

## **Preface 4<sup>th</sup> ICAMEST**

The 4<sup>th</sup> ICAMEST 2020 is an International Conference on Advanced Material and Engineering Structural Technology (4<sup>th</sup> ICAMEST 2020) take place in Seoul, South Korea during September 11-13, 2020.

The conference program covered invited, oral, and poster presentations from scientists working in similar areas to establish platforms for collaborative research projects in this field. This conference brought together leaders from industry and academia to exchange and share their experiences, present research results, explore collaborations and to spark new ideas, with the aim of developing new projects and exploiting new technology in this field.

The committee of ICAMEST 2020 expresses their sincere thanks to all authors for their high-quality research papers and careful presentations. All reviewers are also thanked for their careful comments and advices. Thanks are finally given to Trans Tech Publication as well for producing this volume.

The Organizing Committee of ICAMEST 2020

Committee Chair

Prof. Mosbeh Kaloop    Mansoura University, Egypt

Incheon Disaster Prevention Research Center at Incheon National University

# Committees 4<sup>th</sup> ICAMEST

## Organizer

Prof. Mosbeh Kaloop      Mansoura University, Egypt  
Incheon Disaster Prevention Research Center

## Secretary

Jack Son      ICAMEST Committee

## Associate Editors

Prof. Jongwan Hu      Incheon National University  
Prof. Dongkeon Kim      Dong A university

## Technical Committee

Prof. Mosbeh Kaloop      Incheon National University

## Sponsors

Incheon National University



Incheon National University established a global campus by integrating two city council funded colleges into one in March 2010 and became a national university operated by the legal entity. With the start of attracting the branch of Lawrence Berkeley Research Center that is a world famous US national policy research center for education and research, Incheon National University will attract St. Petersburg University in Russia, Polymers University in Britain, and Kent University in Belgium and other foreign universities and research centers. These efforts will make INU spring to a world-wide competitive university.

As a local development leading university, Incheon National University established INU VISON 2020 and improved its competition actively through investment in selection and concentration. In compliance with the geographic feature and areal specialty, it will concentrate on the international trade, goods distribution, applied technology convergence, BNT-based life science, urban science and the sinology- based local humanity fields.

Incheon Disaster Prevention Research Center (IDPRC)



Recently, various efforts to prevent and prepare are vitally needed for prevention of Disasters and calamities. So we understand the necessity for technology of disaster and we built up the Incheon Disaster Prevention Research Center (IDPRC) in Incheon National University (INU) in 1997.

Accordingly, Incheon Disaster Prevention Research Center (IDPRC) in Incheon National University has progressed of research on the prevention of disasters and calamities through the various seminars, conference and lectures. These research could be conducted cooperation with Incheon National University (INU) in various fields structure, soil, hydraulic and environment.

Incheon Disaster Prevention Research Center (IDPRC) will try to be a leader in the disaster of industry through the various research activities and global conference.

## **Preface 3<sup>rd</sup> ISMSE**

The 3<sup>rd</sup> 2020 International Symposium on Material Science and Engineering was held during August 21-23, 2020 in Seoul, South Korea and this book proceeding contains some of the contributions presented at the conference.

The primary objective of ISMSE 2020 is to provide a world class forum for exchange original ideas and new information, latest research and discussing scientific. Also it to bring together academics, scientists, engineers, postgraduates and other professionals in the area of material science and engineering technology from all over the world.

On behalf of the conference organizing committee, we would like to express our sincere appreciation to the keynote speakers, for their excellent and inspirational speeches, the reviewers, for their valuable inputs for improving the scientific content of these papers. We also would like to thank every technical committee member and author who has contributed to the success of the conference.

The Organizing Committee of ISMSE 2020

Committee Chair

Prof. Seungho Hong      West Virginia University  
Department of Civil and Environmental Engineering

# **Committees 3<sup>rd</sup> ISMSE**

## **Organizer**

Prof. Seungho Hong

West Virginia University  
Department of Civil and Environmental Engineering

## **Secretary**

Hongki Son

ISMSE Committee

## **Associate Editors**

Prof. Tebaldi Gabriele  
Prof. Sungwhan Kim

University of Parma  
Incheon National University

## **Technical Committee**

Prof. Mosbeh Kaloop

Incheon National University