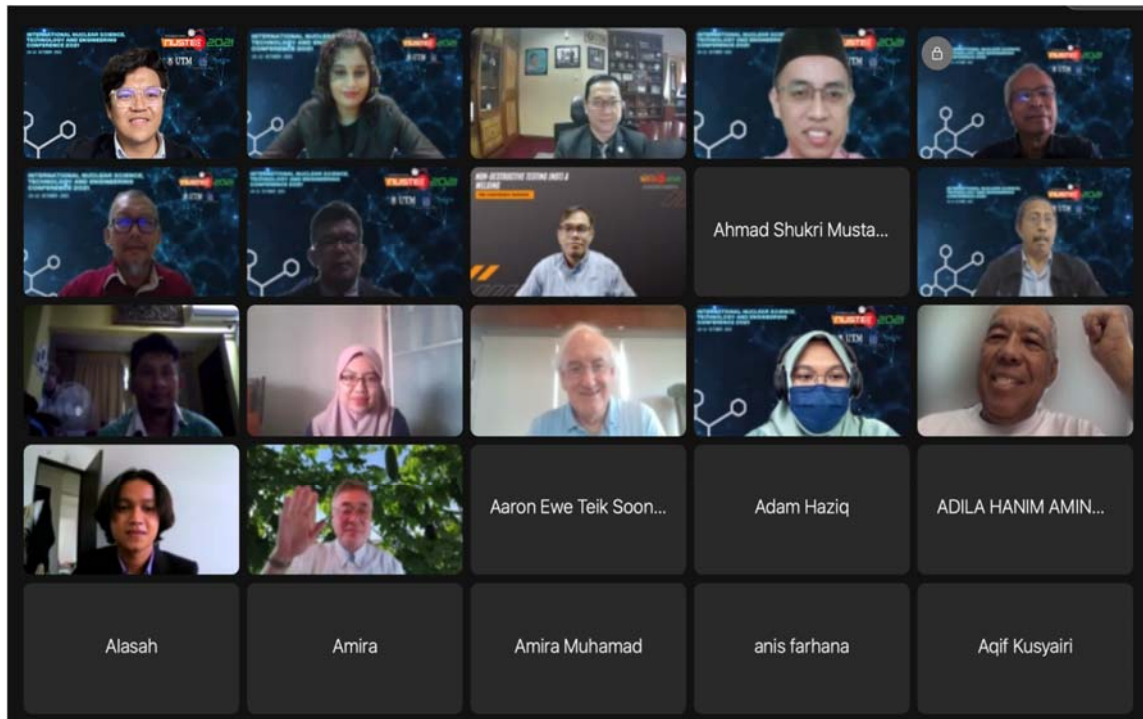


## THE SUCCESS OF iNuSTEC2021 CONFERENCE

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A three days virtual conference of International Nuclear Science, Technology and Engineering Conference 2021 (iNuSTEC2021) was hosted by Universiti Teknologi Malaysia (UTM) and Malaysian Nuclear Society (MNS) on 10 - 12 October 2021. With the special theme of “Nuclear Science and Technology for Socio-Economic Development”, the conference had gathered around 30 - 50 scientists, researchers, and interested parties from Malaysia, China, South Korea, Japan, Austria, and Pakistan. They shared experiences, knowledge, and new findings on nuclear and radiation-related technologies. iNuSTEC2021 was officiated by the Vice Chancellor of UTM, Professor Datuk Ts. Dr. Ahmad Fauzi Ismail. He hopes that the conference will promote research collaboration between the participants. The conference was broadcasted live for the public via MNS’s Facebook and Youtube Page.



*Figure 1. Opening ceremony of iNuSTEC2021.*

A total of 32 oral presentations and 5 posters were presented during the event. 19 papers had been selected and published in the IOP Conference Series: Materials Science and Engineering (Volume 1231) which is an open-access journal hosted by IOP Publishing. Topic themes covering from science, engineering, material sustainability, and environmental safety.

**Table 1: The details of technical papers published in IOP Conference Series.**

<b>Table 1: The details of technical papers published in IOP Conference Series.</b>	
<b>Theme</b>	<b>Nuclear Science and Engineering</b>
1.	Model predictive and fuzzy logic controllers for reactor power control at Reaktor TRIGA PUSPATI;
2.	Lattice Design of a Compact Hadron Driver for Cancer Therapy;
3.	Multiprocessing implementation for MCNP using Python;
4.	New exposure room shielding incorporated with ferro boron concrete for neutron radiography imaging (NURI) facility at TRIGA PUSPATI Research Reactor;
5.	Numerical solution of deuteron potential depth using python;
6.	A comparative photon shielding properties of protective Window materials by using EGS5 code;
7.	Evaluation of scattering effects for radiation shielding or filter materials by using Monte Carlo simulation;
8.	Physical properties of polyvinyl alcohol (PVAL) gel materials as phantoms for mammography.
<b>Theme</b>	<b>Material and Sustainability</b>
9.	Superconducting properties of (Bi,Pb) <sub>2</sub> Sr <sub>2</sub> Ca <sub>2</sub> Cu <sub>3</sub> O <sub>x</sub> (BSCCO-2223) superconductor ceramics prepared by conventional solid-state reaction and co-precipitation methods;
10.	Polyethylene composite with boron and tungsten additives for mixed radiation shielding;
11.	Correlation of ground penetrating radar and nuclear density gauge data to determine the density of asphalt pavement;
12.	The effect of various electrospinning parameter and sol-gel concentration on morphology of silica and titania nanofibers;
13.	Fabrication of magnetic sugarcane bagasse paper and Mechanical properties;
14.	Thermogravimetric analysis of peroxide prevulcanized natural rubber latex induced by Co-60 $\gamma$ radiation.
<b>Theme</b>	<b>Environmental and Safety</b>
15.	Time-dependent reliability analysis for a critical reactor safety system based on fault tree approach;
16.	Nuclear fuel materials and its sustainability for low carbon energy system: A review;
17.	Assessment of rare earth and actinides (U and Th) elements in soil samples from Kapar industrial area, Selangor;
18.	Small beam dosimetry by using Al <sub>2</sub> O <sub>3</sub> optically stimulated luminescent (OSL) dosimeters at high energy photons and electrons;
19.	Applying empirical method for performance metrics measurement of a nuclear security system.

DAY 1 10 OCTOBER 2021

INTERNATIONAL  
**NUSTEC** 2021  
NUCLEAR SCIENCE, TECHNOLOGY  
AND ENGINEERING CONFERENCE 2021  
10 -12 OCTOBER 2021

[www.nuklearmalaysia.org](http://www.nuklearmalaysia.org)

[www.inustec.my](http://www.inustec.my)

#iNuSTEC2021

**KEYNOTE 1: UTM NUCLEAR ENGINEERING PROGRAMME: A SUCCESS STORY**

**STUDENTS ENROLMENT**

Student	Sessions									
	2012 /2013	2013 /2014	2014 /2015	2015 /2016	2016 /2017	2017 /2018	2018 /2019	2019 /2020	2020 /2021	2021
Year 1	32	30	23	15	29	28	30	11	13	
Year 2	-	31	30	23	15	29	28	30	11	
Year 3	-	-	31	30	23	15	29	28	30	
Year 4	-	-	-	31	30	23	15	29	28	
<b>Total</b>	<b>32</b>	<b>63</b>	<b>84</b>	<b>99</b>	<b>97</b>	<b>97</b>	<b>102</b>	<b>99</b>	<b>82</b>	

**ASSOC. PROF. DR. KHAIDZIR BIN HAMZAH**

**Participants**

Organized by

Co-organized by

Supported by

Figure 2. Live broadcast of keynote speech delivered by Assoc. Prof. Dr. Khaidzir Hamzah.

Concurrently, Debat Nuklear Antara Varsiti 2021 and Nuclear Youth Competition (NYC) 2021 events were successfully organized by the Nuclear Engineering Student Society (NESS, UTM) and Advanced Nuclear Engineering Research Group (ANERGY). Both events had attracted a number of teams from four local universities. The debate involved topics such as application of nuclear technology in Malaysia, climate change, and the future of nuclear power generation in Malaysia. The main objective of both events was to encourage students to increase their knowledge on nuclear applications as well as the advantages of nuclear technologies in Malaysia. Congratulations to Universiti Tenaga Nasional (UNITEN) for winning the debate competition. On the other hand, the NYC is a yearly event that pits several teams of undergraduate students in presenting various topics related to nuclear issues. This time around, the winning university team was from UTM. A big round of applause for their efforts! May the involvement of these students will help in seminating the correct information of nuclear technology among the youths in this country.

DAY 2 DEBAT NUKLEAR ANTARA VARSITI

INTERNATIONAL  
**NUSTEC** 2021  
NUCLEAR SCIENCE, TECHNOLOGY  
AND ENGINEERING CONFERENCE 2021  
10 -12 OCTOBER 2021

**WAJARKAH KERAJAAN MALAYSIA MEWAJIBKAN PENGGUNAAN TEKNOLOGI TANPA MUSNAH (NDT) BAGI SEKTOR PENTING UNTUK MEMASTIKAN KESELAMATAN ORANG RAMAI?**

**YDP Dewan Rakyat**

**Kerajaan**

**Pembangkang**

Organized by

Co-organized by

Supported by

Figure 3. Debat Nuklear Antara Varsiti 2021.

In conjunction with iNuSTEC2021 event, the Pre-Conference Webinar on Non-Destructive Testing (NDT) and the Post-Conference Workshop on Neutronic Simulation was held on 9 and 13 October 2021, respectively. The NDT webinar was delivered by experts from UTM, Malaysian Nuclear Agency (MNA), Malaysian Welding and Joining Society (MWJS), ZL Technologies, and Eddyfi Technologies. Meanwhile, the neutronic simulation workshop was conducted by Dr. Mark Dennis from MNA, Dr. Arif Sazali from UTM and Dr. Hairie Rabir from Universiti Kebangsaan Malaysia (UKM). They are among the neutronic simulation experts in Malaysia. Both events had remarkable participation from various companies and higher learning institutions.

Despite the Covid-19 pandemic, the virtual iNuSTEC2021 and the concurrent events were successfully organized and fulfilled its objectives. The closing remark was delivered by Dean of the Faculty of Engineering, Professor Ts. Dr. Ruzairi Abdul Rahim. UKM will host iNuSTEC2022 on 25 – 27 October 2022. The announcement was officially made by President of MNS, Associate Professor Dr. Abdul Aziz Mohamed.

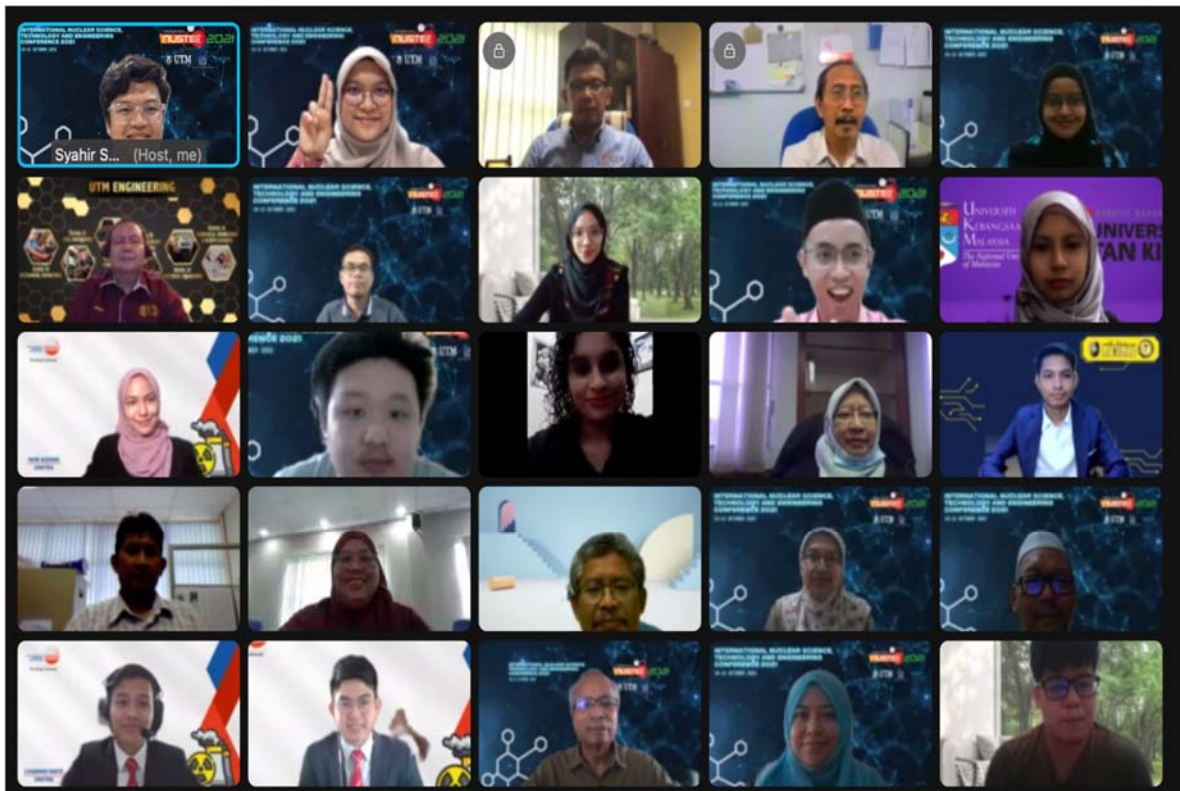


Figure 4. Closing ceremony of iNuSTEC2021.