

Preface

The 3rd International Conference on Science, Technology and Interdisciplinary Research (IC-STAR 2017) was organized by University of Lampung, in Bandar Lampung, Indonesia, on September, 18 – 20, 2017. The IC-STAR is a foremost annual forum for sharing and highlight original and novel ideas, significant advances, the state-of-the-art, current status, and future challenges on all aspects related to the research and development in the field of science, engineering and technology, and their inter-discipline subjects. IC-STAR is also intended to be the platform for information dissemination, gathering, and networking for academia, researchers, engineers, and professionals within the areas. The conference was also planned to provide advanced orientation and understanding for related industries and governments to looking across industrial partnerships, business strategic, and policy and regulations, with expected for a wider range of participants and readers.

This year the scientific committee received 128 submitted papers, by which 84 papers was selected and presented in the conference. The peer-review processes have been done based on the originality, impact, novelty, and the close relation to the area of the conference. The presented papers were selected to be published in several journal partners, including the IOP Conference Series: Materials Sciences and Engineering. In this volume, 29 papers were selected from IC-STAR 2017 and its conference partner.

We are pleased and thankful for all distinguish authors and reviewers for their contribution that have made this publication possible. We do hope that you will enjoy this publication and find it as a useful guide and reference.

Editorial board:

Ardian Ulvan (*Dept. of Electrical Engineering, University of Lampung, Indonesia*)

Irza Sukmana (*Dept. of Mechanical Engineering, University of Lampung, Indonesia*)

Denni Kurniawan (*Dept. of Mechanical Engineering, Curtin University, Sarawak Malaysia*)



IC-STAR 2017 Committee

Advisory Board

Prof. Dr. Ir. Hasriadi Mat Akin – Rector of University of Lampung
Prof. Syafsir Akhlus – Rector of Universitas Maritim Raja Ali Haji, Chairman of Rector Forum BKS-PTN Barat
Prof. Akio Tomiyama – Kobe University, Japan
Prof. Hadi Nur – Universiti Teknologi Malaysia, Malaysia
Prof. Pavel Ripka – Czech Technical University in Prague
Prof. Toshiro Ohashi – Hokkaido University, Japan

Steering Committee

Prof. Bujang Rahman – Vice Rector, University of Lampung, Indonesia
Prof. Bustami Syam – Vice Rector, University of Sumatera Utara, Indonesia
Prof. Dr. Suharno – Dean of Faculty of Engineering, University of Lampung, Indonesia
Dr. Warsono – Director of Research Institute of University of Lampung
Prof. Warsito – Dean of Mathematics and Natural Science, University of Lampung, Indonesia.
Dr. Eng. Helmy Fitriawan – University of Lampung, Indonesia
Dr. Muh. Sarkowi – University of Lampung, Indonesia
Prof. Ing. Boris Simak – Czech Technical University in Prague, Czech Republic
Dr. Yusron Saadi – Dean of Faculty of Engineering, University of Mataram, Indonesia
Mr. M. Ikhsan – PT. Telkom, Indonesia
Dr. Jiri Krejci – Vodafone, Czech Republic
Mr. Terklin Sinulingga – Alstom Grid, United Kingdom

Organizing Committee

Ardian Ulvan – Conference Chair
Dewi A. Iryani – Secretary, Public Relation, and Sponsorship
Melvi - Treasurer
Gigih Forda Nama – Information and Conference Management System
Hery Dian Septama – Publication and Circulation
A. Yudi Eka Risano – Sponsorship
Afri Yudamson – Social event and Excursion
Novri Tanti – Logistics and Appurtenance

Scientific Committee

Irza Sukmana – University of Lampung, Indonesia – Chair
Denni Kurniawan – Curtin University, Sarawak, Malaysia – co-Chair

Scientific Committee Member

Basem Abu Izneid – Effate University, Saudi Arabia
Joni Agustian – University of Lampung, Indonesia
Anna Antonyova – University of Presov, Slovakia

Naseem Ahmed – Indian Institute of Technology Roorkee, India
Fitri Arnia – Syiah Kuala University, Indonesia
Edwin Azwar - University of Lampung, Indonesia
Yanuar Burhanuddin – University of Lampung, Indonesia
R.Y. Ferry Burhan – 10 November Institute of Technology, Indonesia
Homero Toral-Cruz – University of Quintana Roo, Quintana Roo, Mexico
Joy Rizky Pangestu Djuansjah – Universiti Teknologi Malaysia, Malaysia
Taha Abd. El-Rahman – University of Sherbrooke, QC, Canada
Ainul Ghurri – Udayana University, Indonesia
Cipta Ginting – University of Lampung, Indonesia
Lukmanul Hakim – University of Lampung, Indonesia
Agus Haryanto – University of Lampung, Indonesia
Khomaini Hasan – Biotechnology Research Centre, Bandung Institute of Technology, Indonesia
Udin Hasanudin – University of Lampung, Indonesia
Ismail Tasib Karas – Karabuk University, Turkey
Naoya Kasai – Yokohama National University
Mamoru Kikumoto – Yokohama National University
Irdika Mansur – Bogor Institute of Agriculture, Indonesia
Antonin Mazalek – University of Defence, Brno, Czech Republic
Agung Mataram – Sriwijaya University, Indonesia
Christia Meidiana – Brawijaya University, Indonesia
Lee Meyer – University of Kentucky, USA
Khairul Munadi – Syiah Kuala University, Indonesia
Noor Danish Mundari – LPU, India
Kaneko Nabuhiro -Yokohama National University, Japan
Maksum Pinem – University of Sumatera Utara, Indonesia
RR. Poppy Puspitasari – Universitas Negeri Malang, Indonesia
Chithra Reghuvaran – National Institute of Technology, Rourkela, Odisha, India
Uceu Fuad Hassan R.S. – GKSS, Germany
Emerson Pascawira Sinulingga – University of Sumatera Utara, Indonesia
Suherman – University of Sumatera Utara, Indonesia
Ahmad Saudi Samosir – University of Lampung, Indonesia
Shirley Savetlana – University of Lampung, Indonesia
Diding Suhandy – University of Lampung, Indonesia
Wikan Danar Sunindyo – Bandung Institute of Technology, Indonesia
Gatot Eko Susilo – University of Lampung, Indonesia
Takahasi Susume – Kyoei University, Japan
Irfan Syamsuddin – Makassar State Polytechnic, Indonesia
Josaphat Tetuko – Chiba University, Japan
Agung Trisetyarso – Telkom University, Indonesia
Mokhammad Fakhrol Ulum – Bogor Institute of Agriculture, Indonesia
Mustafa Usman – University of Lampung, Indonesia
Zuzana Vranova – University of Defense, Brno, Czech Republic
Dedy H.B. Wicaksono – Swiss German University, Indonesia

Documentation

