

# **5th International Conference on Smart Material Research (ICSMR 2019)**

IOP Conference Series: Materials Science and Engineering  
Volume 856

Brisbane, Australia  
13 - 16 November 2019

ISBN: 978-1-7138-2686-6  
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

## **MATERIAL MECHANICS**

PUNCHING SHEAR STRENGTH OF REINFORCED CONCRETE FLAT SLABS WITH MACRO SYNTHETIC FIBERS.....	1
<i>Nadia Nassif, Salah Altoubat, Mohamed Maalej, Pierre Estephane</i>	
MECHANICAL PROPERTIES IMPROVEMENT OF CLAYS USING SILICA SAND WASTE AND DUST SAND FOUNDRY WASTE.....	8
<i>Anita Setyowati Srie Gunarti, Irwan Raharja</i>	
THE EFFECT OF DRYING METHOD ON THE SURFACE STRUCTURE OF MESOPOROUS SOL-GEL DERIVED BIOACTIVE GLASS-CERAMIC.....	12
<i>Neda Ghaebi Panah, Rob Atkin, Tim Sercombe</i>	
THEORETICAL EXPLORATION ON FREE RADICAL SCAVENGING MECHANISM OF CURCUMIN ANALOGUES IN WATER SOLVENT.....	17
<i>L S P Boli, N D Aisyah, V Khoirunisa, F Rusydi, H Rachmawati, H K Dipojono</i>	
THEORETICAL INVESTIGATION ON ELECTRON TRANSFER-BASED ANTIOXIDANT ACTIVITY OF MELINJO RESVERATROL.....	22
<i>V Khoirunisa, R N Fadilla, L S P Boli, F Rusydi, H Rachmawati, H K Dipojono</i>	
SEARCH FOR THE MAXIMAL THRESHOLD CO CONTENT FOR THE OXIDATION BEHAVIOUR POINT OF VIEW FOR 25WT.% CR-CONTAINING TAC-STRENGTHENED CAST SUPERALLOYS DESIGNED FOR USE AT 1200°C ON LONG TIME.....	27
<i>P Berthod, J P Gomis</i>	

## **COMPOSITE MATERIALS**

CARBON NANOTUBE REINFORCED ALUMINIUM COMPOSITES FABRICATED BY POWDER METALLURGICAL AND HOT-ROLLING TECHNIQUES.....	33
<i>Hideaki Tsukamoto</i>	
MICRO/NANOSTRUCTURED MTMOS AS ELECTROCATALYSTS FOR OXYGEN EVOLUTION REACTION IN ALKALINE MEDIUM.....	39
<i>Charles Lois Flores, Mary Donnabelle Balela</i>	
SYNTHESIS AND ANTIPARKINSONIAN ACTIVITY OF NANOCOMPOSITE OF CHITOSAN-TRIPOLYPHOSPHATE-MUCUNA PRURIENS L EXTRACT (CS-TPP-MP).....	44
<i>R E Sardjono, A N Fauziyah, M D Puspitasari, I Musthapa, F Khoerunnisa, G N Azzahra, R Mamat, Erdiwansyah</i>	
MODELING AND SIMULATION OF A GAUGE SHAPED BEAM COUPLED WITH MACRO FIBER COMPOSITE FOR ENERGY HARVESTING APPLICATION.....	50
<i>D S Ibrahim, B B Sun, U Sharif, O A Oluseyi</i>	

## **Author Index**