

International Nuclear Science, Technology and Engineering Conference (iNuSTEC 2021)

IOP Conference Series: Materials Science and Engineering
Volume 1231

Online
9 – 12 October 2021

Editors:

**Nahrul Khair Alang Md Rashid
Khaidzir Hamzah
Mohsin Mohd Sies
Jasman Zainal
Muhammad Arif Sazali
Muhammad Syahir Sarkawi
Nur Syazwani Mohd Ali**

**Khairulnadzmi Jamaluddin
Abdul Aziz Mohamed
Faridah Mohamad Idris
Julie Andrianny Murshidi
Faizal K P Kunchi Mohamed
Hassan Mohamed
Abu Hassan Husin**

ISBN: 978-1-7138-4689-5
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

IOP Conference Series: Materials Science and Engineering

Peer Review Statement

<p>Model predictive and fuzzy logic controllers for reactor power control at Reaktor TRIGA PUSPATI.....</p> <p style="padding-left: 20px;"><i>Mohd Sabri Minhat, Nurul Adilla Mohd Subha, Fazilah Hassan, Abdul Rashid Husain, Anita Ahmad</i></p>	1
<p>Lattice Design of a Compact Hadron Driver for Cancer Therapy</p> <p style="padding-left: 20px;"><i>Leo Kwee Wah, Ken Takayama, Toshikazu Adachi, Tadamichi Kawakubo, Tanuja Dixit</i></p>	18
<p>Multiprocessing implementation for MCNP using Python</p> <p style="padding-left: 20px;"><i>Muhammad Arif Sazali, Muhammad Syahir Sarkawi, Nur Syazwani Mohd Ali</i></p>	28
<p>New exposure room shielding incorporated with ferro boron concrete for neutron radiography imaging (NURI) facility at TRIGA PUSPATI Research Reactor</p> <p style="padding-left: 20px;"><i>Muhammad Syahir Sarkawi, Jasman Zainal, Muhammad Arif Sazali, Nur Syazwani Ali, Nor Afifah Basri, Muhammad Rawi Mohamed Zain, Faridah Idris, Khair'iah Yazid, Norriza Mohd Isa, Rafhayudi Jamro</i></p>	37
<p>Numerical solution of deuteron potential depth using python.....</p> <p style="padding-left: 20px;"><i>Adam Muhammad, I.A. Alnour</i></p>	47
<p>A comparative photon shielding properties of protective Window materials by using EGS5 code</p> <p style="padding-left: 20px;"><i>Nurhakimah Mamat, Suffian Mohamad Tajudin, Adila Hanim Aminordin Sabri, Arif Faddilah Mohd Noor, Nursyafika Norizan, Mohd Zahri Abdul Aziz</i></p>	54
<p>Evaluation of scattering effects for radiation shielding or filter materials by using Monte Carlo simulation</p> <p style="padding-left: 20px;"><i>Nur Miza Osman, Suffian Mohamad Tajudin, Adila Hanim Aminordin Sabri, Arif Faddilah Mohd Noor, Mohd Zahri Abdul Aziz</i></p>	61
<p>Physical properties of polyvinyl alcohol (PVAL) gel materials as phantoms for mammography.....</p> <p style="padding-left: 20px;"><i>Franca Oyiwoja Okoh, Mohd Fahmi Mohd Yusof, Norlaili Ahmad Kabir, Siti Nor Azizah Abdullah</i></p>	68
<p>Superconducting properties of (Bi,Pb)₂Sr₂Ca₂Cu₃O_x (BSCCO-2223) superconductor ceramics prepared by conventional solid-state reaction and co-precipitation methods</p> <p style="padding-left: 20px;"><i>Zaahidah 'Atiqah Mohiju, Madiah Mujaini, Nasri A. Hamid</i></p>	73
<p>Polyethylene composite with boron and tungsten additives for mixed radiation shielding</p> <p style="padding-left: 20px;"><i>Muhammad Arif Sazali, Nahrul Khair Alang Md Rashid, Khaidzir Hamzah, Faridah Mohamad Idris, Muhammad Syahir Sarkawi, Nur Syazwani Mohd Ali</i></p>	80
<p>Correlation of ground penetrating radar and nuclear density gauge data to determine the density of asphalt pavement</p> <p style="padding-left: 20px;"><i>Tengku Sarah Tengku Amran, Mohamad Syafiq Mohd Amin, Mohamad Ridzuan Ahmad, Noor Azreen Masenwat, Suhairy Sani, Mohd Fajri Osman, Shaharudin Sayuti, Syed Abdullah Hamidi Syed Mamat, Haziq Hassan, Anis Iwana Rohesan</i></p>	87

The effect of various electrospinning parameter and sol-gel concentration on morphology of silica and titania nanofibers	99
<i>Umar Abdillah, Hafizal Yazid, Sahrim Ahmad, Nurulizzati Makhtar, Siti Zaubidah, Ruey Shan Chen, Nur Hadifah Syifa</i>	
Fabrication of magnetic sugarcane bagasse paper	106
<i>Annur Azlin Azmi, Siti Amira Othman</i>	
Mechanical properties and thermogravimetric analysis of peroxide prevulcanized natural rubber latex induced by Co-60 γ radiation.....	114
<i>Sofian Ibrahim, Khairiah Badri, Chantara Thevy Ratnam, Chai Chee Keong, Hasan Sham, Mohd Noor Wadi Mat Lazim, Noor Hasni M. Ali, Khairul Hisyam Mohd Yusof</i>	
Time dependent reliability analysis for a critical reactor safety system based on fault tree approach	121
<i>Ahmad Hassan, Zahira Mokhtar, Mazleha Maskin</i>	
Nuclear fuel materials and its sustainability for low carbon energy system: A review	128
<i>Muhammad Adli Nor Azman, Nur Syazwani Mohd Ali, Muhammad Syahir Sarkawi, Muhammad Arif Sazali, Nor Afifah Basri</i>	
Assessment of rare earth and actinides (U and Th) elements in soil samples from Kapar industrial area, Selangor	138
<i>M S Elias, M A Azman, J A D Daung, A Hashim, Z Laili, S A Omar, S Shukor</i>	
Small beam dosimetry by using Al ₂ O ₃ optically stimulated luminescent (OSL) dosimeters at high energy photons and electrons	149
<i>Mohd Fahmi Mohd Yusof, Nur Amirah Shariff, Nur Sajidah Muhammad Fauzi, Ahmad Bazlie Abdul Kadir, Noriza Mohd Isa</i>	
Applying empirical method for performance metrics measurement of a nuclear security system	155
<i>Maizura Ibrahim, Siti Nurbahyah Hamdan, Saa'idi Ismail, Mohamad Safuan Sulaiman, Sufian Norazam Mohamed Aris, Mohd Hasnor Bin Hasan, Mohd Dzul Aiman Aslan, Nur Fatini Abdul Ghani, Amy Hamijah Ab Hamid</i>	

Author Index