

## Prof. İSKENDER GÖKALP

### Personal Information

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

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### International Researcher IDs

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### Biography

#### Curriculum Vitae of Iskender GÖKALP

Born 27 July 1951 in Istanbul; Turkish and French nationality

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\* ICARE-CNRS, 45071 Orléans cedex 2, France

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### Education and professional positions

<i>1962-1970</i>	Collège Saint-Joseph, Istanbul
<i>1970-1974</i>	Aeronautical Engineer, Istanbul Teknik Üniversitesi
<i>1974-1981</i>	Master & PhD, University Pierre et Marie Curie, Paris VI, Paris
<i>1979-1981</i>	Assistant Professor at the University Pierre et Marie Curie, Paris
<i>1981-1983</i>	Associate Professor at the University Pierre et Marie Curie, Paris
<i>1983-1994</i>	CNRS Senior Researcher, CRCCHT/LCSR, Orléans
<i>1994-Nov. 2016</i>	CNRS Research Director, LCSR/ICARE, Orléans
<i>Nov. 2016-</i>	CNRS Emeritus Research Director, ICARE, Orléans

Dec. 2019- Professor Dr. at METU Mechanical Engineering Department, Ankara, supported by the TUBITAK Outstanding researchers program

### Distinctions

- 2006 Chevalier dans l'ordre des Palmes Académiques (France)
- 2014 « Boris Gelfand » Medal of the Russian Academy of Science / Russian Section of the Combustion Institute
- 2018 Fellow of the International Combustion Institute
- 2019 Fellow of the TUBITAK Outstanding International Researchers program

### Research laboratories management responsibilities

1983- Founding Leader, « **Combustion & Turbulence** » research group of the CRCCHT/LCSR/ICARE, CNRS,

[Redacted text]

[Redacted text]

[Redacted text]

2003-2006 Director, “**Combustion & Reactive Systems Laboratory –LCSR**”, CNRS, Orléans

2007-2017 Founding Director, “**Institute of Combustion, Aérothermique, Réactivité & Environment**” -

[Redacted text]

2017- Emeritus Research Director at ICARE-CNRS, Orléans

### Research Domains: Energy, Propulsion, Environment, Science and Technology studies

Turbulent combustion, multiphase combustion, turbulence, gasification of coal and other organic materials, gasification in supercritical water, hydrothermal carbonization, metal combustion, combustion in microgravity, laser diagnostics for combustion, variable density turbulent flows, generation and combustion of hydrogen, high pressure combustion, modelling and numerical simulation of turbulent reacting flows, interdisciplinarity, impact of technology on society

[Redacted text]

*Sum of times cites without self citations : 3186; H Index : 33*

**Google scholar: All citations : 6569; indice h : 45; indice i10: 136**

### **Teaching & Educational Responsibilities**

Several teaching and management responsibilities at the University of Orléans since 1983 (list on demand). Supervisor of 70 PhD students (list on demand).

2019- Professor of Combustion at METU, Mechanical Engineering Department

[Redacted]  
[Redacted]  
[Redacted]  
[Redacted] (2009, 2011, 2013, 2015)

President of the French Section of the Combustion Institute (1999-2002)

President, ILASS-Europe (2007-2014); Vice-President, ILASS-Europe (2002-2007)

[Redacted] Working  
[Redacted] (2014)

[Redacted] (2000-2016)

[Redacted] (2003-2006)

[Redacted]  
[Redacted] d Combustion Technical Committee du American Institute of Aeronautics and  
[Redacted] (1998-)

Founding Director, Franco-Italian Research Group on the Energetics & Safety of Hydrogen (2005-2008)

### **Coordination of European and international research programs**

EU FP7-ENERGY-2011-1 OPTIMASH Optimizing gasification of high-ash content coals for electricity generation (2011-2016) [www.optimash.eu](http://www.optimash.eu)

EU FP5-projet AFTUR Alternative fuels for gas turbines 2003-2007

EU FP4-FAIR-projet ACREVO (Combustion of vegetable oils)

(also participant to the EU FP1 to FP3 Energy programs as partner)

EU Training and Mobility of Researchers Program, Project FAPS, several INTAS projects ; and several other projects with ESA, Volkswagen, NSF, NEDO, TUBITAK, ROKETSAN, Tübitak SAGE, CNR...

**Coordinator of several French R&D programs in the energy and propulsion domains (list on demand)**

### **Editor of Scientific Journals**

\* Editor (with Roland Borghi) of the French Combustion Journal "Combustion", Gordon & Breach Science Publishers (2001-2005)

\* Associate Editor, *AIAA Journal* (2000-2003)

\* Associate Editor, *Combustion Science & Technology* (2003-2010)

\* Membre, Editorial Board, *Atomization and Sprays* (2002-2010)

\* Membre, Editorial Board, *Aerospace* (2014-)

### **Reviewer for**

*Combustion and Flame; Combustion Science and Technology; Atomization and Sprays; Proceedings of the Combustion Institute; Fuel; Energy & Fuels; Flow, Turbulence and Combustion; Energies; Biofuels; Waste Management; Applied Energy; Journal of the Energy Institute; Experimental Thermal and Fluid Science; Journal of Supercritical Fluids; Journal of Fuel Processing Technology; Journal of Fluid Mechanics; Heat Transfer Research; Journal of Chemistry; Tunneling and Underground Space Technology; International Journal of Hydrogen Energy; Journal of Biomass and Bioenergy; Energy and Power Engineering; Physics of Fluids...*

And also for the promotion of colleagues at the University of Illinois in Chicago ; Cambridge University ; Cornell University; Pennsylvania State University; NRC, McGill University...

And project evaluator for NASA, NSF, ASI, Canadian Space Agency...

### **IN ENGLISH**

Dr. İskender Gökalp received his Aeronautical Engineering degree from the Istanbul Technical University (1974) and a PhD on Combustion (1981) from Paris VI University (Université Pierre et Marie Curie). Between 1979 and 1983 he was assistant and associate professor at the Faculty of Mechanics of this university and he joined the French National Centre for Scientific Research in October 1983 as Senior Scientist. In 2003, he became the Director of the Laboratory of Combustion and Reactive Systems in Orleans. In 2007, he founded the Institute on Combustion, Aerothermal Sciences, Reactivity and Environment (ICARE) and was its Director until November 2016. In 2011, he founded the French Centre of Excellence on Chemical Kinetics and Aerothermodynamics of Clean and Safe Energy and Propulsion Systems

(CAPRYSESSE); he directed this Centre until November 2016.

His main research domains concern chemical energy conversion for energy generation and aerospace propulsion. Examples of his expertise areas are combustion systems for gaseous, liquid and solid fuels, mainly turbulent combustion, droplet and spray combustion, microgravity combustion, high pressure combustion, coal and biomass combustion and gasification, waste to energy topics (such as the disposal and valorisation of sewage sludge, food and agricultural waste, scrap tires), hydrogen generation and combustion, CO<sub>2</sub> capture and valorisation, combustion technologies for aerospace propulsion.

He is the author of 165 publications referred in the WEB of Science core collection and has an H-Index of 33 with 3186 citations received without self citations. He supervised 70 PhDs in combustion and related domains at the University of Orléans. He had several national and international responsibilities, such as President of the Federation of the European Sections of the Combustion Institute (2001-2014). He was the Principal investigator of several French, European and International research programs on energy, combustion and propulsion topics with various academic and industrial partners. One such recent important program he coordinated was the EU funded project OPTIMASH (2011-2016) on the gasification of Indian and Turkish high ash coals. He also has continuous activities in the social studies of science and technology areas, mainly on interdisciplinarity, social studies of science & technology, dynamics of network industries, both for Turkish and international socio-economic conditions.

Presently, he is an Emeritus research director at ICARE-CNRS, Orléans. In December 2019 he started a research professorship at the Middle East Technical University, Mechanical Engineering Department, in Ankara. This position is supported by the TUBITAK International Fellowship for Outstanding Researchers Program. He is also the CEO of the company IGDEAS Energy and Defence Technologies A.S. located at the Technopark of METU in Ankara

He is Recipient of the French distinction "Chevalier des Palmes Académiques (2006) and of the Boris Gelfand Medal of the Russian Academy of Sciences (2014). He is a Fellow of the International Combustion Institute (2018).

#### Some recent publications

Karaca, M., Kaya D., Yozgatligil A., Gökalp, I. (2021) Modeling and numerical simulations of lignite char gasification with CO<sub>2</sub>: the effect of gasification parameters on internal transport phenomena. FUEL Volume 285, 1 February 2021. DOI: <https://doi.org/10.1016/j.fuel.2020.119067>

Seray Zora Tarhan, Anıl Tevfik Koçer, Didem Özçimen, Iskender Gökalp (2021) Cultivation of green microalgae by recovering aqueous nutrients in hydrothermal carbonization process water of biomass wastes. JOURNAL OF WATER PROCESS ENGINEERING. DOI: <https://doi.org/10.1016/j.jwpe.2020.101783>

Diakaridia Sangare, Stéphane Bostyn, Mario Moscossa-Santillan, Iskender Gökalp (2021) Hydrodynamics, heat transfer and kinetics reaction of CFD modeling of a batch stirred reactor under hydrothermal carbonization conditions. Accepted for publication in ENERGY. EGY\_119635

Jayaraman, K., Kök, MV., Gökalp, I (2020) Combustion mechanism and model free kinetics of different origin coal samples: Thermal analysis approach. ENERGY Volume: 204 Article Number: 117905. DOI: [10.1016/j.energy.2020.117905](https://doi.org/10.1016/j.energy.2020.117905)

Seray Zora Tarhan, Anıl Tevfik Koçer, Didem Özçimen, Iskender Gökalp (2020) Utilization of hydrothermal process water for microalgal growth. EURASIAN J BIO CHEM SCI 3(1): 42-47. DOI: <https://doi.org/10.46239/ejbc.733899>

Iskender Gökalp (2020) Hidrojenin Enerji Vektörü olarak Güvenli Gelişimini Teşvik Etmek İçin Holistik Bir Yaklaşım. MÜHENDİS VE MAKİNA GÜNCEL, Mart 2020, ss. 34-41

Rana, R., Nanda, S., Reddy, SN., Dalai, AK., Kozinski, JA., Gökalp, I. (2020) Catalytic gasification of light and heavy gas oils in supercritical water. JOURNAL OF THE ENERGY INSTITUTE 93: 2025-2032 DOI: [10.1016/j.joei.2020.04.018](https://doi.org/10.1016/j.joei.2020.04.018)

Zaidaoui, H., Boushaki, T., Koched, A., Sautet, JC., Sarh, B., Gökalp, I. (2020) Experimental Study of EGR Dilution and O<sub>2</sub>

Enrichment Effects on Turbulent Non-Premixed Swirling Flames COMBUSTION SCIENCE AND TECHNOLOGY DOI:  
10.1080/00102202.2020.1786375

Sangare, D., Missaoui, A., Bostyn, S., Belandria, V., Moscica-Santillan, M., Gökalp, I. (2020) Modeling of Agave Salmiana bagasse conversion by hydrothermal carbonization (HTC) for solid fuel combustion using surface response methodology. AIMS ENERGY 8: 538-562. DOI: 10.3934/energy.2020.4.538

Döngüsel Ekonomi Cözümleri, FORBES Ocak 2020, pp. 216-218

Enerji Sistemleri ve Hidrojen, FORBES Subat 2020, ss. 50-52

Toplumsal Kabullenebilen Risk, YENİ AKTÜEL WEEKEND Mart 2020, ss. 32-33

## Education Information

Doctorate, Mekanik, France 1975 - 1981

Postgraduate, Université Pierre et Marie Curie Paris VI, Mekanik, France 1974 - 1975

Undergraduate, Istanbul Technical University, Makina, Uçak Mühendisligi, Turkey 1970 - 1974

## Foreign Languages

English, C1 Advanced

French, C1 Advanced

## Dissertations

Doctorate, On the problems of interaction between a flame and a turbulent flow. Cool flames and high temperature flows, Makina Mecanique, 1981

## Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2019 - Continues

## Courses

KNOWLEDGE TRANSFER INNOVATION, Postgraduate, 2021 - 2022

THEORY OF COMBUSTION, Undergraduate, 2020 - 2021

## 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., Güleriyüz D., KARACA M., ALLOUIS C. G., GÖKALP İ.  
Applied Thermal Engineering, vol.254, 2024 (SCI-Expanded)
- II. **An experimental study on the combustion behaviours of orange peel-based solid biofuels**  
Koçer A. T., ÖZÇİMEN D., GÖKALP İ.  
Biomass Conversion and Biorefinery, vol.14, no.18, pp.22839-22851, 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. **Insights into Reaction Mechanisms in Liquid Metals from Density Functional Theory: CH<sub>4</sub> Pyrolysis in BiNiX (X = Cu, Al) Molten Metals as a Case Study**  
Erbasan A., TOFFOLÌ H., Toffoli D., GÖKALP İ., KARDAŞ G., ÇELİK G.  
ACS Applied Energy Materials, vol.7, no.8, pp.3220-3233, 2024 (SCI-Expanded)
- V. **Hydrogen production using aluminum-water splitting: A combined experimental and theoretical approach**  
Kandasamy J., Mutlu R. N., Eroğlu E., KARACA M., TOFFOLÌ H., GÖKALP İ.  
International Journal of Hydrogen Energy, vol.52, pp.202-211, 2024 (SCI-Expanded)
- VI. **Hydrothermal carbonization processes applied to wet organic waste streams**  
ÖZÇİMEN D., İnan B., Koçer A. T., Bostyn S., Gökalp İ.  
International Journal of Energy Research, vol.46, no.12, pp.16109-16126, 2022 (SCI-Expanded)
- VII. **Numerical investigations on flashback dynamics of premixed methane-hydrogen-air laminar flames**  
Kıymaz T. B., Böncü E., Güteryüz 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)

## Articles Published in Other Journals

- I. **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. **Mathematical problems of black-box computational technologies for continuum mechanics**  
Martyntenko S., Zhou W., GÖKALP İ., Toktaliev P., Tarasov G., Rumiantsev E.  
2021 Actual Problems of Continuum Mechanics: Experiment, Theory, and Applications, Novosibirsk, Russia, 20 - 24 September 2021, vol.2504
- II. **Büyük Ölçekli Toplumsal-Teknik Sistemler: Kavramsal bir Çerçeve**  
Erden Topal Y., Gökalp İ.  
STS TURKEY 2021 KONFERANSI – STS: Bir Disiplin Olarak Kimlik İnşası, Ankara, Turkey, 22 November 2021, pp.31-34
- III. **Parallelization of Robust Multigrid Technique Using OpenMP Technology**  
Martyntenko S., Zhou W., GÖKALP İ., Bakhtin V., Toktaliev P.  
16th International Conference on Parallel Computing Technologies, PaCT 2021, Kaliningrad, Russia, 13 - 18 September 2021, vol.12942 LNCS, pp.196-209

## Metrics

Publication: 18  
Citation (WoS): 1  
Citation (Scopus): 35  
H-Index (WoS): 1  
H-Index (Scopus): 2