RCNP EXPERIMENT E217

PROPOSAL FOR EXPERIMENT AT RCNP

22 July 2003

TITLE:

Measurement of recoil momentum distribution for deep hole states in ^{40}Ca(p,$2p$) reaction

SPOKESPERSON:

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EXPERIMENTAL GROUP:

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Y. Sakemi	RCNP, Osaka University	AP
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H.P. Yoshida	RCNP, Osaka University	D3
Y. Shimizu	RCNP, Osaka University	D2
K. Fujita	RCNP, Osaka University	D1
Y. Tameshige	RCNP, Osaka University	M2
H. Takeda	RIKEN	Res. Fell.
T. Kawabata	CNS, Univ. of Tokyo	RA

RUNNING TIME:	Installation time without beam	3.0 day
	Setup and test running time	1.0 day
	Data runs	15.0 days
BEAM LINE:		Ring : WS course
BEAM REQUIREMENTS:	Type of particle	polarized proton
	Beam energy	400 MeV
	Beam intensity	200 nA
		Energy resolution $\leq$ 200 keV
		halo-free, small emittance
BUDGET:	Experimental expenses	0.4M yen

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TITLE:
Measurement of recoil momentum distribution for deep hole states in ^{40}Ca(p,2p) reaction

SPOKESPERSON: Yusuke YASUDA

SUMMARY OF THE PROPOSAL

We are going to measure deep hole states such as the $1s_{1/2}$ state in ^{40}Ca in good statistics by Ca(p,2p) reaction. This is a continuation of the the experiment RCNP-E168. The aim of our experiment is to study the spectroscopic factor and the width of the deep orbital states of medium and heavy nuclei for understanding the nuclear structure and correlations in deep hole states.

In E168 we have succeeded to obtain a new energy spectrum of deep hole states for each recoil momentum bin by inserting angular tagging counters in front of the dual magnetic spectrograph. In the energy spectrum for nearly zero recoil momentum we can see a clear $1s_{1/2}$ bump.

In this proposal we are going to improve the statistics by improving the data taking system and try to disentangle the contribution of different orbital states.