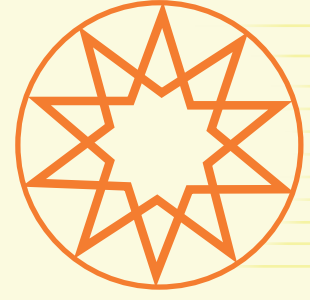


ISSN 2148-7847



Journal of Thermal Engineering

Volume 10

Number 2

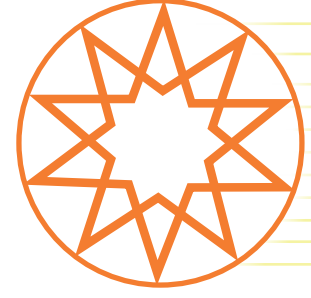
Year 2024

YTÜ
PRESS

www.jten.yildiz.edu.tr



Journal of Thermal Engineering



Volume 10 Number 2 Year 2024

EDITOR-IN-CHIEF

Ahmet Selim Dalkilic, *Yildiz Technical University, İstanbul, Türkiye*

ASSOCIATE EDITORS

Ali Celen, *Erzincan Binali Yıldırım University, Erzincan, Türkiye*

Baha Zafer, *İstanbul University, İstanbul, Türkiye*

Bekir Şener, *Yildiz Technical University, İstanbul, Türkiye*

Erdal Çetkin, *İzmir Institute of Technology, İzmir, Türkiye*

Emre Alpman, *Marmara University, İstanbul, Türkiye*

Erman Aslan, *İstanbul University, İstanbul, Türkiye*

Hasan Köten, *İstanbul Medeniyet University, İstanbul, Türkiye*

Hatice Mercan, *Yildiz Technical University, İstanbul, Türkiye*

Müslüm Arıcı, *Kocaeli University, Kocaeli, Türkiye*

Mustafa Kılıç, *Adana Science and Technology University, Adana, Türkiye*

Nader Javani, *Yildiz Technical University, İstanbul, Türkiye*

Naime Filiz Özgül, *Adana Science and Technology University, Adana, Türkiye*

Şevket Özgür Atayılmaz, *Yildiz Technical University, Adana, Türkiye*

Tolga Taner, *Aksaray University, Aksaray, Türkiye*

Özgen Açıkgöz, *Yildiz Technical University, İstanbul, Türkiye*

Yaşar İslamoğlu, *Sakarya University, Sakarya, Türkiye*

Yasin Karagoz, *İstanbul Medeniyet University, İstanbul, Türkiye*

Zerrin Sert, *Eskişehir Osmangazi University, Eskişehir, Türkiye*

EDITORIAL BOARD

Adrian Bejan, *Duke University, United States*

Afshin J. Ghajar, *Oklahoma State University, United States*

Ali Chamkha, *Prince Mohammad Bin Fahd University, Saudi Arabia*

Bekir Sami Yilbas, *King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia*

Chi-Chuan Wang, *National Chiao Tung University, Taiwan*

Gopal Nath Tiwari, *Indian Institute of Technology, India*

Hakan F. Oztop, *Firat University, Türkiye*

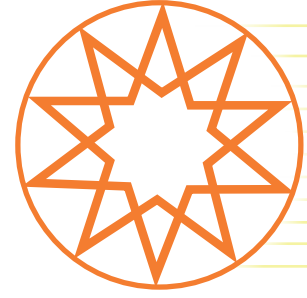
Hari Mohan Srivastava, *University of Victoria, Canada*

Hamadiche Mahmoud, *Université de Lyon 1, France*

Hamid Niazmand, *Ferdowsi University Of Mashhad, Iran*



Journal of Thermal Engineering



Volume 10 Number 2 Year 2024

Josua P. Meyer, *University of Pretoria, South Africa*
Kambiz Vafai, *University of California, United States*
Karan Surana, *The University of Texas, United States*
Mehmet Kanoğlu, *University of Gaziantep, Türkiye*
Mohammad Mehdi Rashidi, *Bu-Ali Sina University, Iran*
Mohammad Hassan Saidi, *Sharif University of Technology, Iran*
Muhammad Ali Rob Sharif, *The University of Alabama, United States*
Moh'd A. Al-Nimr, *Jordan University of Science and Technology, Jordan*
Mohsen Sheikholeslami, *Babol Noshirvani University of Technology, Iran*
Mustafa Turkyilmazoglu, *Hacettepe University, Türkiye*
N.K. Anand, *Texas A&M University, United States*
Omid Mahian, *Xi'an Jiaotong University, Xi'an, China*
Sergio Nardini, *Seconda Università degli Studi di Napoli, Italy*
Wei-Mon Yan, *National Chiao Tung University, Taiwan*

Abstracting and Indexing: Directory of Open Access Journals (DOAJ), EBSCO Host Online Research Databases, Web of Science, Emerging Sources Citation Index (ESCI), Scopus

Journal Description: The journal is supported by Yildiz Technical University officially, and is a blind peer-reviewed free open-access journal, published bimonthly (January-March-May-July-September-November).

Publisher: Yildiz Technical University

Editor-in-Chief: Prof.Dr. Ahmet Selim Dalkılıç, dalkilic@yildiz.edu.tr

Language of Publication: English

Frequency: Bimonthly (6 issues per year)

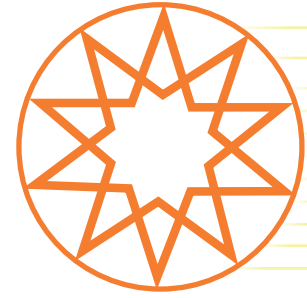
Regular Issues: January (1) - March (2) - May (3) - July (4) - September (5) - November (6)

Publication Type: Online e-version

Journal of Thermal Engineering is supported by Yildiz Technical University officially, and is a blind peer-reviewed free open-access journal, published bimonthly. • Journal of Thermal Engineering is a peer reviewed open access journal established as an origin for research in Heat Transfer and Thermodynamics mainly. • Journal of Thermal Engineering make every effort to ensure the accuracy of all the information (the "Content") contained in our publications. However, Journal of Thermal Engineering, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Journal of Thermal Engineering. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Journal of Thermal Engineering shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to, or arising out of the use of the Content.



Journal of Thermal Engineering



Volume 10 Number 2 Year 2024

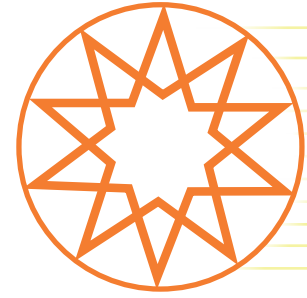
CONTENTS

Research Articles

- 263** Numerical investigation of an amalgamation of two phase change materials thermal energy storage system
Pankaj R. GHARDE, Sanjay N. HAVALDAR
- 273** Thermal stress analysis in pin fin microchannel heat sink
Mohammad Nazirul Syafiqaiman JANI, Nawaf H. SAEID
- 286** Performance evaluation of hybrid nanofluid-filled cylindrical heat pipe by machine learning algorithms
K. KUMARARAJA, B. SIVARAMAN, S. SARAVANAN
- 299** Evaluation of the thermal efficiency of nanofluid flows in flat plate solar collector
Adnan M. HUSSEIN, Afrah Turki AWAD, Hussein Hayder Mohammed ALI
- 308** Towards the use of natural thermal insulation on the exterior of vertical building walls in desert regions: A case study in the city of Bechar, Algeria
Slimane ZIAD, Imane BENOUDJAFER, Ibtissam BENOUDJAFER
- 321** Comparative evaluation of experimental ejector refrigeration system for different operating configurations
Batuhan ÜĞÜDÜR, Mehmet DİREK
- 330** MHD boundary layer micropolar fluid flow over a stretching wedge surface: Thermophoresis and brownian motion effect
Umme HANI, Mohammad ALI, Mohammad Shah ALAM
- 350** Numerical analysis of turbulent flow and heat transfer enhancement using V-shaped grooves mounted on the rotary kiln's outer walls
Youcef ATTOU, Mohamed BOUHAFS, Abdelkader FEDDAL
- 360** Enhancement in thermal and electrical characteristics of solar photovoltaic module through a direct contact water jacketed cooling system
Deepak Kumar SHARMA, Manish K RATHOD, Purnanand V BHALE



Journal of Thermal Engineering



Volume 10 Number 2 Year 2024

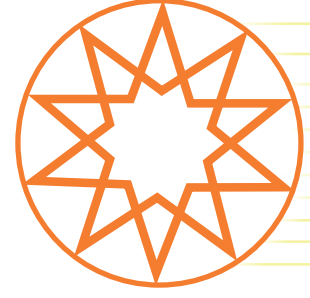
- 375** Enhancement in air-cooling of lithium-ion battery packs using tapered airflow duct
Vivek K SATHEESH, Navneet KRISHNA, Prakhar Singh KUSHWAH, Ishan GARG, Sharmista RAI, Gurumoorthy S HEBBAR, Dileep V NAIR
- 386** Temperature and salt concentration behavior of a compact rectangular salinity gradient solar pond
Dhandapani SATHISH, Selvaraj JEGADHEESWARAN, Murugan VEERAMANIKANDAN, Seepana PRAVEENKUMAR, Raja THIRUNAVUKKARASU
- 396** Study on exhaust gas recirculation diesel engine using karanja oil methyl ester with low heat rejection in direct injection
Ravisankar RAJENDRAN, V.S.K. VENKATACHALAPATHY, K. VELMURUGAN, M. ELANGO VAN, P. BALU
- 404** Thermal and dynamic characterization of a multi-jet system with different geometry diffusers
Naas ZAHOUT, Mohamed BRAIKIA, Ali KHELIL, Hassane NAJI
- 430** Experimental and numerical study for assessment indoor air quality by adopting mixing ventilation with different occupants' density in Iraq hot climates
Atheer Hmaizah SABR, Alaa Abbas MAHDI, Mohammed Wahhab ALJIBORY
- 447** Influences of iso-amyl nitrate oxygenated additive on mahua methyl ester/diesel blends thermal stability and crdi engine performance characteristics
Putha Prasad KUMAR, Srinivas PENDYALA, S.K. GUGULOTHU
- 457** Principal parameters of thermoelectric generator module design for effective industrial waste heat recovery
Wan Ahmad Najmi Wan MOHAMED, Nur Faranini ZAMRI, Muhammad Fairuz REMELI
- 479** Experimental investigation of axial finned tube evaporator thermal distillation system using for diesel engine waste heat recovery process
Satyendra KUMAR, Prakash CHANDRA
- 490** Convective thermal losses of long-term underground hot water storage
Milan RASHEVSKI, Slavtcho SLAVTCHEV

ISSN 2148-7847



Journal of Thermal Engineering

Volume 10 Number 1 Year 2024



Review Articles

- 503** Growth in turbine size and technological development of modern commercial large scale wind turbines in Türkiye
Mehmet BİLGİLİ, Hakan ALPHAN, Arif Emre AKTAŞ
- 517** Recent developments in thermal management of light-emitting diodes (LEDS): A review
Ashish KHUDAIWALA, Rupesh L PATEL, Rakesh BUMATARIA