

IAEA TC MAL1012 “BUILDING CAPACITY IN BASIC NEUTRON SCIENCE AND ENGINEERING FOR EDUCATION, TRAINING AND RESEARCH USING A TRIGA MARK II RESEARCH REACTOR

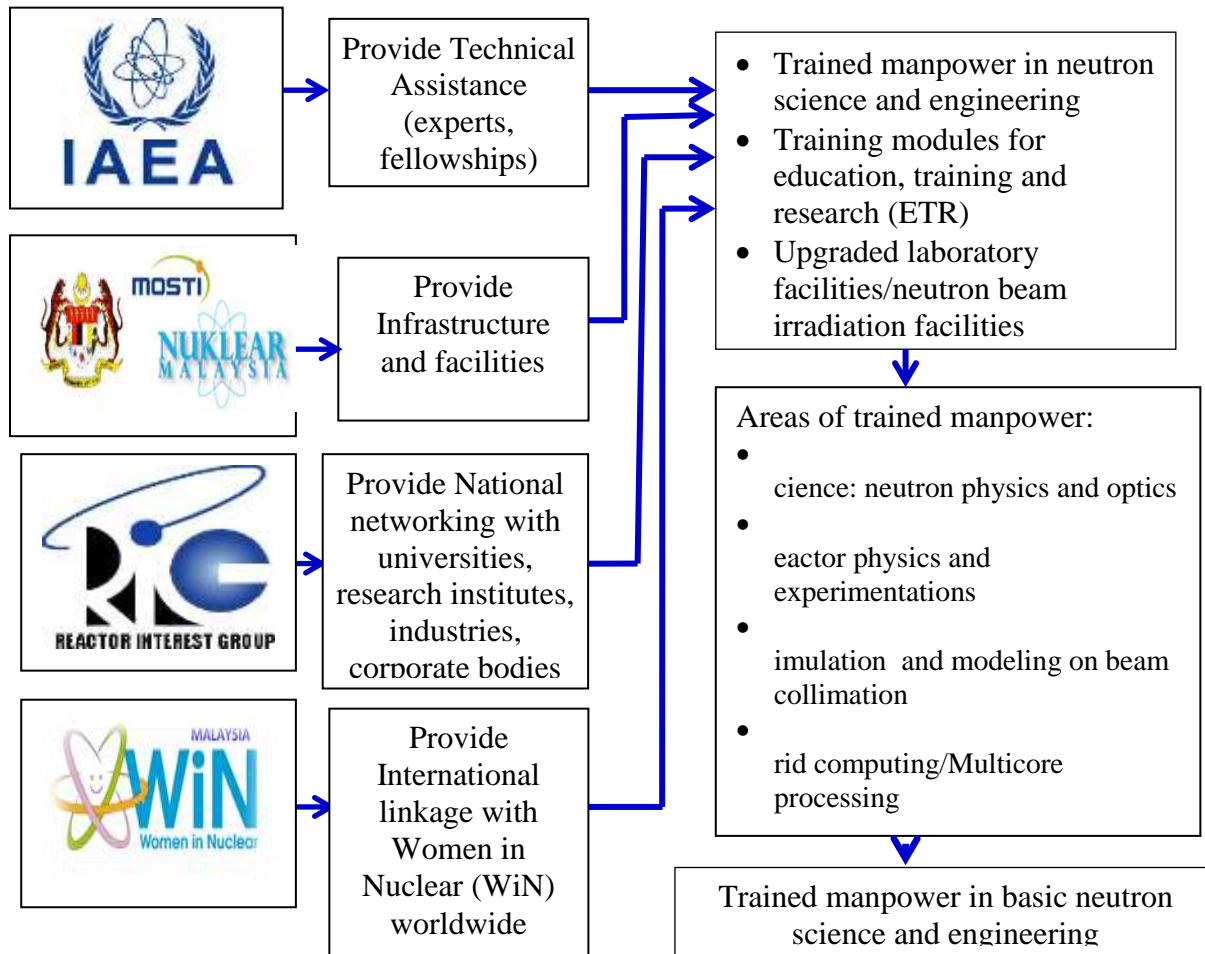
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Abstract. As Malaysia aspires to upgrade its capacity and capability in neutron science and engineering, especially to support its nuclear energy by 2025, project IAEA TC MAL1012 will provide an opportunity for Malaysia to groom its local researchers and university students to increase their uptake in neutron science and engineering for education, training and research (ETR) using Reaktor TRIGA PUSPATI (RTP). This project concentrates on transfer of skill and knowledge from in three modes (1) direct transfer of skill and knowledge through expert missions (2) classroom training through workshops (3) training modules for students and researchers in related fields. On its part, the Malaysian government will infrastructure to meet the demands from this project.

MECHANISM FOR PROJECT IMPLEMENTATION



PREAMBLE. Realising the importance of neutron science and engineering in research, education and training, Malaysian Nuclear Agency has embarked on its programme to re-educate its staff in neutron science and engineering by participating in IAEA TC MAL1012.

In implementing this project, Nuclear Malaysia uses the existing Reactor Interest Group (RIG), a loosely bound group consisting of researchers interested in R&D utilizing neutron science and technology of nuclear reactor, as platform to harness national pool of manpower in nuclear science and technology for this project.

The irradiation facilities Small Angle Neutron Scattering (SANS), Neutron Radiography (NR) would provide the real-time tools for researchers and students to study basic neutron science e.g. neutron optics, Bragg angle, neutron energies, neutron scattering, neutron diffraction, crystallography, material structures etc. With technical assistance from IAEA, improved systems on data acquisition, data analysis, neutron beam collimation and shielding, would installed on existing facilities to improve their performance. New facilities e.g. diffractometer, prompt gamma activation, Laue diffraction, could be designed for instalation at the RTP beamports.

Training modules on the above areas for students and researchers, using the neutron beam irradiation facilities at RTP would ensure continuous human capacity development in neutron science and engineering to meet the demand of nuclear energy industry in future.

COOPERATION MALYSIAN NUC UNIVERSITIES IN MALAYSIA



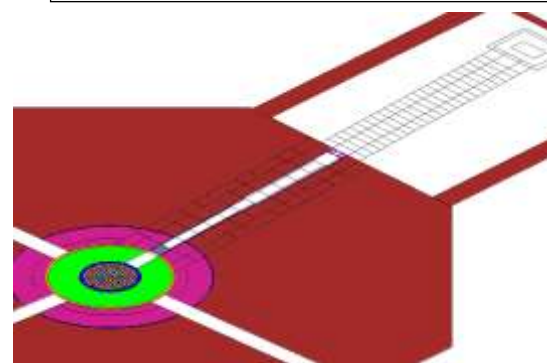
ACKNOWLEDGEMENT
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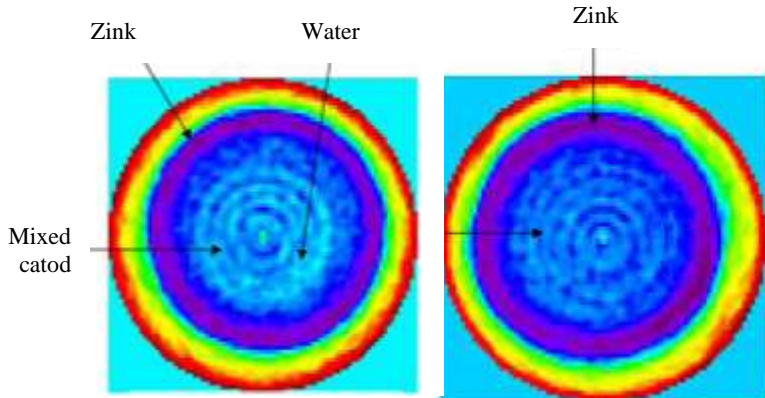
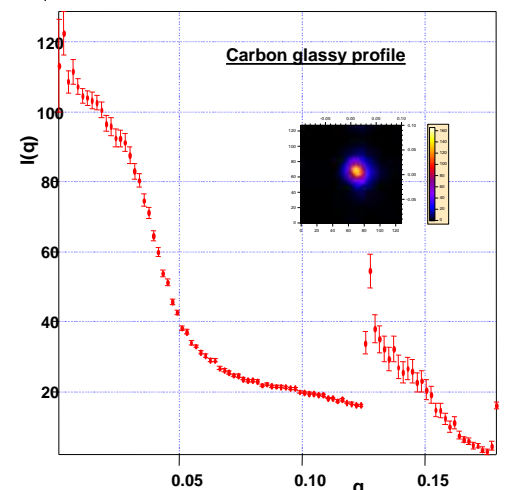
Small Angle Neutron Facility at RTP



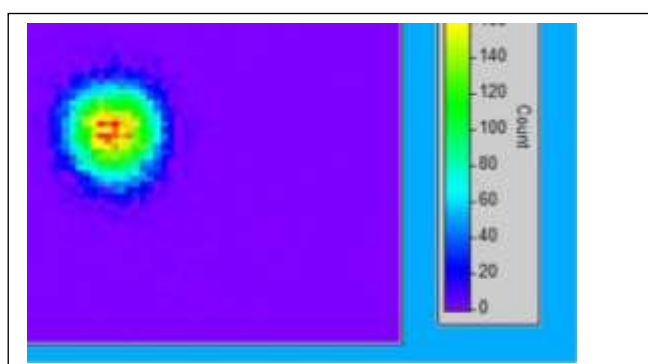
Neutron radiography facility at RTP



Neutron radiography simulated with MCNP



2D image reconstruction at RTP (a) discharged battery (b) new battery



2D scattering pattern of water sample using SANS with Wavemetric Igor DAQ



Researchers, students and trainers at RTP