre for Heat and Mass Transfer**  
KAYADELEN H. K., ÜST Y.  
Eight Mediterranean Combustion Symposium, 8 - 13 September 2013, vol.1
- VIII. **İKİ BÖLGELİ YANMA MODELİYLE BUHAR ENJEKSİYONLU DİZEL VE MILLER ÇEVİRİMLİ DİZEL MOTORLARININ KAPSAMLI OLARAK KARŞILAŞTIRILMASI**  
KAYADELEN H. K., GONCA G., ŞAHİN B., ÜST Y., SAFA A., PARLAK A.  
12th International Combustion Symposium, 24 - 26 May 2012
- IX. **Comparison of Diesel Engine and Miller Cycled Diesel Engine by Using Two Zone Combustion Model**  
GONCA G., KAYADELEN H. K., SAFA A., ŞAHİN B., PARLAK A., ÜST Y.  
INT-NAM 2011, İstanbul, Turkey, 24 - 25 October 2011
- X. **HEAT TRANSFER EFFECTS ON THE PERFORMANCE OF AN AIR STANDARD IRREVERSIBLE OTTO CYCLE**  
ÜST Y., GONCA G., KAYADELEN H. K.  
11. International Combustion Symposium, 1 - 03 May 2010

## **Other Publications**

- I. **Gaz Türbinlerinde Su/Buhar Enjeksiyonunun Termoekonomik Performans ve Emisyonlar Üzerindeki Etkisinin İncelenmesi ve Optimizasyonu**  
KAYADELEN H. K.  
Other, pp.1-209, 2014
- II. **Şaft Layn Hesaplarının Sonlu Elemanlar Yöntemiyle İncelenmesi**  
KAYADELEN H. K.  
Other, pp.50, 2009

## **Supported Projects**

Kayadelen H. K., Ju J., Other International Funding Programs, An Experimental and Chemical Kinetics Study of Syngas and High Hydrogen Content Fuels in Gas Turbine Combustion, 2009 - 2012

## **Scientific Refereeing**

Energy, SCI Journal, August 2017

FUEL, SCI Journal, July 2017

Energy, SCI Journal, May 2017

Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi, National Scientific Refreed Journal, March 2017

Energy, SCI Journal, January 2017

Energy, SCI Journal, December 2016

Energy, SCI Journal, November 2016

Energy, SCI Journal, October 2016

Energy, SCI Journal, October 2016

Energy, SCI Journal, September 2016

Energy, SCI Journal, July 2016

## **Metrics**

Publication: 27

Citation (WoS): 106

Citation (Scopus): 130

H-Index (WoS): 6

H-Index (Scopus): 6

## **Scholarships**

DOKTORA ARAŞTIRMA BURSUSU, YOK, 2012 - Continues

DOKTORA BURSUSU, TUBITAK, 2009 - Continues

ERASMUS BURSUSU, European Commission, 2006 - Continues

## **Non Academic Experience**

Gemi Mühendisleri Odası

Princeton University

Dearsan Tersanesi

Fachhochschule Gelsenkirchen

Portsmouth University