

ISSN 2458-973X



JSCMT

**Journal of
Sustainable Construction
Materials and Technologies**

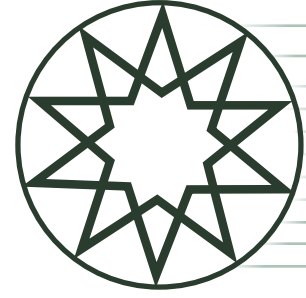
**Volume 9
Number 3
Year 2024**

**YTÜ
PRESS**

www.jscmt.yildiz.edu.tr



**Journal of
Sustainable Construction
Materials and Technologies**



Volume 9 Number 3 Year 2024

HONORARY EDITORIAL ADVISORY BOARD

Tarun R. Naik, *University of Wisconsin-Milwaukee, Center for By-Products, USA*

EDITOR-IN-CHIEF

Orhan Canpolat, *Yıldız Technical University, İstanbul, Türkiye*

CO-EDITORS

Rakesh Kumar, *Central Road Research Institute, New Delhi, India*

Benchara Benabed, *Université Amar Telidji Laghouat, Algeria*

LANGUAGE EDITORS

Mohiuddin M Khan, *Washington State University, USA*

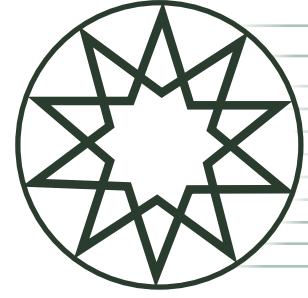
Ömer Faruk Kuranli, *Yıldız Technical University*

ASSISTANT EDITOR

Ekin Paylan, *Kare Publishing, Türkiye*

EDITORIAL BOARD

Togay Ozbakkaloglu, *College of Science and Engineering Ingram School of Engineering Texas State University, TX, United States*; **Messaoud Saidani**, *Associate Head of School, School of Energy, Construction and Environment, Coventry University, UK*; **Xiaojian Gao**, *Harbin Institute of Technology, HIT · School of Civil Engineering, China*; **Muammer Koç**, *Hamad bin Khalifa University, Sustainable Development College of Science and Engineering (HBKU), Qatar*; **Mustafa Şahmaran**, *Hacettepe University, Engineering Faculty Civil Engineering Department, Türkiye*; **Sudharshan N. Raman**, *Monash University Malaysia, Civil Engineering Discipline, School of Engineering, Malaysia*; **Roman Rabenseifer**, *Slovak University of Technology, Department of Building Construction, Faculty of Civil Engineering, Bratislava, Slovakia*; **Shengwen Tang**, *Wuhan University, School of Water Resources and Hydropower Engineering, China*; **Soofia Tahira Elias Özkan**, *Middle East Technical University, Department of Architecture, Türkiye*; **Manuel F. M. Costa**, *Centre of Physics of Minho and Porto Universities, University of Minho, Portugal*; **Ali Naji Attiyah**, *University of Kufa, College of Engineering – Department of Civil Engineering, Iraq*; **Murat Ateş**, *Tekirdağ Namık Kemal University, Department of Chemistry, Faculty of Arts and Sciences, Türkiye*; **Ghazi Al-Khateeb**, *Jordan University of Science and Technology, Department of Civil Engineering, College of Engineering, Jordan*; **A.S.M. Abdul Awal**, *Universiti Teknologi Malaysia, Department of Civil Engineering, Malaysia*; **Huachao Yang**, *College of Energy Engineering, Zhejiang University, Hangzhou, China*; **Aravind Krishna Swamy**, *Indian Institute of Technology Delhi, Department of Civil Engineering, India*; **Mohammed Mosleh Salman**, *College of Engineering Al-Mustansirya University, Civil Engineering Department, Iraq*; **Mohammad Arif Kamal**, *Aligarh Muslim University, Architecture Section, India*; **Sepanta Naimi**, *Altinbas University, Department of Civil Engineering, Türkiye*; **Siyu Ren**, *Nankai University, School of Economics, China*



Volume 9 Number 3 Year 2024

CONTENTS

Research Articles

- 211** Sustainable geopolymer concrete for pavements: Performance evaluation of recycled concrete aggregates in fly ash-based mixtures
B. Naga Malleswara RAO, Chereddy Sonali Sri DURGA, Chava VENKATESH, T. Muralidhara RAO
- 221** Sustainability beyond the surface: Evaluating the long-term environmental and energy performance of selected cladding materials for housing retrofits
Mark ALEGBE, Nasiru HAMMED
- 239** A study on the influence of material gradient index on bending and stress responses of FGM rectangular plates using the Finite Element Method
Masihullah NOORI, Ayça BİLGİN, Hamza DIALLO, Mohammad Omar AL ROUSAN, Ahmad Reshad NOORI
- 255** High temperature performance of geopolymer: Contribution of boron tincal waste
Zinnur ÇELİK, Emrah TURAN, Meral OLTULU
- 268** Replacement of conventional aggregates and fillers with steel slag and palm kernel shell ash in dense-graded asphalt mixtures
Collins A. NKETIAH, Kenneth A. TUTU, Ebenezer D. A. BARNOR, David A. AZONG-BIL
- 280** Experimental investigation of mechanical and physical properties of glass fiber reinforced concretes produced with different magnetized waters
Serkan SUBAŞI, Doğu RAMAZANOĞLU, Muhammed MARAŞLI, Volkan ÖZDAL, Yasemin HATIPOĞLU, Heydar DEHGHANPOUR
- 294** Optimizing seismic performance: Integrating friction dampers into spherical liquid tanks
Yunus UÇAR, Mehmet Fatih ALTAN