

## Lect. PhD MEHMET KARACA

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### International Researcher IDs

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### Research Areas

Fluid Mechanics, Fluid Machinery, Aircraft Propulsion Systems

### Academic Titles / Tasks

Lecturer PhD, Middle East Technical University, Faculty of Engineering, Department of Aerospace Engineering, 2020 - Continues

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

- I. **Numerical and experimental investigations of swirl-stabilized partially premixed flames using natural gas-hydrogen-air mixtures**  
Böncü E., Gülerüz D., KARACA M., ALLOUIS C. G., GÖKALP İ.  
Applied Thermal Engineering, vol.254, 2024 (SCI-Expanded)
- II. **Designing restorative landscapes for students: A Kansei engineering approach enhanced by VR and EEG technologies**  
Karaca E., Çakar T., Karaca M., Hüseyin Miraç Gül H.  
Ain Shams Engineering Journal, vol.15, no.9, 2024 (SCI-Expanded)
- III. **Effect of flame characteristics on an isolated ethanol droplet evaporating through stagnation methane/air flames: An experimental and numerical study**  
Kaya Eyice D., KARACA M., Halter F., GÖKALP İ., Chauveau C.  
Combustion and Flame, vol.265, 2024 (SCI-Expanded)
- IV. **Hydrogen production using aluminum-water splitting: A combined experimental and theoretical approach**  
Kandasamy J., Mutlu R. N., Eroğlu E., KARACA M., TOFFOLÍ H., GÖKALP İ.  
International Journal of Hydrogen Energy, vol.52, pp.202-211, 2024 (SCI-Expanded)
- V. **Influence of cavity and ramp layout on combustion performance in a strut-based scramjet combustor**  
ATCI M., Jeyakumar S., Sharma P., KARACA M., JAYARAMAN K.  
International Journal of Engine Research, 2024 (SCI-Expanded)
- VI. **Performance evaluation of a scramjet engine utilizing varied cavity aft wall divergence with parallel**

### **injection in a reacting flow field**

Maheswaran N., Jeyakumar S., JAYARAMAN K., KARACA M.

International Journal of Turbo and Jet Engines, 2024 (SCI-Expanded)

- VII. **Steady and unsteady flow characteristics of dual cavity in strut injection scramjet combustor**  
Rajesh A., Jeyakumar S., Jayaraman K., Karaca M.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.48, no.72, pp.28174-28186, 2023 (SCI-Expanded)
- VIII. **The implications of dual cavity location in a strut-mounted scramjet combustor**  
Rajesh A., Jeyakumar S., JAYARAMAN K., KARACA M., Athithan A. A.  
International Communications in Heat and Mass Transfer, vol.145, 2023 (SCI-Expanded)
- IX. **Numerical investigations on flashback dynamics of premixed methane-hydrogen-air laminar flames**  
Kıymaz T. B., Böncü E., Güleriyüz D., KARACA M., YILMAZ B., ALLOUIS C. G., GÖKALP İ.  
International Journal of Hydrogen Energy, vol.47, no.59, pp.25022-25033, 2022 (SCI-Expanded)
- X. **Effect of hydrogen jets in supersonic mixing using strut injection schemes**  
Jeyakumar S., Kandasamy J., KARACA M., Karthik K., Sivakumar R.  
International Journal of Hydrogen Energy, vol.46, no.44, pp.23013-23025, 2021 (SCI-Expanded)
- XI. **Modeling and numerical simulations of lignite char gasification with CO<sub>2</sub>: The effect of gasification parameters on internal transport phenomena**  
KARACA M., Kaya D., YOZGATLIGİL A., Gokalp I.  
FUEL, vol.285, 2021 (SCI-Expanded)
- XII. **Numerical investigations on the hydrogen jet pressure variations in a strut based scramjet combustor**  
Suppandipillai J., Kandasamy J., Sivakumar R., KARACA M., Karthik K.  
Aircraft Engineering and Aerospace Technology, vol.93, no.4, pp.566-578, 2021 (SCI-Expanded)
- XIII. **Implicit large eddy simulation of vitiation effects in supersonic air/H<sub>2</sub> combustion**  
KARACA M., Zhao S., Fedioun I., Lardjane N.  
AEROSPACE SCIENCE AND TECHNOLOGY, vol.89, pp.89-99, 2019 (SCI-Expanded)
- XIV. **Implicit Large Eddy Simulation of high-speed non-reacting and reacting air/H<sub>2</sub> jets with a 5th order WENO scheme**  
Karaca M., Lardjane N., Fedioun I.  
COMPUTERS & FLUIDS, vol.62, pp.25-44, 2012 (SCI-Expanded)

### **Articles Published in Other Journals**

- I. **Numerical Investigation on the Inflow Mach Number Variations in a Strut Injected Cavity Based Scramjet Combustors**  
Rajesh A., Jeyakumar S., JAYARAMAN K., KARACA M.  
International Journal of Fluid Mechanics Research, vol.51, no.6, 2024 (ESCI)
- II. **Application of a Robust Multigrid Technique for the Parallel Solution of Initial-Boundary Value Problems**  
Martyntenko S., GÖKALP İ., Bakhtin V., KARACA M., Toktaliev P., Semenev P.  
Mathematical Models and Computer Simulations, vol.14, no.6, pp.1002-1010, 2022 (Scopus)

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

- I. **ECONOMICALLY VIABLE LOW TEMPERATURE HYDROGEN PRODUCTION USING ALUMINUM-WATER SPLITTING METHODS**  
Kandasamy J., Mutlu R., Eroğlu E., Karaca M., Toffoli H., Gokalp I.  
Proceedings of WHEC 2022 - 23rd World Hydrogen Energy Conference: Bridging Continents by H<sub>2</sub>, İstanbul, Turkey, 26 - 30 June 2022, pp.71-73

**II. Effect of Variable Transport Properties in Rayleigh Benard Convection Problem at High Rayleigh Numbers**

Afatsun A. C., Karban U., Yalçinkaya T., Karaca M.

International Conference on Applications in Computational Engineering & Sciences, Chennai, India, 30 - 31 October 2020, pp.57

**III. Turbo-rotary compound engine (TRCE) and novel thermodynamic cycle**

Akmandor I. S., Ercan T., Karaca M.

50th ASME Turbo-Expo, Nevada, United States Of America, 6 - 09 June 2005, pp.107-114

## **Supported Projects**

Ortakaya B., Temizsoylu O., Toffoli H., Yerli S. K., Kaya K., Baran Ö. U., Karaca M., Karagöz P., Koku H., Manguoğlu M., et al., H2020 Project, EuroCC@Türkiye, 2020 - 2022

## **Metrics**

Publication: 19

Citation (WoS): 42

Citation (Scopus): 128

H-Index (WoS): 4

H-Index (Scopus): 8