

Assoc. Prof. Coşkun Fırat

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: A-1009-2013

ScopusID: 15827217800

Yoksis Researcher ID: 20822

Biography

Assoc. Prof. Dr. Coskun Fırat had a BSc degree on Astronomy and Space Sciences at Istanbul University (IU), Science Faculty in 1987 and MSc degree on Nuclear Energy at Istanbul Technical University (ITU) in 1991.

He obtained a PhD on "thermodynamical behavior of gases at nanoscale" at ITU in 2007 under the supervision of Prof.Dr. Altug Sisman.

In 2008 he had postdoctoral research appointments at SDSU in CA, USA.

Between 1993 and 2010 he worked as a research assistant in Nuclear energy and Renewable Energy at Institute of Nuclear Energy and Energy Institute at ITU.

In 2010, he was appointed as an assistant professor in Renewable Energy and was lectured on Solar Thermal Power Plants and has been lecturing on Engineering Mathematics for MSc and PhD degrees. In 2021, he achieved the title of Assoc.Prof.Dr.

In 2013, he was a researcher at the Queensland Technical University in Australia on a research project titled "Solar Energy" sponsored by the Australian Research Council (ARC) for a year. After returning back to the country in 2014, he continues on teaching "Engineering Mathematics" at the Institute of Energy of ITU and his work on renewable energy and nano-scale energy applications.

Education Information

Doctorate, Istanbul Technical University, Enerji Enstitüsü, Enerji Bilimi Ve Teknolojileri Anabilim Dalı, Turkey 2005 - 2008

Postgraduate, Istanbul Technical University, Nükleer Enerji Enstitüsü, Nükleer Bilimler Abd, Turkey 1988 - 1991

Undergraduate, Istanbul University, Faculty Of Science, Astronomy And Space Sciences, Turkey 1983 - 1987

Foreign Languages

English

Dissertations

Doctorate, GAZLARIN TERMODİNAMİK DAVRANIŞLARINDA KUANTUM ÖLÇEK ETKİLERİ, İstanbul Teknik Üniversitesi, Enerji Enstitüsü, Yenilenebilir Enerji, 2008

Postgraduate, TRIGA Reaktör Dinamiği: Frekans cevap testleri, İstanbul Teknik Üniversitesi, Nükleer Enerji Enstitüsü, 1991

Research Areas

Mechanical Engineering, Energy, Solar energy, Physics, Natural Sciences, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Istanbul Technical University, Enerji Enstitüsü, Yenilenebilir Enerji , 2021 - Continues

Assistant Professor, Istanbul Technical University, Enerji Enstitüsü, Yenilenebilir Enerji , 2018 - Continues

Assistant Professor, Istanbul Technical University, Enerji Enstitüsü, Yenilenebilir Enerji , 2010 - 2018

Research Assistant, Istanbul Technical University, Enerji Enstitüsü, Yenilenebilir Enerji , 1993 - 2009

Courses

ENGINEERING MATHEMATICS, Postgraduate, 2016 - 2017

Advising Theses

Fırat C., Kampüs binalarında şebekeden bağımsız bir çatı üstü fotovoltaik sistem tasarımı ve benzetimi, Postgraduate, M.CEYLAN(Student), 2018

Fırat C., ASSESSMENT OF SOLAR WATER HEATING APPLICATION FOR A UNIVERSITY SPORTS CENTER, Postgraduate, M.ERKAN(Student), 2017

Fırat C., BİR ENTEGRE GÜNEŞ KOMBİNE ÇEVİRİM SANTRALİ FİZİBİLİTE ÇALIŞMASI, Postgraduate, A.Emin(Student), 2013

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Energy performance analysis of a forced circulation solar water heating system equipped with a heat pipe evacuated tube collector under the Mediterranean climate conditions**
Maraj A., Londo A., Gebremedhin A., Fırat C.
Renewable Energy, vol.140, pp.874-883, 2019 (SCI-Expanded)
- II. **Characterization of density oscillations in confined and degenerate Fermi gases**
Fırat C., Sisman A., Aydın A.
MODERN PHYSICS LETTERS B, vol.32, no.32, 2018 (SCI-Expanded)
- III. **Thermodynamic properties of a photon gas confined in hypothetical arbitrary-shaped perfectly reflecting nano-scale geometries**
Fırat C.
MOSCOW UNIVERSITY PHYSICS BULLETIN, vol.71, no.1, pp.70-74, 2016 (SCI-Expanded)
- IV. **Nanothermodynamics of a black body photon gas**
FIRAT C.
SGEM2015 Conference Proceedings, vol.1, pp.143-150, 2015 (SCI-Expanded)

- V. **Solar radiation models for the city of Tirana, Albania**
Maraj A., Londo A., Firat C., Karapici R.
International Journal of Renewable Energy Research, vol.4, no.2, pp.413-420, 2014 (SCI-Expanded)
- VI. **Quantum forces of a gas confined in nano structures**
Firat C., SISMAN A.
PHYSICA SCRIPTA, vol.87, no.4, 2013 (SCI-Expanded)
- VII. **Power Plant CO₂ Mitigation in The Microalgae Ponds**
SAYANER O., GÜR İ., FIRAT C.
SGEM2012 Conference Proceedings, vol.4, pp.379-386, 2012 (SCI-Expanded)
- VIII. **Comparison of direct and indirect PV power output using filters, lens, and fiber transport**
Firat C., BEYENE A.
ENERGY, vol.41, no.1, pp.271-277, 2012 (SCI-Expanded)
- IX. **Quantum effects on gas diffusion at the nano scale**
Öztürk Z., Sisman A., Firat C.
International Journal of Thermodynamics, vol.14, no.4, pp.163-166, 2011 (SCI-Expanded)
- X. **Quantum Effects on Gas Diffusion at the Nano Scale**
ŞİŞMAN H. O. A., Firat C., Firat C.
Int J of Thermodynamics, vol.14, no.4, pp.163-166, 2011 (SCI-Expanded)
- XI. **Effects of particle-wall interactions on the thermodynamic behavior of gases at the nano scale**
Firat C., Sisman A., Öztürk Z.
International Journal of Thermodynamics, vol.14, no.4, pp.155-161, 2011 (SCI-Expanded)
- XII. **Thermodynamics of gases in nano cavities**
Firat C., Sisman A., Öztürk Z. F.
ENERGY, vol.35, no.2, pp.814-819, 2010 (SCI-Expanded)
- XIII. **Universality of the quantum boundary layer for a Maxwellian gas**
Firat C., SISMAN A.
PHYSICA SCRIPTA, vol.79, no.6, 2009 (SCI-Expanded)
- XIV. **Quantum boundary layer: a non-uniform density distribution of an ideal gas in thermodynamic equilibrium**
Sisman A., OZTURK Z. F., FIRAT C.
PHYSICS LETTERS A, vol.362, no.1, pp.16-20, 2007 (SCI-Expanded)
- XV. **Cosmic ray intensity variation during a CME**
Kandemir G., GECKINLI M., Firat C., YILMAZ M., OZUGUR B.
PLANETARY AND SPACE SCIENCE, vol.50, pp.633-636, 2002 (SCI-Expanded)
- XVI. **Variation of Cosmic Ray Intensity During the Solar Eclipse August 11 1999**
KANDEMİR G., GÜÇLÜ M. C., GEÇKİNLİ M., FIRAT C., BOYDAĞ Ş., ÖZGÜÇ A., ATAÇ T.
ASP Conference Series, vol.205, pp.202-207, 2000 (SCI-Expanded)

Articles Published in Other Journals

- I. **Electrical and Thermal Performance Analysis of a Linear Fresnel Reflector- Photovoltaic/Thermal System**
Firat C., Çalik K.
Academic Platform Journal of Engineering and Science, vol.9, no.2, pp.264-273, 2021 (Peer-Reviewed Journal)
- II. **A Cost-Effective Theoretical Novel Configuration of Concentrated Photovoltaic System with Linear Fresnel Reflectors**
Calik K., Firat C.
JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.22, no.3, pp.583-589, 2019 (ESCI)
- III. **Comparison of the Energy Performance between Flat-plate and Heat Pipe Evacuated Tube Collectors for Solar Water Heating Systems under Mediterranean Climate Conditions**

Maraj A., Londo A., Firat C., Gebremedhin A.

JOURNAL OF SUSTAINABLE DEVELOPMENT OF ENERGY WATER AND ENVIRONMENT SYSTEMS-JSDEWES, vol.7, no.1, pp.87-100, 2019 (ESCI)

- IV. **Optical Performance Investigation of a CLFR for the Purpose of Utilizing Solar Energy in Turkey**
ÇALIK K., FIRAT C.

International Journal of Energy Applications and Technologies, vol.3, no.2, pp.62-67, 2016 (Peer-Reviewed Journal)

- V. **Energy investigation of the flat plate solar collector during its daily operation in clear days of summer and winter**

MARAJ A., LONDO A., FIRAT C., DORRI A., ALCANI M.

Albanian Journal of Natural Technical Sciences, vol.19, no.1, pp.121-133, 2014 (Peer-Reviewed Journal)

- VI. **Gas Diffusion at the Nano Scale**

ÖZTÜRK Z. F., ŞİŞMAN H. O. A., FIRAT C.

International Journal of Thermodynamics, vol.14, no.4, pp.163-166, 2011 (Scopus)

- VII. **Gazların Termodinamiğinde Kuantum Ölçek Etkileri ve Yanal Kuvvetler**

FIRAT C., ŞİŞMAN H. O. A.

İTÜ Dergisi D Mühendislik, vol.8, no.5, pp.91-102, 2009 (Peer-Reviewed Journal)

Books & Book Chapters

- I. **Geometric Analysis of The Optical Losses in A Linear Fresnel Reflector-Photovoltaic System**

ÇALIK K., FIRAT C.

in: Science and Engineering-Proceeding Book, Doç. Dr. Özlem ÇAKIR, Editor, Asos Yayınevi, Ankara, pp.313-328, 2020

- II. **Design and Simulation of an Off-Grid Photovoltaics System for A Campus Building**

Ceylan M., FIRAT C., Yerzhanov M. S., Mukhtarovna Yerzhanova A.

in: Engineering Sciences Proceeding Book, Nil Yapici, Editor, Asos Publications, pp.31-45, 2019

- III. **HOW IS 50 OF THE HOT WATER CONSUMPTION IN A CAMPUS COMPLEX COVERED BY SOLAR ENERGY?**

Erkan M., FIRAT C., Mukhtarovna Yerzhanova A.

in: GLOBAL SCIENCE AND INNOVATIONS 2019:CENTRAL ASIA, , Editor, Bobek, pp.318-325, 2019

- IV. **Variation of Cosmic Ray Intensity during the Solar Eclipse August 11, 1999**

Firat C., Kandemir G., Güçlü M. C., Geçkinli M., Boydağ S., Özgüç A., Yaşar T.

in: The Last Total Solar Eclipse of the Millennium, W. Livingston; A. Özgüç, Editor, Asp Conference Barron's Educational Series, Inc., Kaliforniya, pp.202-207, 2000

Refereed Congress / Symposium Publications in Proceedings

- I. **Geometric Analysis of The Optical Losses in A Linear Fresnel Reflector-Photovoltaic System**

ÇALIK K., FIRAT C.

7. Uluslararası Bilimsel Araştırmalar Kongresi (UBAK), Ankara, Turkey, 13 - 14 March 2020

- II. **Modeling and experimental validation of the long-term averaged solar radiation on a sloped south-east facing surface under the Mediterranean climate conditions**

Altın M., LONDO A., FIRAT C., GEBREMEDHIN A.

The 14th SDEWES Conference, Dubrovnik, Croatia, 1 - 06 October 2019

- III. **Design and Simulation of an Off-Grid Photovoltaics System for A Campus Building**

Ceylan M., FIRAT C., Yerzhanov M. S., Mukhtarovna Yerzhanova A.

6. Uluslararası Multidisipliner Çalışmaları Kongresi: MULTICONGRESS GAZİANTEP 2019, Gaziantep, Turkey, 26 - 27 April 2019

- IV. **How is 50 percent of the hot water consumption in a campus complex covered by solar energy?**
Erkan M., FIRAT C., Mukhtarova Yezhanova A.
V International Scientific and Practical Conference "GLOBAL SCIENCE AND INNOVATIONS 2019: CENTRAL ASIA"
(GSI 2019), Astana, Kazakhstan, 18 March 2019
- V. **Energy Performance Analysis of a Forced Circulation Solar Water Heating System Equipped with Evacuated Solar Tube Collectors for the Mediterranean Climate Conditions**
Altin M., LONDO A., GEBREMEDHIN A., FIRAT C.
The 13th SDEWES Conference, 30 September - 04 October 2018
- VI. **Comparison of the energy performance between flat-plate and heat pipe evacuated tube collectors for DWHS in the Mediterranean climate conditions**
Altin M., LONDO A., FIRAT C., GEBREMEDHIN A.
The 12th Conference on Sustainable Development of Energy, Water and Environment Systems – SDEWES, Dubrovnik, Croatia, 4 - 08 October 2017
- VII. **Optical Performance Investigation of a CLFR for the Purpose of Utilizing Solar Energy in Turkey**
KEZİBAN Ç., FIRAT C.
3rd International Conference on Advanced Technology & Sciences (ICAT'16), Konya, Turkey, 1 - 03 September 2016
- VIII. **LOCAL DENSITY DISTRIBUTION OF A FERMI GAS CONFINED IN NANO SIZED DOMAINS**
Firat C.
16th International Multidisciplinary Scientific Geoconference (SGEM 2016), Albena, Bulgaria, 30 June - 06 July 2016, no.1, pp.213-220
- IX. **NANO-THERMODYNAMICS OF A BLACK-BODY PHOTON GAS**
Firat C.
15th International Multidisciplinary Scientific Geoconference (SGEM), Albena, Bulgaria, 18 - 24 June 2015, pp.143-150
- X. **Nano-Thermodynamics of a Black-Body photon gas Coskun Firat**
Firat C.
15th International Multidisciplinary Scientific Geoconference and EXPO, SGEM 2015, Albena, Bulgaria, 18 - 24 June 2015, vol.1, pp.143-150
- XI. **Study on Integrated Solar Combined Cycle Power Plant for Turkey**
FIRAT C.
Solar Energy for World Peace, 17 - 19 August 2013, vol.1
- XII. **Thermodynamics Under Quantum Size Effects**
ŞİŞMAN H. O. A., ÖZTÜRK Z. F., FIRAT C., BABAÇ G.
JETC2013, 1 - 05 July 2013, vol.1
- XIII. **Power plant CO2 mitigation in the microalgae ponds**
Sayaner O., Gur I., Firat C.
12th International Multidisciplinary Scientific GeoConference and EXPO, SGEM 2012, Varna, Bulgaria, 17 - 23 June 2012, vol.4, pp.379-386
- XIV. **Exergy Study of Solar Flat Plate Collectors During Daily Operation in the Summer Season**
MARAJ A., LONDO A., Shtjefni A., FIRAT C.
5th IC-SCCE, 4 - 07 July 2012, vol.1
- XV. **POWER PLANT CO2 MITIGATION IN THE MICROALGAE PONDS**
Sayaner O., Gur I., Firat C.
12th International Multidisciplinary Scientific Geoconference (SGEM), Albena, Bulgaria, 17 - 23 June 2012, pp.379-386
- XVI. **Lateral forces in gases at nano scale**
FIRAT C., ŞİŞMAN H. O. A.
APCSEET 2011, 10 - 13 July 2011, vol.1
- XVII. **Effects Of Particle Wall Interactions On Thermodynamic Behaviors Of Gases In Nano Scale**
FIRAT C., ŞİŞMAN H. O. A.

ECOS 2010, 14 - 17 June 2010, vol.1

XVIII. Optically filtered and concentrated solar energy for PV conversion

Firat C., Beyene A.

23rd International Conference on Efficiency, Cost, Optimization, Simulation, and Environmental Impact of Energy Systems, ECOS 2010, Lausanne, Switzerland, 14 - 17 June 2010, vol.2, pp.413-420

XIX. Effects of particle-wall interactions on the thermodynamic behavior of gases at the nano scale

Firat C., Sisman A.

23rd International Conference on Efficiency, Cost, Optimization, Simulation, and Environmental Impact of Energy Systems, ECOS 2010, Lausanne, Switzerland, 14 - 17 June 2010, vol.1, pp.439-447

XX. Inhomogenous density distributions of ideal gases in nano structures

ŞİŞMAN H. O. A., FIRAT C., ÖZTÜRK Z. F.

10. Joint European Thermodynamics Conference, 22 - 24 June 2009, vol.1

XXI. Quantum size effects on gas diffusion in nano scale An isotop enrichment possibility for light elements

ŞİŞMAN H. O. A., ÖZTÜRK Z. F., FIRAT C.

19th International Symposium on Transport Phenomena, 17 - 21 August 2008, vol.1

XXII. Thermodynamics of gases in nano cavities

Firat C., Sisman A., Öztürk Z.

21st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2008, Cracow-Gliwice, Poland, 24 - 27 June 2008, pp.129-136

XXIII. Quantum surface energy and lateral forces in ideal gases

FIRAT C., ŞİŞMAN H. O. A.

Joint European Thermodynamics Conference IX, 12 - 15 June 2007, vol.1

XXIV. Quantum Surface Tension In Ideal Gases

ŞİŞMAN H. O. A., ÖZTÜRK Z. F., FIRAT C.

23. Uluslararası Fizik Kongresi, 13 - 16 September 2005, vol.1

XXV. Büyükçekmece Gölü Doğu Kıyılarındaki Dinamik Topraklarda Sezyum 137 137Cs Profili

HACIYAKUPOĞLU S., FIRAT C.

Türkiye'xxnı Kıyı ve Deniz Alanları IV.Ulusal Konferansı, Turkey, 5 - 08 November 2002, vol.1

XXVI. Variation of cosmic ray intensity during the solar eclipse August 11, 1999

Kandemir G., Guclu M., Geckinli M., Firat C., Boydag S., Ozguc A., Yasar T.

Symposium on the Last Total Solar Eclipse of the Millennium in Turkey, İstanbul, Turkey, 13 - 15 August 1999, vol.205, pp.202-207

XXVII. TRIGA Reactor Dynamics Frequency Response Tests

FIRAT C., GEÇKİNLİ M.

The Twelfth European TRIGA Users Conference, 22 - 25 September 1992, vol.1

XXVIII. TRIGA Reaktör Dinamiği Frekans cevap testleri

FIRAT C., GEÇKİNLİ M.

V.Ulusal Nükleer Bilimler Kongresi, Turkey, 22 - 24 May 1991, vol.1

Other Publications

I. Nano Ölçekte Kuantum Yüzey Enerjisinin Gazların Termodinamik ve Transport Özelliklerine ve Hal Uzayının Geometrik Yapısına Etkisi

Firat C., Şişman H. O. A., Barutçu B., Öztürk Z. F., Strehlow P.

Other, pp.102, 2007

Supported Projects

Fırat C., Project Supported by Higher Education Institutions, Nano ölçekli alanlarda tutuklanmış bir Fermi gazının yerel yoğunluk dağılımı, 2016 - 2018
Fırat C., Project Supported by Higher Education Institutions, Kara-Cisim Foton Gazı Nano Termodinamiği, 2015 - 2018
Fırat C., Project Supported by Higher Education Institutions, Mikroalg Havuzlarında Güç Santrali Kaynaklı CO2 Azaltımı, 2012 - 2018
Fırat C., Project Supported by Higher Education Institutions, Lateral Forces in Gases at Nano Scale, 2011 - 2018
Fırat C., Project Supported by Higher Education Institutions, EFFECTS OF PARTICLE WALL INTERACTIONS ON THERMODYNAMIC BEHAVİORS OF GASES İN NANO SCALE, 2010 - 2018
Fırat C., Project Supported by Higher Education Institutions, Thermodynamics of Gases in Nano Cavities, 2008 - 2018
Fırat C., Karim A., Other International Funding Programs, Development of an advanced microwave asissted solar drying system, 2013 - 2014
Fırat C., Beyene A., Project Supported by Public Organizations in Other Countries, Comparison of direct and indirect PV power output using filters, lens and fiber transport, 2009 - 2009
Şışman A., Fırat C., TUBITAK Project, Gazların termodinamik ve transport özellikleri ile hal uzayının geometrik yapısı üzerinde kuantum yüzey enerjisinin etkisi, 2005 - 2007

Activities in Scientific Journals

International Journal of Energy Applications and Technologies, Committee Member, 2016 - Continues

Memberships / Tasks in Scientific Organizations

Science and Engineering Institute, Member, 2010 - Continues

International Association of Computer Science and Information Technology, Member, 2010 - Continues

Scientific Refereeing

Energy, SCI Journal, December 2018
Energy, SCI Journal, November 2018
Energy, SCI Journal, October 2018
Energy, SCI Journal, September 2018
Energy, SCI Journal, August 2018
Energy, SCI Journal, July 2018
Energy, SCI Journal, June 2018
Energy, SCI Journal, May 2018
Energy, SCI Journal, April 2018
Energy, SCI Journal, March 2018
Energy, SCI Journal, February 2018
Energy, SCI Journal, January 2018
Energy, SCI Journal, December 2017
Energy, SCI Journal, November 2017
Energy, SCI Journal, October 2017
Energy, SCI Journal, September 2017
Energy, SCI Journal, August 2017
Energy, SCI Journal, July 2017
Energy, SCI Journal, June 2017
Energy, SCI Journal, April 2017
Energy, SCI Journal, March 2017

Energy, SCI Journal, January 2016
Physica A, SCI Journal, January 2015
Energy, SCI Journal, January 2015
Energy, SCI Journal, January 2014
Energy, SCI Journal, January 2013
Energy, SCI Journal, January 2012
Energy, SCI Journal, January 2011

Scientific Research / Working Group Memberships

Nano Enerji Arařtırma Grubu, İSTANBUL TEKNİK ÜNİVERSİTESİ, Turkey, <http://nerg.itu.edu.tr/>, 2005 - Continues

Metrics

Publication: 59
Citation (WoS): 147
Citation (Scopus): 171
H-Index (WoS): 7
H-Index (Scopus): 7

Non Academic Experience

Queensland Teknoloji Üniversitesi, Bilim ve Mühendislik Fakültesi
San Diego Devlet Üniversitesi, Mühendislik Fakültesi, Yenilenebilir Enerji ve Enerji Verimliliği Merkezi