

Challenge Journal of

CONCRETE RESEARCH LETTERS

Vol.11 No.2 (2020)

acoustic emission artificial neural network

compressive strength concrete

corrosion cracking curing ductility

durability energy absorption ferrocement

flaky aggregate fly ash fracture mortar

palm oil fuel ash reinforced concrete

scrap self-compacting concrete silica fume

strengthening superplasticizer tensile strength

waste disposal water absorption workability



TULPAR
ACADEMIC PUBLISHING

ISSN 2548-0928



Challenge Journal

OF CONCRETE RESEARCH LETTERS

EDITOR IN CHIEF

Prof. Dr. Mohamed Abdelkader ISMAIL

Miami College of Henan University, China

EDITORIAL BOARD

Prof. Dr. Abdullah SAAND	<i>Quaid-e-Awam University of Engineering, Pakistan</i>
Prof. Dr. Alexander-Dimitrios George TSONOS	<i>Aristotle University of Thessaloniki, Greece</i>
Prof. Dr. Ashraf Ragab MOHAMED	<i>Alexandria University, Egypt</i>
Prof. Dr. Ayman NASSIF	<i>University of Portsmouth, United Kingdom</i>
Prof. Dr. Gamal Elsayed ABDELAZIZ	<i>Benha University, Egypt</i>
Prof. Dr. Han Seung LEE	<i>Hanyang University, Republic of Korea</i>
Prof. Dr. Zubair AHMED	<i>Mehran University, Pakistan</i>
Prof. Dr. Jiwei CAI	<i>Henan University, China</i>
Assoc. Prof. Dr. Meral OLTULU	<i>Atatürk University, Turkey</i>
Dr. Aamer Rafique BHUTTA	<i>Universiti Teknologi Malaysia, Malaysia</i>
Dr. Khairunisa MUTHUSAMY	<i>Universiti Malaysia Pahang, Malaysia</i>
Dr. Mahmoud SAYED AHMED	<i>Ryerson University, Canada</i>
Dr. Jitendra Kumar SINGH	<i>Hanyang University, Republic of Korea</i>
Dr. Saleh Omar BAMAGA	<i>University of Bisha, Saudi Arabia</i>
Dr. Türkay KOTAN	<i>Erzurum Technical University, Turkey</i>

E-mail: cjcr@challengejournal.com

Web page: cjcr.challengejournal.com

TULPAR Academic Publishing
www.tulparpublishing.com





Challenge Journal

OF CONCRETE RESEARCH LETTERS

CONTENTS

Research Articles

**Metaheuristic algorithms in optimum design of reinforced concrete beam
by investigating strength of concrete** 26-30

Serdar Ulusoy, Aylin Ece Kayabekir, Gebrail Bekdaş, Sinan Melih Nigdeli

Reliability analysis of a reinforced concrete bridge under moving loads 31-38

Hakan Bayrak, Ferhat Akgül

Investigation of optimal designs for concrete cantilever retaining walls in different soils 39-45

Esra Uray, Serdar Çarbaş, İbrahim Hakkı Erkan, Murat Olgun

