RCNP EXPERIMENT E258

PROPOSAL FOR EXPERIMENT AT RCNP

20 Jan. 2005

TITLE : Measurement of hole-state distributions for Ca isotopes by using $(p, 2p)$ reactions

SPOKESPERSONS : NORO, Tetsuo

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EXPERIMENTAL GROUP :

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Yoshida, H.P.	Kyushu U.	RA			
Hatanaka, K.	RCNP	P	Sakemi, Y.	RCNP	AP
Tamii, A.	RCNP	AP	Shimizu, Y.	RCNP	D3
Fujita, K.	RCNP	D2	Tameshige, K.	RCNP	D1
Matsubara, H.	RCNP	M1			
Sakaguchi, H.	Kyoto U.	AP	Yasuda, Y.	Kyoto U.	D3
Terashima, S.	Kyoto U.	D2	Zenihiro, J.	Kyoto U.	M2
Iwao, Y.	Kyoto U.	M1			
Takeda, H.	Riken	Special Postdoctoral Researcher			
Otsuka, T.	U. Tokyo	P			

RUNNING TIME : Data runs 12 days

BEAM LINE : WS course (Grand Raiden + LAS)

BEAM REQUIREMENTS :	Type of particle	Polarized proton
	Beam energy	200 MeV (and 392 MeV)
	Beam intensity	100 nA
BUDGET :	Experimental expenses	2.8M Yen
	Travel expenses	1.0M Yen

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SPOKESPERSON : NORO, Tetsuo (Dept. of Phys., Kyushu Univ.)

SUMMARY OF THE PROPOSAL

It is proposed to measure differential cross sections and analyzing powers for $(p, 2p)$ reactions on calcium isotopes, ^{40,42,44,48}Ca, and to deduce spectroscopic factors for $1d_{3/2}$- and $1d_{5/2}$-hole states. The main purposes of this measurement is to observe change of the ℓ–s splitting among these isotopes, to which a significant effect from NN tensor force has been theoretically predicted. In addition to spectroscopic study on each separated major state, we are going to try a multipole decomposition of continuum-like states underlying separated peaks. Another purpose of this measurement is to examine how accurately we can extract spectroscopic information, including spin degree of freedom, by using $(p, 2p)$ reactions, which is valuable for forthcoming studies using this reaction with inverse kinematics at RIKEN.