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Introduction

Inspection of cultural heritage artifact by neutron imaging becoming interesting and important research area since its able to sees internal structure non-destructively. Therefore advanced neutron imaging capability to conduct this kind of inspection is needed. Associated with this needs, TRIGA MARK II PUSPATI reactor has neutron imaging facility, NUR-2 which capable for radiography and tomography usage. Details parameters of current set up is given in Table 1. Neutron radiography capability at this facility has been relied on direct method technique by the usage of SR-45 KODAK film technology. Current set-up has been used by university student through-out the country to conduct their research in various levels of educations.

Table 1 - NUR-2 parameters and characteristics

Collimator type	Step divergence
Length of Collimator	200 cm
Inlet aperture (collimator)	5.4 cm
L/D ratio	37 ~ 100 (normally L/D ~ 75)
Thermal neutron flux (outlet of collimator)	$1.04 \times 10^5 \text{ n cm}^2 \text{ s}^{-1}$
Gamma dose rate (outlet of collimator)	36.7 R/hr
Beam size at sample position	10 cm x 25 cm

Presently, there is an interest to use present facility for artifact sample from cultural heritage site. Focus for this inspection is to obtain three dimensional images with the ability to view internal structure in any directions. In order to do this, some modernization should be made on the current facility. Therefore, the aim is new ability for obtaining sufficient number of neutron tomographic projections is crucially needed. In order to achieve this aim, the workplan is specified in following table

Objectives	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design of sample positioning system	X	X	X	X								
Construction of neutron camera shielding	X	X	X									
Design of shielding for exposure room			X	X								
Fabrication and installation of sample positioning system				X	X	X						
Procurement of image acquisition and analysis Software				X	X	X						
Improve thermal neutron flux at sample				X	X	X	X	X	X	X		
Improve L/D ratio at least to 150				X	X	X	X	X	X	X		
Construction of shielding for exposure room					X	X	X	X	X	X		
Testing for Radiographic Image Acquisition and Tomographic reconstruction												X