



Reaktor TRIGA PUSPATI COLLOQUIUM

28 & 29 June 2021

RTP
39
years

**Enhanced
Utilization:
Safe
Operation**

CLUSTER 1

Operation
and
Maintenance

CLUSTER 2

Neutron
Application

CLUSTER 3

Safety and
Security

CLUSTER 4

Advanced
Technology



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Preamble

About

It was decided for the current anniversary celebration of RTP (*Reaktor TRIGA PUSPATI*), a small colloquium is needed to gather in a single event to discuss various technical experiences presently available to the reactor group for both posterity and dissemination of current information to the public. This colloquium are hosting four clusters:

- Operations and maintenance
- Safety and Security
- Neutron Applications
- Future Technology

RTP History

Since December, 1979, it took less than three years for the construction and commissioning of the RTP to be completed by 1982. The first criticality was attained on the 28th June 1982. Several neutron facilities such as Small Angle Neutron Scattering, Neutron Radiography were installed at the reactor, post commissioning. Over the operational years of the RTP, several upgrades was implemented. Among the upgrading activities was the replacement of the heat exchanger in 2009 allowing better heat transfer mechanism during operation. In order to support life extension of the reactor, major upgrades was made in the last decade such as the replacement of analog to digital console and the old fission chambers were replaced to ensure continuity and safe operation of the RTP. Additionally, the spent fuel pool was also constructed and fuel transfer cask was fabricated for fuel transportation. The electrical and ventilation systems are also been upgraded recently. Competencies of the staff has been enhanced in many important areas of Nuclear Engineering including nuclear physics, reactor physics, thermalhydraulics, material science, safety and security relevant to the RTP through continuous education and training programs.

Reactor Manager Remarks

This inaugural event has marked the 39th year of the safe operation of the Reaktor TRIGA PUSPATI (RTP). The commissioning of the RTP has manifested the era of nuclear and has served the needs of neutron sciences application in Malaysia. This reactor has been handled safely with the local expertise in the operation and maintenance, probabilistic and deterministic safety assessment, instrumentation, and controls with the properly integrated safety management system. This day, we gather to exchange information and share knowledge about handling the RTP and promoting its utilization without compromising its safety, security, and safeguards. As a Reactor Manager, it is my responsibility to keep the safe operation of the RTP and preserved the best practices to ensure its sustainability. I praised the unconditional efforts of the organizing committee team to make this event successful, and I welcomed all the participants and presenters to the RTP Colloquium, Enhanced Utilization: Safe Operation. Thank You.

Julia Abdul Karim
Reactor Manager

Organizing committee

Julia Abdul Karim	Mazleha Maskin	Zareen Khan Abdul Jalil Khan
Mark Dennis Usang	Hasniyati Md Razi	Nurhayati Ramli
Naim Syauqi Hamzah	Nurfazila Hussain	Hairilnuar Nordin

Timetable

CT: Contributed Talk, IS: Invited Speaker, KL: Keynote Lecture.

Allocated time for Contributed Talk is 10 minutes with an additional 5 minutes for questions. For Invited Speaker, the time allocated is 30 minutes and the next 15 minutes are for questions.

Monday, 28 of June 2021

8.15–8.40	Registration		
8.40–8.45	Arrivals of Malaysia Nuclear Agency DG		
8.45–9:00	Opening Ceremony		
9:00–9:15	KL	Siti A'iasah Hashim <i>Director General</i> Malaysia Nuclear Agency	Welcoming remarks

Cluster 1: Operations and Maintenance

Chairman: Zareen Khan Abdul Jalil Khan **Timekeeper:** Mohd Sabri Minhat

9:15–10:00	IS	Yaziz Yunus First RTP Operator	Title of a keynote lecture
10:00–10:10	Coffee		
10:15–10:30	CT	Ridzuan Abdul Mutalib <i>Section Head</i> Operation and Maintenance Section	RTP Operation and Maintenance
10:30–10:45	CT	Roslan Md Dan <i>Senior Reactor Operator</i> Operation and Maintenance Section	Experience as Senior Reactor Operator
10:45–11:00	CT	Nurhayati Ramli <i>Research Officer</i> Operation and Maintenance Section	RTP In-Service Inspection.
11:00–11:15	CT	Nurfahana Ayuni Joha <i>Research Officer</i> Reactor Instrumentation and Control Section	Knowledge Management in RTP
11:15–11:30	CT	Mat Zin Mat Husin <i>Assts Engineer</i> Operation and Maintenance Section	Experience on Monitoring Systems

11:30–11:45	CT	Yahya Ismail <i>Assts Engineer</i> Operation and Maintenance Section	Experience with the Stack Systems
11:45–12:00	CT	Huzair Hussain <i>Assts Engineer</i> Operation and Maintenance Section	Experience with the Cooling System
12:15–12:30	CT	Muh. Kassim Abdul <i>Assts Engineer</i> Operation and Maintenance Section	Experience with the Compressor System
12:30–12:45	CT	Nurfazila Hussain <i>Assts Engineer</i> Operation and Maintenance Section	Experience with ANADATA records
12:45–13:00	CT	Hairilnuar Nordin <i>Assts Engineer</i> Operation and Maintenance Section	Recent Experience with sample preparation
13:00–14:00	Lunch		

Cluster 2: Neutron Applications

Chairman: Mohd Fairus Abdul Farid **Timekeeper:** Zaredah Hashim

14:00–14:45	IS	Abdul Aziz Mohamed <i>President</i> Malaysia Nuclear Society	Role of MNS in promoting nuclear applications
14:45–15:00	CT	Faridah Mohamad Idris <i>Director</i> Technical Support Division	Neutron Diffractometer
15:00–15:15	CT	Julie Andrianny Murshidi <i>Research Officer</i> Materials Technology and Engineering Section	Experience with the Small Angle Neutron Scattering
15:15–15:45	CT	Nazaratul Ashifa Abdullah Salim <i>Research Officer</i> Analytical Chemistry Applications Group	Experience with Neutron Activation and Anlysis at RTP
15:45–16:00	Coffee		

16:00–16:15	CT	Muhammad Rawi Mohamed Zin <i>Director</i> Radiation Processing Technology Division	Neutron Tomography Facility
16:15-16:30	CT	Khair'iah Yazid <i>Research Officer</i> Instrumentation And Automation Unit	Experience with the Neutron Radiography Facility
16:30	Session End		

Tuesday, 29 of June 2021

Cluster 3: Safety and Security

Chairman: Ridzuan Abdul Mutalib **Timekeeper:** Hairilnunar Nordin

9:00-9:45	IS	Faizal K.P. Kunchi Mohamed <i>Associate Professor</i> Universiti Kebangsaan Malaysia	Title of invited speaker
9:45-10:00	CT	Mazleha Maskin <i>Research Officer</i> Reactor Quality Management Section	RTP Level-1 Probabilistic Safety Assessment
10:00-10:15	Coffee		
10:15-10:30	CT	Syed Asraf Fahlawi Wafa S M Ghazi <i>Reactor Radiation Protection Officer</i> Health Physics Group	Regarding Licensing
10:30-10:45	CT	Alfred Sanggau Ligam <i>Research Officer</i> Operation and Maintenance Section	On RTP Security
10:45-11:00	CT	Muhammad Khairul Ariff Mustafa <i>Research Officer</i> Nuclear Reactor Physics Section	Regarding the decommissioning plan of the RTP
11:00-11:15	CT	Mohamad Azman Che Mat Isa <i>Research Officer</i> Reactor Quality Management Section	Features of the Integrated Management System in the RTP
11:15-11:30	CT	Mohd Fairus Abdul Farid <i>Section Head</i> Technology Assessments, Engineering and Safety Section	Thermalhydraulics with COOLOD
11:30-11:45	CT	Tonny Lanyau <i>Research Officer</i> Technology Assessments, Engineering and Safety Section	Thermalhydraulics with Computational Fluid Dynamics

11:45–12:00	CT	Zaredah Hashim <i>Research Officer</i> Technology Assessments, Engineering and Safety Section	Introducing the Online Monitoring System
12:00–12:15	CT	Mohd Sabri Minhat <i>Research Officer</i> Reactor Instrumentation and Control Section	Regarding Instrumentation and Control
12:15–12:30	CT	Abi Muttaqin Jalal Bayar <i>Research Officer</i> Nuclear Reactor Physics Section	Reactor Neutronics
12:30–14:00	Lunch		

Cluster 4: Future Reactor Technologies

Chairman: Mazleha Maskin **Timekeeper:** Nurfazila Hussain

14:00–14:15	CT	Naim Syauqi Hamzah <i>Research Officer</i> Nuclear Reactor Physics Section	Review of Lead Cooled Fast Reactor (LFR)
14:15–14:30	CT	Ahmad Nabil Ab Rahim <i>Research Officer</i> Operation and Maintenance Section	Review of Gas Cooled Fast Reactor (GFR)
14:30–14:45	CT	Mark Dennis Usang <i>Research Officer</i> Nuclear Reactor Physics Section	Supercritical Water Reactor (SCWR) features and general specifications.
14:45–15:00	CT	Zareen Khan Abdul Jalil Khan <i>Section Head</i> Reactor Instrumentation and Control Section	Review of Molten Salt Fast Reactor (MSFR)
15:00–15:15	CT	Norfarizan Mohd Said <i>Research Officer</i> Nuclear Reactor Physics Section	Review of Sodium Cooled Fast Reactor (SFR)
15:15–15:30	CT	Hasniyati Md Razi <i>Research Officer</i> Technology Assessments, Engineering and Safety Section	Review of Very High Temperature Gas Reactor (VHTR)

15:30-15:45	CT	Julia Abdul Karim <i>Reactor Manager</i> Reactor Technology Centre	Review of Molten Salt Advanced Very High Temperature Gas Reactor (AHTR)
15:45-16.00	KL	Rosli Darmawan <i>Deputy Directory General</i> Malaysia Nuclear Agency	Closing Remarks
15:45-16.00	Closing Ceremony		
16.00	Conference End		

List of Abstracts

Monday, 28th of June 2021

Title of contributed talk with math and paragraphs

Name1¹, Name2^{1,2,3}

¹ Nuclear Reactor Physics Section, Malaysia Nuclear Agency, Bangi, Malaysia

Abstracts here.

Tuesday, 29th of June 2021

Supercritical Water Reactor (SCWR) features and general specifications.

M.D. Usang¹, T. Lanyau¹, Abi M.J.B.¹ & Julia A. K.¹

CT

¹ Malaysia Nuclear Agency, Bangi, Malaysia

We demonstrate the general features of SCWR designs and the implications towards the safety of a reactor when neutrons travels through supercritical water. Supercritical water is the point at which the separations between liquid and gas phases. The advantages of utilizing super-critical water is clear from a thermalhydraulic standpoint. Water typically experience phase changes when it was heated beyond boiling point to become steam. In super-critical water, there is no transition change and the reduction of density occurs smoothly with increasing temperature. We then demonstrate a simple neutronic calculations for Single-Pass Core Design of low temperature Super LWR that were using super-critical water as its coolant.

List of Presenters

Yaziz Yunus	Abdul Aziz Mohamed
Ridzuan Abdul Mutalib	Mark Dennis Usang
Roslan Md Dan	Zareen Khan Abdul Jalil Khan
Nurhayati Ramli	Norfarizan Mohd Said
Nurfarhana Ayuni Joha	Hasniyati Md Razi
Mat Zin Mat Husin	Ahmad Nabil Ab Rahim
Yahya Ismail	Abu Mutaqqin Jalal Bayar
Huzair Hussain	Mohd Sabri Minhat
Muh Kassim	Zaredah Hashim
Nurfazila Hussain	Tonny Lanyau
Hairilnuar Nordin	Mohd Fairus Abdul Farid
Naim Syauqi Hamzah	Mohamad Azman Che Mat Isa
Faridah Mohamad Idris	Muhammad Khairul Ariff Mustafa
Julie Adrianny Murshidi	Alfred Sanggau Ligam
Nazaratul Ashifa Abdullah Salim	Syed Asraf Fahlawi Wafa S.M. Ghazi
Muhammad Rawi Mohamed Zin	Mazleha Maskin
Khair'iah Yazid	Faizal K.P. Kunchi Mohamed

Useful Information

Talks will be held via zoom. Zoom details for

- [Day 1 \(28 June 2021\)](#).

Meeting ID: 984 4734 8481

Passcode: 205138

- [Day 2 \(29 June 2021\)](#).

Meeting ID: 968 0401 4204

Passcode: 705581

Slides must be submitted before **17 June 2021**, where each presenter for the contributed talks has to present around 10 minutes with an additional 5 minutes for questions and answers. The organizing committee recommends the presenter prepare less than **10 slides** for each presentation to keep the schedule within the projected hours.

Full papers corresponding to the slides must be submitted before **15 July 2021** and each submission must be less than **4 pages** not including references, figures, tables and front matter (such as abstracts, keywords, titles, author list and affiliations).

RTP Colloquium Committee
Reactor Technology Center
Malaysia Nuclear Agency
2021