RCNP EXPERIMENT E481

PROPOSAL FOR EXPERIMENT AT RCNP

24 July 2016

TITLE:
Probing effect of tensor interactions in calcium isotopes via (p,d) reaction
SPOKESPERSON:

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EXPERIMENTAL GROUP:

Full Name	Institution	Title or Position
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THEORETICAL SUPPORT:

H. Toki	RCNP, Osaka University	Emeritus Professor
K. Ogata	RCNP, Osaka University	Associate Professor
T. Myo	Osaka Institute of Technology	Associate Professor
D.Y. Pang	School of Phys. and Nucl. Energy Engin., Beihang Univ.	Associate Professor
T. Neff	GSI Helmholtzzentrun fuer Schwerionforschung, Germany	Scientist

RUNNING TIME:

Installation time without beam	2 days
Beam tuning and startup for experiment	1.0 day
Beam switching and change of beam energy	1.25 day
Physics runs	3.5 days

BEAM LINE: Ring : WS course

BEAM REQUIREMENTS:

Type of particle	proton
Beam energy	65, 200 and 400 MeV
Beam intensity	$\geq$ 10 nA
Other requirements (FWHM)	energy resolution $\leq$ 100 keV
	timing resolution $\leq$ 150 psec
	halo-free, small emittance

BUDGET: 0 yen

TITLE:
Probing effect of tensor interactions in calcium isotopes via (p,d) reaction

SPOKESPERSON: ONG Hooi Jin, TERASHIMA Satoru

SUMMARY OF THE PROPOSAL

We propose measurements of (p,d) reactions at deuteron-scattering angles from 0 – 20 deg on ^{40,48}Ca targets using proton beams at 65, 200 and 400 MeV to probe the effect of tensor interactions in the doubly-closed-shell calcium isotopes. The experiment will be performed at WS beam line. Scattered deuterons will be measured using the Grand Raiden (GR) spectrometer at angles from around 0 to 20.0 degrees. The scattered deuterons will be detected by two vertical drift chambers and three plastic scintillators placed at the focal plane of GR.

Based on the data from the previous experiments and realistic yield calculation, we would like to request a total beam time of 4.5 days for the measurements at three energies.