

Challenge Journal of

STRUCTURAL MECHANICS

Vol.4 No.4 (2018)

buckling building codes columns continuous
girder bridge durability dynamic analysis
dynamic response earthquake
finite element analysis finite element
method meridional stresses operational
modal analysis optimization reinforced
concrete seismic analysis seismic
design seismic isolation seismic response
shallow foundations smart concrete
teaching-learning based optimization



TULPAR
ACADEMIC PUBLISHING

ISSN 2149-8024



Challenge Journal

OF STRUCTURAL MECHANICS

EDITOR IN CHIEF

Prof. Dr. Ümit UZMAN
Karadeniz Technical University, Turkey

ASSOCIATE EDITOR

Prof. Dr. Yi-Lung MO
University of Houston, United States

EDITORIAL ADVISORY BOARD

Prof. Dr. A. Ghani RAZAQPUR
McMaster University, Canada

Prof. Dr. Paulo B. LOURENÇO
University of Minho, Portugal

Prof. Dr. Gilbert Rainer GILLICH
Eftimie Murgu University of Resita, Romania

Prof. Dr. Long-Yuan LI
University of Plymouth, United Kingdom

Prof. Dr. Željana NIKOLIĆ
University of Split, Croatia

Prof. Dr. Ş. Burhanettin ALTAN
Giresun University, Turkey

Prof. Dr. Togay ÖZBAKKALOĞLU
University of Hertfordshire, United Kingdom

Assoc. Prof. Dr. Khaled MARAR
Eastern Mediterranean University, Cyprus

Assoc. Prof. Dr. Hong SHEN
Shanghai Jiao Tong University, China

Assoc. Prof. Dr. Nunzianta VALOROSO
Parthenope University of Naples, Italy

Prof. Dr. Halil SEZEN
The Ohio State University, United States

Prof. Dr. Adem DOĞANGÜN
Uludağ University, Turkey

Prof. Dr. M. Asghar BHATTI
University of Iowa, United States

Prof. Dr. Reza KIANOUSH
Ryerson University, Canada

Prof. Dr. Y. Cengiz TOKLU
Okan University, Turkey

Prof. Dr. Habib UYSAL
Atatürk University, Turkey

Assoc. Prof. Dr. Filiz PİROĞLU
İstanbul Technical University, Turkey

Assoc. Prof. Dr. Bing QU
California Polytechnic State University, United States

Assoc. Prof. Dr. Naida ADEMOVIĆ
University of Sarajevo, Bosnia and Herzegovina

Assoc. Prof. Dr. Anna SAETTA
IUAV University of Venice, Italy

Assoc. Prof. Dr. Serdar ÇARBAŞ
Karamanoğlu MehmetBey University, Turkey

Dr. Saverio SPADEA
University of Bath, United Kingdom

Dr. Chien-Kuo CHIU
*National Taiwan University of
Science and Technology, Taiwan*

Dr. Teng WU
University at Buffalo, United States

Dr. Pierfrancesco CACCIOLA
University of Brighton, United Kingdom

Dr. Marco CORRADI
Northumbria University, United Kingdom

Dr. Alberto Maria AVOSSA
Second University of Naples, Italy

Dr. Susanta GHOSH
Michigan Technological University, United States

Dr. Amin GHANNADIASL
University of Mohaghegh Ardabili, Iran

Dr. Burak Kaan ÇIRPICI
Erzurum Technical University, Turkey

Dr. Zühal ÖZDEMİR
The University of Sheffield, United Kingdom

Dr. Fatih Mehmet ÖZKAL
Atatürk University, Turkey

Dr. Syahril TAUFİK
Lambung Mangkurat University, Indonesia

Dr. J. Michael GRAYSON
*The Citadel - The Military College of South Carolina,
United States*

Dr. Fabio MAZZA
University of Calabria, Italy

Dr. Sandro CARBONARI
Marche Polytechnic University, Italy

Dr. José SANTOS
University of Madeira, Portugal

Dr. Taha IBRAHİM
Benha University, Egypt

Dr. Luca LANDI
University of Bologna, Italy

Dr. Mirko MAZZA
University of Calabria, Italy

E-mail: cjsmec@challengejournal.com

Web page: cjsmec.challengejournal.com

TULPAR Academic Publishing
www.tulparpublishing.com





CONTENTS

Research Articles

An insight into design of prefabricated and prestressed concrete monoblock railway ties for service loads 126-136

Niyazi Özgür Bezin

Monitored structural behavior of a long span cable-stayed bridge under environmental effects 137-152

Alemdar Bayraktar, Ashraf Ashour, Halil Karadeniz, Altok Kurşun, Arif Erdiş

Necessary height of the vertical stiffeners in steel silos on discrete supports 153-158

Lyubomir A. Zdravkov

Earthquake performance of collapsed school building under Van-Tabanlı (Mw=7.2) earthquake 159-175

Cumhur Cosgun, Atakan Mangir

