RCNP EXPERIMENT E199

PROPOSAL FOR EXPERIMENT AT RCNP

18 July 2002

TITLE: Measurements of Intermediate Energy Neutron Transport through Materials

SPOKESPERSON:

Full Name	Shingo TANIGUCHI
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EXPERIMENTAL GROUP:

Full Name	Institution	Title or Position
Shingo TANIGUCHI	Japan Synchrotron Radiation Research Institute	(Researcher)
Satoshi KANAZAWA	Department of Nuclear Engineering, Kyoto University	(A)
Takahiro MORIYA	Department of Nuclear Engineering, Kyoto University	(M2)
Noriyuki KISHI	Department of Nuclear Engineering, Kyoto University	(M2)
Seiji SUGISAKI	Department of Nuclear Engineering, Kyoto University	(M1)

RUNNING TIME:	Installation time without beam	1 days(for each beam time)
	Development of device	2 days
	Data runs	4 days
BEAM LINE:		Ring : N0 course
BEAM REQUIREMENTS:	Type of particle	p
	Beam energy	200, 300, 400 MeV
	Beam intensity	$\leq$ 100 nA
	Any other requirements	halo-free, small emittance, 1/9 beam pulsing
BUDGET:	Traveling expenses	200,000 yen

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SUMMARY OF THE PROPOSAL

Neutron spectra just behind shield materials and response functions of NE213 detector will be measured. The using unfolding method and measured response functions will be employed to obtain neutron spectra. The obtained neutron spectra will be standard data of neutron attenuation in shield materials and to understand the reliability of simulation calculation methodology for mono-energetic neutrons.
It will take 2 days to measure the response functions of nutron detectors and 4 days to obtain complete data set of neutron spectra behind the various thickness of iron and concrete shield. The total requirement of the beam time is 6 days.