

Prof. İsmail SOLMAZ



Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: ABI-4399-2020

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Education Information

Doctorate, Middle East Technical University, Faculty Of Engineering, Department Of Mechanical Engineering, Turkey 2006 - 2011

Foreign Languages

English, C1 Advanced

Dissertations

Postgraduate, An experimental study on the performance of an adsorption cooling system and the numerical analysis of its adsorbent bed, Orta Doğu Teknik Üniversitesi, Makina Mühendisliği, 2011

Doctorate, Theoretical and experimental investigation of a humidification-dehumidification desalination system using solar energy, Orta Doğu Teknik Üniversitesi, Makina Mühendisliği, 2006

Research Areas

Mechanical Engineering, Energy, Energy storage technologies, Solar energy, Geothermal energy, Thermodynamics, Heat and Mass Transfer, Heating, Refrigerating and Air Conditioning, Computational fluid dynamics, Engineering and Technology

Academic Titles / Tasks

Professor, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2022 - Continues

Associate Professor, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2016 - 2022

Assistant Professor, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2012 - 2016

Research Assistant PhD, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2012 - 2012

Research Assistant, Middle East Technical University, Faculty Of Engineering, Makina Mühendisliği, 2002 - 2012

Courses

Termodinamik, Undergraduate, 2013 - 2014

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Effect of impinging flow on hydrothermal characteristics of a pipe-network mini channel heatsink**
Salamatbakhsh E., BAYER Ö., SOLMAZ İ.
International Communications in Heat and Mass Transfer, vol.154, 2024 (SCI-Expanded)
- II. **MOF based coated adsorption system for water desalination and cooling integrated with Pre-treatment unit**
Albaik I., Diab K. E., Saleh M., Al-Dadah R., Mahmoud S., Elsheniti M. B., SOLMAZ İ., Salama E., Shokry Hassan H., Elkadi M. F.
Sustainable Energy Technologies and Assessments, vol.56, 2023 (SCI-Expanded)
- III. **Investigation of flow and heat transfer behavior of integrated pin fin-aluminum foam heat sink**
Serkan Şahin Y. S., İsmet Toprak B. İ., SOLMAZ İ., BAYER Ö.
APPLIED THERMAL ENGINEERING, vol.219, 2023 (SCI-Expanded)
- IV. **Experimental and numerical investigation of a novel pipe-network mini channel heatsink**
TOPRAK B. İ., Baghaei Oskoue S., BAYER Ö., SOLMAZ İ.
INTERNATIONAL COMMUNICATIONS IN HEAT AND MASS TRANSFER, vol.136, 2022 (SCI-Expanded)
- V. **Thermo-hydraulic performance of tube with decaying swirl flow generators**
BİLEN K., TOKGÖZ N., SOLMAZ İ., Balta T.
APPLIED THERMAL ENGINEERING, vol.200, 2022 (SCI-Expanded)
- VI. **Numerical and experimental investigation of multiple heat exchanger modules in cooling and desalination adsorption system using metal organic framework**
Albaik I., Elsheniti M. B., Al-Dadah R., Mahmoud S., SOLMAZ İ.
ENERGY CONVERSION AND MANAGEMENT, vol.251, 2022 (SCI-Expanded)
- VII. **Experimental Analysis and Evaluation of Thermostat Effects on Engine Cooling System**
Ghasemi Zavaragh H., Kaleli A., Solmus İ., Afshari F.
JOURNAL OF THERMAL SCIENCE, vol.30, no.2, pp.540-550, 2021 (SCI-Expanded)
- VIII. **Non-equilibrium numerical modelling of finned tube heat exchanger for adsorption desalination/cooling system using segregated solution approach**
Albaik I., Al-Dadah R., Mahmoud S., SOLMAZ İ.
Applied Thermal Engineering, vol.183, 2021 (SCI-Expanded)
- IX. **Experimental based numerical approach for determination of volumetric heat transfer coefficients of modified graphite foams**
Gürüf G., Solmus I., Bilen K., Bayer Ö.
APPLIED THERMAL ENGINEERING, vol.174, 2020 (SCI-Expanded)
- X. **Determination of Physical Properties and Thermal Conductivity of Graphite Foam with Image Analysis**
Mohammadimehr A., Solmus İ., Özyer B., Rees D. A. S.
INTERNATIONAL JOURNAL OF THERMOPHYSICS, vol.41, no.4, 2020 (SCI-Expanded)
- XI. **Investigation of the effect of aluminum porous fins on heat transfer**
Bilen K., Gök Ş., Olcay A. B., Solmuş İ.
ENERGY, vol.138, pp.1187-1198, 2017 (SCI-Expanded)
- XII. **Determination of Newtonian Fluid Flow Behavior Including Temperature Effects in Fully Eccentric Annulus**
Ulker E., Sorgun M., SOLMUŞ İ., Karadeniz Z. H.
JOURNAL OF ENERGY RESOURCES TECHNOLOGY-TRANSACTIONS OF THE ASME, vol.139, no.4, 2017 (SCI-Expanded)

- XIII. **THE PERFORMANCE ANALYSIS OF A SILICA GEL WATER ADSORPTION CHILLER AND DYNAMIC HEAT AND MASS TRANSFER CHARACTERISTICS OF ITS ADSORBENT BED: A PARAMETRIC STUDY**
MEBARKİ B., SOLMUŞ İ., GOMRİ R.
İsi Bilimi Ve Tekniği Dergisi-Journal Of Thermal Science And Technology, vol.36, pp.107-118, 2016 (SCI-Expanded)
- XIV. **Numerical investigation of heat transfer and fluid flow behaviors of a block type graphite foam heat sink inserted in a rectangular channel**
Solmuş İ.
APPLIED THERMAL ENGINEERING, vol.78, pp.605-615, 2015 (SCI-Expanded)
- XV. **Transient behavior of a cylindrical adsorbent bed during the adsorption process**
Solmuş İ., Yamalı C., Yıldırım C., Bilen K.
APPLIED ENERGY, vol.142, pp.115-124, 2015 (SCI-Expanded)
- XVI. **Adsorpsiyonlu bir soğutma sisteminin performansının farklı çalışma çiftleri için teorik analizi**
SOLMUŞ İ., YILDIRIM C.
İsi Bilimi Ve Tekniği Dergisi-Journal Of Thermal Science And Technology, vol.34, pp.29-37, 2014 (SCI-Expanded)
- XVII. **A parametric study on a humidification-dehumidification (HDH) desalination unit powered by solar air and water heaters**
YILDIRIM C., SOLMUŞ İ.
ENERGY CONVERSION AND MANAGEMENT, vol.86, pp.568-575, 2014 (SCI-Expanded)
- XVIII. **Experimental investigation of a portable desalination unit configured by a thermoelectric cooler**
YILDIRIM C., Soylu S. K., ATMACA İ., SOLMUŞ İ.
ENERGY CONVERSION AND MANAGEMENT, vol.85, pp.140-145, 2014 (SCI-Expanded)
- XIX. **Çift geçişli hava akışkanlı güneş toplacı kanal yüksekliğinin termohidrolik verime etkisinin incelenmesi**
YILDIRIM C., SOLMUŞ İ.
İsi Bilimi Ve Tekniği Dergisi-Journal Of Thermal Science And Technology, vol.34, pp.111-122, 2014 (SCI-Expanded)
- XX. **The performance of alternative refrigerant gas R152a as mobile air conditioning refrigerant**
BİLEN K., KALKIŞIM A. T., SOLMUŞ İ.
Chemical Engineering Transactions, vol.39, pp.1801-1806, 2014 (SCI-Expanded)
- XXI. **THEORETICAL ANALYSIS OF THE PERFORMANCE OF AN ADSORPTION COOLING SYSTEM FOR VARIOUS WORKING PAIRS**
SOLMUŞ İ., Yıldırım V. C.
İSİ BİLİMİ VE TEKNİĞİ DERGİSİ-JOURNAL OF THERMAL SCIENCE AND TECHNOLOGY, vol.34, no.2, pp.29-37, 2014 (SCI-Expanded)
- XXII. **A two-energy equation model for dynamic heat and mass transfer in an adsorbent bed using silica gel/water pair**
SOLMUŞ İ., Rees D. A. S., YAMALI C., BAKER D. K.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.55, pp.5275-5288, 2012 (SCI-Expanded)
- XXIII. **Numerical investigation of coupled heat and mass transfer inside the adsorbent bed of an adsorption cooling unit**
SOLMUŞ İ., Rees D. A. S., YAMALI C., BAKER D. K., Kaftanoğlu B.
INTERNATIONAL JOURNAL OF REFRIGERATION-REVUE INTERNATIONALE DU FROID, vol.35, no.3, pp.652-662, 2012 (SCI-Expanded)
- XXIV. **Experimental investigation of a natural zeolite-water adsorption cooling unit**
SOLMUŞ İ., Kaftanoğlu B., YAMALI C., BAKER D. K.
APPLIED ENERGY, vol.88, no.11, pp.4206-4213, 2011 (SCI-Expanded)
- XXV. **Adsorption properties of a natural zeolite-water pair for use in adsorption cooling cycles**
SOLMUŞ İ., YAMALI C., Kaftanoğlu B., BAKER D. K., ÇAĞLAR A.
APPLIED ENERGY, vol.87, no.6, pp.2062-2067, 2010 (SCI-Expanded)
- XXVI. **A solar desalination system using humidification-dehumidification process: experimental study and comparison with the theoretical results**
YAMALI C., SOLMUŞ İ.

DESALINATION, vol.220, pp.538-551, 2008 (SCI-Expanded)

- XXVII. **Theoretical investigation of a humidification-dehumidification desalination system configured by a double-pass flat plate solar air heater**
YAMALI C., SOLMUŞ İ.
DESALINATION, vol.205, pp.163-177, 2007 (SCI-Expanded)

Articles Published in Other Journals

- I. **A THEORETICAL ANALYSIS ON THE OPERATING AND DESIGN PARAMETERS AFFECTING THE PERFORMANCE OF A SEWAGE WASTEWATER SOURCED HEAT PUMP SYSTEM**
DOĞAN E., SOLMAZ İ., BAYER O.
JOURNAL OF THERMAL ENGINEERING, vol.9, no.1, 2023 (ESCI)
- II. **Analysis of Local Thermal Equilibrium Assumption in Transient Forced Convection in a Graphite Foam Channel**
GÜRÜF G., SOLMAZ İ., BAYER Ö.
Sigma Journal of Engineering and Natural Sciences, vol.38, no.4, pp.2057-2067, 2020 (ESCI)
- III. **Modifiye grafit köpük ile hava arasındaki ortalama hacimsel ısı taşınım katsayısının tayini**
Gürüf G., Solmaz İ., Yıldırım C., Bilen K.
Tesisat Mühendisliği, no.179, pp.47-58, 2020 (Peer-Reviewed Journal)
- IV. **Evaluations on energy identity certificate and energy performance calculation method in buildings (BEP-TR2)**
Bilen K., Urmamen E., Topçu M. T., Solmaz İ.
Sigma Journal of Engineering and Natural Sciences, vol.11, no.1, pp.103-113, 2020 (ESCI)
- V. **Otomobil klima sistemlerinde R152a gazı kullanımı ve özellikleri**
Bilen K., Kalkışım A. T., Solmuş İ., Bulgurcu H., Hakan Y.
Tesisat Mühendisliği, vol.144, pp.89-97, 2014 (Peer-Reviewed Journal)
- VI. **Silika jel su çalışma çiftini kullanan adsorpsiyonlu soğutma sisteminin performans analizi**
Solmuş İ., Yıldırım C., Bilen K.
Tesisat Mühendisliği, vol.140, pp.52-59, 2014 (Peer-Reviewed Journal)
- VII. **Güneş enerjisi destekli entegre su ısıtma damıtma sisteminin teorik Analizi Tesisat Mühendisliği**
Yıldırım C., Solmuş İ.
Tesisat Mühendisliği, vol.143, pp.55-64, 2014 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Numerical investigation of the thermal and hydraulic performances of a novel heat sink with slotted solid/aluminum foam compound cylindrical fins**
SOLMAZ İ., Albaik I., Al-Dadah R., Mahmoud S., TOPRAK B. İ.
15th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, 26 July 2021
- II. **GÜNEŞ ENERJİLİ HAVALI KOLLEKTÖRLERDE V DİZİLİMLİ ÇUBUKLARIN TERMAL VE TERMOHİDROLİK VERİME ETKİSİ**
Yıldırım C., Solmuş İ.
TESKON - 13. ULUSAL TESİSAT MÜHENDİSLİĞİ KONGRESİ, İzmir, Turkey, 19 - 22 April 2017, pp.331-341
- III. **Pressure Losses Measurements Considering Temperature and Pipe Rotation in an Annulus**
Ülker E., Sorgun M., Solmuş İ., Karadeniz Z. H.
ACE 2016 12th International Congress on advances in Civil Engineering, İstanbul, Turkey, 21 - 23 September 2016, pp.1-7
- IV. **Energy and Exergy Analysis of a Solar Air Heater Having Transverse Wedge Shaped Rib Roughness**
Yıldırım C., Solmuş İ.

8th International Exergy, Energy and Environment Symposium (IEEEES-8), Antalya, Turkey, 01 May 2015 - 04 May 2016, pp.371-375

- V. **Performance analysis of air cooled block type aluminum foam heat sinks of different pore densities**
SOLMUŞ İ., YILDIRIM C.

3rd International Symposium on Innovative Technologies in Engineering and Science, 3 - 05 June 2015

- VI. **Energy and exergy analysis of a solar air collector having a roughened absorber with circular protrusions**

YILDIRIM C., SOLMUŞ İ.

International Conference on Environment and Renewable Energy, 20 - 21 May 2015

- VII. **The Performance of Alternative Refrigerant Gas R152a as Mobile Air Conditioning Refrigerant**
BİLEN K., KALKIŞIM A. T., SOLMUŞ İ.

17th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES 2014), Prague, Czech Republic, 23 - 27 August 2014, vol.39, pp.1801-1802

- VIII. **The study of alternative refrigerant gas R152a as mobile air conditioning refrigeration replacements**
Bilen K., Kalkışım A. T., Solmuş İ.

CLIMAMED VII. Mediterranean Congress of Climatization, İstanbul, Turkey, 3 - 04 October 2013, pp.782-790

- IX. **First and second law analysis of various types of solar air heaters**

Yıldırım C., Solmuş İ.

8. Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), Dubrovnik, Croatia, 13 June 2013, pp.1-12

- X. **Çift Geçişli Havalı Toplayıcının Teorik Analiz**

Yıldırım C., Solmuş İ.

2. Anadolu Enerji Sempozyumu, Diyarbakır, Turkey, 2 - 04 May 2013, pp.7-16

- XI. **Theoretical study on a solar powered humidification-dehumidification (HDH) desalination system**
Yıldırım C., Solmuş İ.

European Conference and Workshop on Renewable Energy Systems, Antalya, Turkey, 17 - 28 September 2012, pp.1-7

Supported Projects

SOLMAZ İ., GÜRÜF G., TOPRAK B. İ., ACAR V., Project Supported by Higher Education Institutions, Modifiye Grafit Köpük Malzemenin Akış Karakteristiklerinin Belirlenmesi, 2020 - 2021

Solmaz İ., Bayer Ö., Bilen K., TUBITAK Project, Entegre Igne Kanatçıklı-Alüminyum Köpük Isı Kuyusunun Akış Ve Isı Transferi Davranışının İncelenmesi, 2019 - 2021

SOLMAZ İ., TOPRAK B. İ., Project Supported by Higher Education Institutions, YAPAY METAL KÖPÜK İLE ENTEGRE EDİLMİŞ KANATÇIKLI ISI ALICISININ AKIŞ VE ISIL PERFORMANS ANALİZİ, 2019 - 2020

BİLEN K., KALKIŞIM A. T., SOLMUŞ İ., Project Supported by Higher Education Institutions, OTOMOBİL KLİMA SİSTEMLERİNDE ALTERNATİF SOĞUTKAN KULLANIMI VE TERMAL PERFORMANS İNCELEMESİ, 2015 - 2019

Solmuş İ., Yıldırım C., Bilen K., TUBITAK Project, Zamana bağlı tek akım yöntemi vasıtasıyla grafit köpük-hava arasındaki ortalama hacimsel ısı taşınım katsayısının tayini, 2016 - 2018

Solmaz İ., Yıldırım C., Project Supported by Higher Education Institutions, Termoelektrik soğutucu ile desteklenen taşınabilir damıtma sistemi performansının farklı çalışma parametreleri için deneysel olarak incelenmesi, 2013 - 2014

Kaftanoğlu B., Baker D. K., TUBITAK Project, Güneş enerjisi destekli zeolit iklimlendirme sistemi, 2007 - 2009

Baker D. K., Project Supported by Higher Education Institutions, Güneş enerjisi destekli nemlendirme nem alma prensibine dayalı olarak çalışan damıtma sisteminin teorik ve deneysel olarak incelenmesi, 2004 - 2006

Metrics

Citation (WoS): 629
Citation (Scopus): 692
H-Index (WoS): 13
H-Index (Scopus): 13

Scholarships

2214-A Yurt Dışı Doktora Sırası Araştırma Burs Programı, TÜBİTAK, 2010 - 2011
Advanced Separation Technologies in Chemical Engineering at the Process Engineering School at Technische Universität Berlin, Official Institutions of Foreign Countries, 2007 - 2007

Awards

Solmaz İ., ODTÜ Yılın Tezi Ödülü, Odtü Prof. Dr. Mustafa N. Parlar Eğitim Ve Araştırma Vakfı, March 2012
Solmaz İ., Solar powered adsorption cooling system, Tmmob Makina Mühendisleri Odası, April 2009

Entrepreneurship Activities

Limited, RENTECH Yenilenebilir Enerji Teknolojileri Müh. Lab. Malz. San. ve Tic. Ltd. Şti., 13 October 2020, Founder
Owner