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Siti Suhana Jamaian *Editors*

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Editors

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Preface

From the smallest of atoms to the largest of real numbers, science and mathematics are sorely needed in solving many of the major contemporary issues: energy, climate change, poverty, big data, food and water. The world is looking for sustainable solutions to problems more than ever. The synergistic approach of Mathematicians, Scientists and Engineers has undeniable importance for finding and implementing sustainable solutions to our biggest problems. Nevertheless, as changes occur and development takes place, the responsibility of sustaining it does not only lie in the hands of scientists, mathematicians and engineers but also on the society. People at large, irrespective of their backgrounds, play the most crucial roles in ensuring that the world we live in would continue to flourish. Hence, it is imperative for us to disseminate facts to the public with thorough honesty. They should be enlightened with the latest developments in the field of science and engineering which are aimed for sustainable future technologies.

With this viewpoint SCIEMATHIC 2021 is planned with a theme “Quest for Sustainable Science and Mathematics for Future Technologies.” It is the seventh in the series of SCIEMATHIC conferences organised by Faculty of Applied Sciences and Technology (FAST), Universiti Tun Hussein Onn Malaysia every year. As COVID-19 precautionary measure, it is organised online this year during 27–28 October 2021.

This book highlights the work of amazing researchers from different parts of the world with a focus on potential applications for future technologies. It will provide a quality insight to the reader about the leading trends in sustainable science and technology research. It covers the research work of Physicists, Mathematicians, Statisticians and Data Scientists, aiming to find sustainable solutions to the major problems in the scientific world.

From SCIEMATHIC 2021, we attracted papers from 6 different countries. In this volume of SPP we are including 39 high quality papers, each of these is accepted for oral presentation and publication after blind peer review by at least two independent reviewers. The papers in this proceeding are divided into four sections Physics, Mathematics, Statistics and Engineering, as they were presented during the conference.

On behalf of the SCIEATHIC 2021, we express our highest gratitude to the Patron Prof. Datuk Ts. Dr. Wahid Razzaly; Advisor, Prof. Dr. Hashim Saim; Conference Organiser, Faculty of Applied Sciences & Technology, UTHM, Conference Chair, Publication Committee, Manuscript & Review Committee, and all Committee members for their valuable efforts in the review process that helped us to guarantee the highest quality of the selected papers for the conference.

We would like to express our thanks to the Keynote speakers: Dato' Sri Ibrahim Ahmad from Universiti Tun Hussein Onn Malaysia, Asst. Prof. Dr. Satoru Yoshioka from Kyushu University, Japan, Dr. John Pasley from University of York, England, Dr. Muhammad Shahbaz Anwar from University of Cambridge, England, and ChM. Dr. Siti Fatimah Salim from Universiti Teknologi Mara, Malaysia.

Invited Speakers: Prof. Dr. Shafida Abd Hamid, International Islamic University Malaysia, Dr. Saiful Najmee bin Mohammad, Universiti Teknologi Mara and Mr. Abdul Rahim bin Othman, PETRONAS for sharing their inspiring talks.

We would also like to say thanks to all the committee members and session chairs for their substantial work in making this event successful.

Our special thanks to Dr. Loyol D'Silva and Ms. Shalini Monica for publishing this proceeding in Springer Proceedings in Physics.

Lastly, we cordially thank all the authors for their valuable contributions and other participants of this conference. The conference would not have been possible without them.

Johor, Malaysia

Aida Binti Mustapha
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