IOP Conference Series: Materials Science and Engineering

International Nuclear Science, Technology and Engineering Conference 2020 (iNuSTEC2020)
"Sustainable Nuclear Science and Technology for Well-Being of Mankind"

Universiti Tenaga Nasional
Selangor, Malaysia
17-19 November 2020

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PREFACE

It is my pleasure to welcome all the distinguished guests, key note speakers and participants today for the three-day virtual conference of the "International Nuclear Science, Technology and Engineering Conference 2020 (iNuSTEC2020)".

I wish a special welcome to all the eminent speakers from Malaysia and nuclear experts from overseas such as the Republic of Korea, the United States of America and Germany to iNuSTEC2020, and thus making this conference a truly international conference in spirit. I’m very glad and thankful that you are willing to spend your precious time to be with us and sharing your knowledge and vast experiences with us, especially for the young budding nuclear scientists and engineers in Malaysia.

I was informed that this is the 3rd time that the Universiti Tenaga Nasional (UNITEN) is organizing iNuSTEC with MNS. The first was in 2010, the second in 2017. NuSTEC2020 is especially more significant and challenging this year as the conference is held online, in line with the Conditional Movement Control Order (CMCO) SOP's due to COVID-19 pandemic. UNITEN students from the Skuad Media UNITEN (SMU) played a big role in bringing this conference online to you. Congratulations to Skuad Media UNITEN!

Indeed, nuclear science and technology development is closely intertwined with the world wide web (www), networking and computing development. The demand from the former drives the latter to the forefront. It was the scientists who work at CERN, Geneva, who first invented the world wide web (www) to share the vast nuclear data across the world. The high-performance computers are used extensively on grid to run complex nuclear simulations.

This conference is jointly organized by the Malaysian Nuclear Society (MNS) in collaboration with several local universities and vendors. I wish to thank all the committee members for their tireless effort in ensuring the success of this virtual online conference. Due to the changing time caused by the COVID-19, all participants are urged to stay safe and maintain social distancing.

For this iNuSTEC2020 conference, there will be more than 70 papers to be presented by the keynote speakers, invited speakers and participants. Like what we have every year, the conference hosts several other events and for this year we are very proud to host the Radiation Safety Refresher Course for Radiation Protection Officer (RPO) in collaboration with Arey Solutions Sdn Bhd., and the Nuclear Debate 2020. Both events are held online, and for the Nuclear Debate 2020, it involved students from the local universities.

The theme of this year conference is "Sustainable Nuclear Science and Technology for Well-Being of Mankind". Indeed, I'm very convinced that this conference is an ideal platform for scientists, researchers and stakeholders in nuclear science, technology and engineering to share experiences and exchange knowledge in related areas. The Nuclear Science, Technology and Engineering Conference (NuSTEC) has come a long way since 2010 and has surpassed the various challenges that the nuclear science and technology has faced over the years and has adapted to the changing public perception. From having this conference with just 20 - 30 participants back in 2010, we have come a long way in making the conference a huge success with almost 100 participants and exhibitors participating in NuSTEC annually.

I would like to take this opportunity to share the Universiti Tenaga Nasional's involvement in nuclear education. In providing students with sound knowledge in nuclear, the College of Engineering (COE), Universiti Tenaga Nasional (UNITEN) initiated the introduction of several technical electives courses in nuclear engineering and technology within the Mechanical Engineering Department. To ensure the effective implementation of the nuclear technical elective courses, cooperation and collaboration with several other institutions such as the Malaysian Nuclear Agency and the Universiti Kebangsaan Malaysia were established. Since there is no nuclear facilities at UNITEN, cooperation with the Malaysian Nuclear Agency (MNA) is vital to ensure that students have the opportunity to use MNA facilities. Exposing students to the TRIGA Mark II research reactor and NDT laboratories at MNA help students to understand the physics and
applications of nuclear technologies better. Besides, research activities are also conducted at MNA facilities for the benefits of staff and students. In strengthening the cooperation, a Memorandum of Understanding (MOU) between UNITEN and MNA was formalized in December 2010.

Currently, the College of Engineering is offering two nuclear courses, the "Introduction of Nuclear Engineering" and "Nuclear Policy, Security and Safeguards" as technical elective courses for all engineering students at UNITEN. The number of students enrolled for the two courses maintained between 50 – 80 students every semester. In addition, in every academic year there are always UNITEN students that undergo industrial training and conduct final year projects in nuclear. Furthermore, at post graduate level, there are couple of students who specialize in nuclear science and technology while doing masters and PhD. It is hopeful that these students will be the ambassadors in supporting the establishment of nuclear power in Malaysia in the near future.

I would like to express my gratitude and congratulations to all participants who have been actively involved during the three days of the digital conference, achieving this conference’s objectives.

Thank you.

Prof. Dato' Ts. Dr. Mohd Zamri Bin Yusoff
Deputy Vice-Chancellor (Student Affairs, Alumni and Management)
Universiti Tenaga Nasional (UNITEN)
Advisor of iNuSTEC2020
MESSAGE FROM:
PRESIDENT, MALAYSIAN NUCLEAR SOCIETY (MNS)

On behalf of the Malaysian Nuclear Society (MNS), I would like to express our thanks to all participants of the International Nuclear Science, Technology and Engineering Conference 2020 (iNuSTEC2020). MNS is honoured to receive supports from distinguished international and national researchers and experts in the field of nuclear science, technology and engineering as International Advisory and National Advisory Panels for iNuSTEC2020. We are indeed pleased to have Organizing Committees of iNuSTEC2020 and the Secretariats working alongside to ensure the success of iNuSTEC2020 which was conducted in the teleconference mode. At the forefront of nuclear science and engineering, MNS collaborates with universities, government agencies and related NGOs to bring the success of iNuSTEC2020. I believe MNS members shall strive to make it better and stronger in future.

In conjunction with this conference, MNS is also honoured to organise Radiation Safety Refresher for RPO on 18-19 Nov 2020 with the MNS corporate member Arey Solutions Sdn Bhd for radiation protection officers registered with Atomic Energy Licensing Board (AELB) of Malaysia. MNS is also honoured to organise Inter Varsity Nuclear Debate 2020 on 19 Nov 2020 in collaboration with Skuad Media UNITEN. These events will help bring university students especially the young Z nuclear generation to discuss issues related to nuclear landscape and the mainstream of development. There are 60 papers received and about 34 papers are accepted to be published in the proceeding.

This conference brings together experienced and young researchers to discuss and debate latest development in all areas of nuclear science, engineering and technology applications for friendly purposes at international level. This would spur and catalyse further research and development leading to the sustainable and improvement of the quality of life without compromising the quality of the environment in Malaysia and in the world.

We would like to express our gratitude to UNITEN for hosting iNuSTEC2020 and Inter Varsity Nuclear Debate 2020 and, to all the personnel involved for their unwavering efforts to make this event, which is held online, a reality. I wish to also record my appreciations and thanks to all sponsors for their generous support. May all these efforts bring benefits to all of us and I congratulate everyone involved in making this conference successful event.

Thank you.

Assoc. Prof. Dr. Abdul Aziz Mohamed
President, MNS
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