PROPOSAL FOR EXPERIMENT AT RCNP

22 July 2003

TITLE:
Measurements of Intermediate Energy Neutron Transport through Shielding 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)
Noriaki NAKAO	High Energy Accelerator Research Organization	(Research Associate)
Takashi NAKAMURA	Cyclotron and Radioisotope Center, Tohoku University	(Professor Emeritus)
Koji OISHI	Shimizu corporation	(Senior Research Engineer)
Hiroshi YAMAKAWA	Shimizu corporation	(Research Engineer)
Yohitomo UWAMINO	Institute of Physical and Chemical Research	(Manager, Safety Center)
Kichiji HATANAKA	Research Center for Nuclear Physics, Osaka University	(P)
Takane SAITO	Research Center for Nuclear Physics, Osaka University	(AP)
Atsushi TAMII	Research Center for Nuclear Physics, Osaka University	(AP)

RUNNING TIME:	Installation time without beam	1 days(for each beam time)
	Data runs	4 days $\times$ 3 times = 12 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	
BUDGET:	Traveling expenses	400,000 yen

RCNP EXPERIMENT E229

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SPOKESPERSON: Shingo TANIGUCHI

SUMMARY OF THE PROPOSAL

This proposal has a plan to do the shielding experiment of quasi-monoenergetic neutrons produced by p-Li reactions using 200, 300 and 400 MeV protons. Neutron spectra just behind shielding materials will be measured with NE213 scintillator by using unfolding method coupled with the measured response functions. The obtained neutron spectra will be a good benchmark data of neutron attenuation in shielding materials for investigating the accuracy of various simulation calculation codes.
It will take 4 days for each proton energy to obtain a complete data set of neutron spectra behind the various thickness of iron and concrete shields. The total requirement of the beam time is 12 days.