

# **7th International Conference on Advanced Materials, Mechanics and Structural Engineering (AMMSE 2020)**

IOP Conference Series: Materials Science and Engineering  
Volume 1048

Taipei, Taiwan  
25 - 27 September 2020

ISBN: 978-1-7138-3307-9  
ISSN: 1757-8981

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work is licensed under a Creative Commons Attribution 3.0 International Licence.  
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

|                                                                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| HIGH AND LOW TEMPERATURE RESISTANCE OF PHENYL SILICONE RUBBER.....                                                                                        | 1  |
| <i>Yanhua Huang, Qihong Mu, Zhengtao Su</i>                                                                                                               |    |
| EFFECT OF CRYOGENIC TREATMENT OF CEMENTED TUNGSTEN CARBIDE TOOLS<br>FOR DIE APPLICATION .....                                                             | 7  |
| <i>C Yooliengpun, N Bandasak, K Tuchinda, O Diewwanit</i>                                                                                                 |    |
| DETERMINATION OF DAMPING RATIO USING MONTE-CARLO METHOD .....                                                                                             | 16 |
| <i>Q Peng, Y Ding, Y Huang, Z Zhu</i>                                                                                                                     |    |
| PHOTOCATALYTIC TREATMENT OF WATER CONTAMINATED BY ORGANIC DYE<br>WITH ETS-10 TITANIUM SILICATE.....                                                       | 23 |
| <i>A Cantiello, S Candamano, P De Luca</i>                                                                                                                |    |
| EXPERIMENTAL MEASUREMENTS THROUGH ULTRASOUNDS FOR<br>VISCOELASTICITY ANALYSIS .....                                                                       | 28 |
| <i>A Maiorano, G Napolitano Dell'Annunziata, E Rocca</i>                                                                                                  |    |
| COMPLEX FORMATION OF COPPER(II), NICKEL(II) AND $\gamma$ -L-GLUTAMYL-L-<br>CYSTEINYL-GLYCINE (GSH) .....                                                  | 35 |
| <i>Napoli Anna</i>                                                                                                                                        |    |
| THE USE OF HYDRAZINE-BASED DERIVATIZATION TECHNIQUE TO CHARACTERIZE<br>GLYCOSYL ESTERS OF CROCETIN FROM SAFFRON .....                                     | 40 |
| <i>Donatella Aiello</i>                                                                                                                                   |    |
| LATEST DEVELOPMENTS IN ADHESIVE ANCHORING TECHNOLOGY.....                                                                                                 | 45 |
| <i>P Mahrenholtz, CW Hsieh, K Yu</i>                                                                                                                      |    |
| IDENTIFICATION AND ISOLATION OF HOMOSERINE LACTONES (HSLs) PRODUCED<br>BY PSEUDOMONAS AERUGINOSA AND THE EFFECTS ON LEGIONELLA<br>PNEUMOPHILA GROWTH..... | 51 |
| <i>S. Materazzi, M. De Giusti, L. Marinelli</i>                                                                                                           |    |
| STABILITY ANALYSIS OF INTRINSIC CAMERA CALIBRATION USING PROBABILITY<br>DISTRIBUTIONS.....                                                                | 57 |
| <i>Kun Zhan, Dieter Fritsch, Joerg F Wagner</i>                                                                                                           |    |
| EDIBLE FILM COATING TO EXTEND THE SHELF-LIFE OF FRESH-CUT KIWI.....                                                                                       | 67 |
| <i>G. Gullifa</i>                                                                                                                                         |    |
| SEISMIC PERFORMANCE OF REINFORCED CONCRETE TALL BUILDINGS WITH<br>CONVENTIONAL AND NON-CONVENTIONAL CONSTRUCTION SYSTEMS .....                            | 73 |
| <i>L Arita, R Lezameta, G Huaco, D Garber</i>                                                                                                             |    |
| AN ASSESSMENT OF SOME PHYSICAL PROPERTIES OF DIFFERENT BRANDS OF<br>CEMENT IN NIGERIA .....                                                               | 79 |
| <i>Munachiso C. Ogbodo, Akpabot Ifiok Akpabot</i>                                                                                                         |    |
| SEISMIC PERFORMANCE ASSESSMENT OF A TYPICAL PERUVIAN PUBLIC-SCHOOL<br>BUILDING.....                                                                       | 84 |
| <i>O Cardenas, A Farfan, G Huaco, A Stavridis</i>                                                                                                         |    |

|                                                                                                                                                                                    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| A NOVEL VISUAL INSPECTION SYSTEM FOR RAIL SURFACE SPALLING DETECTION .....                                                                                                         | 91  |
| <i>Dieuthuy Pham, Minhtuan Ha, Changyan Xiao</i>                                                                                                                                   |     |
| FIRE CHARACTERISTICS OF LIGHT STEEL STRUCTURE BUILDING AND<br>SUGGESTIONS FOR FIRE ALARM SYSTEM .....                                                                              | 100 |
| <i>Yu-Chih Ou, Ming-Lun Tsai, Hao-Yu Wu, Chung-Chyi Chou</i>                                                                                                                       |     |
| NUMERICAL ANALYSIS OF BIAXIAL ELASTO-PLASTIC BUCKLING OF PERFORATED<br>RECTANGULAR STEEL PLATES APPLYING THE CONSTRUCTAL DESIGN METHOD .....                                       | 105 |
| <i>T da Silveira, J P S Neufeld, L A O Rocha, E D dos Santos, L A Isoldi</i>                                                                                                       |     |
| A NOVEL, STRUCTURALLY COLOURED COATING FOR ALUMINIUM ALLOYS .....                                                                                                                  | 111 |
| <i>Ian J Mardon, Fengyan Hou, Chris Goode</i>                                                                                                                                      |     |
| EFFECTS OF THE CARBON FIBER ORIENTATIONS FOR THE STRENGTHENING OF<br>THIN-WALLED STEEL CYLINDERS UNDER COMPRESSIVE LOADS AND BENDING<br>SHEAR LOADS.....                           | 118 |
| <i>P V Nhut, Y Matsumoto, T Matsui, H Nakamura</i>                                                                                                                                 |     |
| THE DISSOLUTION OF HEMATITE DEPOSITS ON MODEL SPENT ION EXCHANGE<br>RESINS USING DIRECT CURRENT .....                                                                              | 128 |
| <i>E A Tokar, A I Matskevich, T A Sokolnitskaya, A M Egorin</i>                                                                                                                    |     |
| OPTIMIZATION OF STRUCTURAL ELEMENTS IN HIGHLY SEISMIC AREAS USING<br>NEURAL NETWORKS.....                                                                                          | 134 |
| <i>V. Arana, M. Sanchez, P. Vidal</i>                                                                                                                                              |     |
| EVALUATION OF THE INFLUENCE OF DIFFERENT GRADES OF REINFORCING STEEL<br>ON THE SEISMIC PERFORMANCE OF CONCRETE REINFORCED FRAME STRUCTURES<br>WITH NONLINEAR STATIC ANALYSIS ..... | 141 |
| <i>D Navarro, R Valero, J Orihuela</i>                                                                                                                                             |     |
| SEISMIC RESPONSE OF AN EDUCATIONAL BUILDING UNDER MOVING MASS DUE TO<br>EARTHQUAKE EVACUATION.....                                                                                 | 146 |
| <i>C Bueno, F Arroyo, V Arana</i>                                                                                                                                                  |     |

## **Author Index**