

## PROPOSAL FOR EXPERIMENT AT RCNP

18 July 2002

**TITLE: Measurements of Intermediate Energy Neutron Transport  
through Materials**

**SPOKESPERSON:**

Full Name Shingo TANIGUCHI  
 Institution Beamline division, Japan Synchrotron Radiation Research Institute  
 Title or Position Researcher  
 Address Koto 1-1-1, Mikazuki-cho, Sayo-gun, Hyogo 679-5198  
 Phone number +81-791-58-2723  
 FAX number +81-791-58-0830  
 E-mail shingo@spring8.or.jp

**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 neutron 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.