RCNP EXPERIMENT E205

PROPOSAL FOR EXPERIMENT AT RCNP

27 January 2003

TITLE:

Measurement of ^{208}Pb($\vec{p}$,2p)^{207}Tl reaction for examining a reliability of relativistic calculations

SPOKESPERSON:

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EXPERIMENTAL GROUP:

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Terashima, S.	Kyoto U	(M2)	Kishi, S	Kyoto U	(M1)

RUNNING TIME:	Installation time without beam	2 day(for each beam time)
	Development of device	2 days
	Data runs for cross section and A_y	6 days
	Data runs for D_{NN}	7 days
BEAM LINE:		Ring Cyclotron: WS course
BEAM REQUIREMENTS:	Type of particle	polarized p
	Beam energy	392 MeV
	Beam intensity	$\geq$ 100 nA
	Any other requirements	energy resolution $\leq$ 200 keV, more than 70% polarization
BUDGET:	Experimental expenses	3.5M yen

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SPOKESPERSON: NORO, Tetsuo and ISHIDA, Takashi

SUMMARY OF THE PROPOSAL

Measurements of cross section, analyzing power and polarization transfer coefficient for foward emmitted protons in $^{208}\mathrm{Pb}(\vec{p}, 2p)^{207}\mathrm{Tl}$ reaction at an incident beam energy of 392 MeV are proposed. Recently cross section and analyzing power of $^{208}\mathrm{Pb}(\vec{p}, 2p)^{207}\mathrm{Tl}$ reaction at $T_{\vec{p}}$=202 MeV have been measured and compared with a relativistic calculation but significant ambiguities are included in both of the data and reaction mechanism. The purpose of this measurement is finding it out if the cross section, analyzing power A_y, polarization P and spin transfer coefficient D_{NN} are well reproduced by the relativistic calculations, which is recently succeeded by Hillhouse.