# International Conference on Recent Advancements and Effectual Researches in Engineering Science and Technology (RAEREST 2018)

IOP Conference Series: Materials Science and Engineering Volume 396

Kerala State, India 20 – 21 April 2018

ISBN: 978-1-5108-7026-0 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.

Copyright© (2018) by the Institute of Physics All rights reserved. The material featured in this book is subject to IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

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

#### 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 Web: www.proceedings.com

## **Table of contents**

### Volume 396

International Conference on Recent Advancements and Effectual Researches in Engineering Science and Technology (RAEREST)

20-21 April 2018, Kerala State, India

Accepted papers received: 19 July 2018 Published online: 29 August 2018

Preface

International Conference on Recent Advancements and Effectual Researches in Engineering Science and Technology (RAEREST)

Peer review statement

#### **Papers - Civil Engineering**

**Structural and Concrete Technology 1** 

Effect of Glass Fibers, Fly Ash and Quarry Dust on Strength and Durability Aspects of Concrete – An Experimental Study

PL Meyyappan, K Kumaran, M Gopalakrishnan and E Harikrishnan'.....1

Use of Clay Tile Chips as Coarse Aggregate in Concrete

Aswathy Mohan, Job Thomas and Neethu Joseph.....9

Mechanical Properties of Concrete Containing Brick Chips

Christy Francis Lonth, Job Thomas and Neethu Joseph.....17

Study of hardened properties of hybrid fibre reinforced concrete using steel and glass fibre

Athira Anand and Manish Jose.....25

Numerical Study of Dual Web Steel Plate Girders Under Buckling, Monotonic Load Response And Hysteresis Behaviour

Merin Maria Alex, Nikhil Mohanan and Asha Alice Kulavattom.....33

Effect of multi-layers in Aluminium corrugated sandwich panels under blast loading.

Alka George, Nikhil Mohanan and Asha Alice Kulavattom.....41

#### **Structural and Concrete Technology 2**

Seismic assessment of irregular reinforced concrete frame structures using triple friction pendulum bearing

Suni Susan Babu and Manish Jose.....48

Numerical Study on Axial Behaviour of Concrete Filled Double Skin Steel Tubular (CFDST) Column with Cross Helical FRP Wrappings

Anna Skaria and Mariamol Kuriakose....56

Dynamic blast response of diagonally biased stiffened steel plate under confinement

Anju Alexander, Nikhil Mohanan and S Bincy.....64

Falling weight impact response of prestressed concrete slabs with manhole

Sharoan Merin Mathews, Nikhil Mohanan and Manish Jose.....71

Parametric Study of Longitudinal Hollow Steel Fibre Reinforced Concrete (SFRC)Beams

Bibi M Jacob and S Bincy.....79

#### **Transportation and GIS**

Study of Traffic Flow at a Three Legged Busy Intersection in Vellore, India

S Vasantha Kumar, P. Priyadharshini, B. Dhanalakshmi and K. Settu.....87

#### **Computer Science Engineering**

#### **Computational Intelligence**

A Review on Various Techniques used in Predicting Pollutants

Aiswarya Baby and Aneena Ann Alexander.....94

Authenticating Communication of Autonomous Vehicles With Artificial Intelligence

Neetha George and Jeena Thomas.....101

A Study On The Impact Of Machine Learning Tools For Detecting Anxiety Disorders In Preschool Children

K R Anugraha and S Vineetha.....108

Smart Car Parking With Reservation System Using QR Generator

Aswathy James and Prince Abraham.....116

Sentiment Analysis on Textual Reviews

Mirsa Karim and Smija Das.....121

A Performance Improvement Inference Method For Link Prediction in Social Graphs

Ashly Ann Jo and Prince. V. Jose.....128

An Approach of RDD Optimization in Big Data Analytics

V Athira and Jeena Thomas.....135

A Study on Various Methods for Mining Energy Consumption pattern from Smart Home Big Data

Jemeema Maria John and Hima Anns Roy.....143

Pedagogue Performance Assessment (PPA) using Data mining Techniques

Ashily M Baby.....148

Review on Energy Harvesting and Data Collection

Thasni Noushad and Kishore Sebastian.....154

#### **Security and Privacy**

Novel Web Service Based Fingerprint Identification Using Steganography and Xml Mining

V M Praseetha, Ayush Dattagupta, R Suma and S. Vadivel.....160

Security mechanisms and Vulnerabilities in LPWAN

Smilty Chacko and Mr. Deepu Job ..... 171

Survey on Encryption Approaches for Secure Face Biometrics

R Kavya and Angitha George.....179

A Review on Cybersecurity Threats and Statistical Models

Feba Babu, Kishore Sebastian and Kishore Sebastian.....185

A Review on BlockChain Security

Remya Stephen and Aneena Alex....191

A Study of Next Generation Sequencing Data, Workflow, Application and Platform Comparison

Aswathy Thankachan and Mr Bino Thomas.....198

A Study on Packet Loss Reduction methods and Node Registration methods in AODV for MANET

Achu Anna Antony and Bino Thomas.....203

A survey on different privacy-preserving authentication schemes in VANET

Deepu Mathew and Hima Anns Roy.....211

#### **Electronics and Communication Engineering**

**Signal Processing** 

Study On Early Detection Of Autism Using Genetic And Kinematic Biomarker

V Deepthi and S Vineetha.....216

Synthesis, structure and characterization of Co doped CeO<sub>2</sub> nanoparticles

Saurabh Tiwari, Nivedha Balasubramanian, Sajal Biring and Somaditya Sen.....224

Multirate and Filterbank Approaches in Digital Hearing Aid Design: A Review

Tomson Devis and Manju Manuel.....230

Compressive Sensing Recovery Algorithms and Applications- A Survey

S Sreeharitha, G Sabarinath and Babita R Jose.....238

A Review on White Blood Cells Segmentation

Nimmy Thomas and V. Sreejith.....246

A Simple and Robust Strategy for Background Removal from Brain MR Images

J Rameesa Mol, A G Rashmi, K Jiss Mohan, S.S Alsaheer, A Mable and J Justin.....250

A Review on Visual Recognition of RGB Images and Videos by Learning from RGB-D Data

Alphonsa Jose and V Sreejith.....255

#### VLSI and Communication

Comparative Analysis of Full Adder Circuits

Aneela Achu Mathew and P R Sreesh.....260

Low Power Wallace Tree Encoder For Flash ADC

M P Ajanya and George Tom Varghese.....268

A Review on Autonomous Relay For Millimeter Wave Wireless Communications

Greeshma Sosa Thomas and C Sarath Chandran.....274

A Method for the Investigation of Bearing Vibration Based on Spectrogram Image Comparison

P Arun, S Madhukumar and P Careena.....279

A Noise Reduced Hard Thresholding method for Noisy Sparse Reconstruction

G Sabarinath and Babita R Jose.....286

#### **Electrical and Electronics Engineering**

**Renewable Energy** 

Simulation and Control of MPPT Based Hybrid System with Boost Converter

J Barsana Banu, M Balasingh Moses and S Rajarajacholan.....293

Review of Solar PV Powered Water Pumping System Using Induction Motor Drive

V T Akhila and S Arun.....302

Nano tuned conducting polymer for plastic solar cell

Ishwar Naik, Rajashekhar Bhajantri, Vinayak Bhat and B.S Patil.....310

Load harmonics extraction based decoupled control of grid connected solar photovoltaic system

Fossy Mary Chacko, M V Jayan and A Prince.....315

Soiling of photovoltaic modules- Review

Anitha Shaju and Rani Chacko.....323

Evolution of wind energy conversion system and recent challenges in grid integration: A review

Tomson Thomas and A. Prince.....333

#### Hybrid vehicle

Modular battery charge equalization circuit based on state of charge for electric vehicle application

Ginu Ann George, A. Prince and M.V. Jayan.....341

#### **Mechanical Engineering**

**Thermal Science-1** 

Les of Thermally Stratified Turbulent Channel Flow at Low Prandtl Number

Waquar Raza, Ajiv Alam Khan and Syed Mohd Yahya.....348

Estimation of in-plane thermal conductivity of copper clad board by inverse analysis using artificial neural networks

K Niju Mohammed and Samarjeet Chanda.....355

Development of Tool to Design Piston Bowl Considering Spray Parameters to Reduce Emissions

Sajil N Sreedharan and Rajiv Krishnan.....363

Numerical investigations on a proton exchange membrane fuel cell of active area 50 cm<sup>2</sup>

Tino Joe Tenson and Rajesh Baby.....371

#### **Thermal Science-2**

Estimation of characteristic length of a horizontal cylindrical annulus for heat transfer through conduction using Rayleigh number

S Ramesh Krishnan and VN Narayanan Namboothiri.....379

Enhancement of thermal performance of a loop heat pipe using alumina – water nanofluid : An experimental investigation

J Akshay, Aswin J Joseph, Jobin Jose and Rajesh Baby.....385

Performance studies on serpentine flow channel of a proton exchange membrane fuel cell

Antony Alex, Austin George, Bijo Thomas, Bonny Mathew Antony and Rajesh Baby.....392

Recent advances in loop heat pipes : A review

Jobin Jose and Rajesh Baby.....400

Thermal performance of multilayer insulation: A review

P M Sutheesh and Alex Chollackal.....408

Pyrolysis process to produce fuel from different types of plastic – a review

Anandhu Vijayakumar and Jilse Sebastian.....416

#### **Machine Design**

Development of benchmark for simulation of Mode I time based fracture

A V Gopal and A Jamil.....424

Influence of aspect ratio on the linear and non-linear steady state forced vibration response of cylindrical open shells

Arshad Hussain Khan, Mohd. Taha Parvez and Rehan Ahmed.....434

Experimental and numerical investigations on failures due to plasticity in thin walled structures

A Jamil, A H Khan and S Ali.....442

Ergonomic optimisation of machining operations of power transmission shaft

Ajith James and Tom Zacharia.....451

Design and Simulation of an Automated Road Safety Enhancement System by Testing the Physical Fitness of Driver

Arun Vijayan and P Arun.....456

Bio-active glass synthesis and coating: A review

Athira Thulasidas and J Babu.....464

#### Manufacturing

Experimental and numerical analysis of impact of conical projectile on polyethylene plate

M Junaid Qadri, Arshad Hussain Khan and Raisuddin Ansari.....472

Effect of tool diameter in ECDM process with powder mixed electrolyte

Lijo Paul and Donald Antony.....480

Comparative study of effect of tool materials in EDM process

Lijo Paul and Ivin Jose.....491

A Firefly Algorithm Approach for Multirow Facility Layout Problem

Akash P Lukose, Abyson Scaria and Babu George.....499

Green supplier selection using hybrid grey relational analysis with fuzzy logic method

V S Ashish Vishnu, Jalumedi Babu and Babu George.....509

A review on magnetic field assisted micro machining

R Renjith and Lijo Paul.....517