

## MEASUREMENT OF ANGULAR CORRELATIONS IN THE (n, $\gamma$ ) REACTION FOR T VIOLATION SEARCH

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The P violations enhanced by  $10^6$  time have been observed in several compound nucleus reactions.

It is suggested that T violation also can be enhanced in the reactions. We plan experiments for the sensitive T violation search in J-PARC. Candidates nuclei for the experiments are  $^{139}\text{La}$ ,  $^{131}\text{Xe}$ ,  $^{81}\text{Br}$ ,  $^{115}\text{In}$  and so on, which have the large enhanced P violations. The T violation search is based on the compound nucleus theory. However, the theory has not been verified in detail yet. The angular and polarized correlations in the (n, $\gamma$ ) reaction of compound nucleus need to be measured to verify the theory.

We measured the angular correlations in the (n,  $\gamma$ ) reaction of  $^{139}\text{La}$ ,  $^{131}\text{Xe}$ ,  $^{115}\text{In}$  at Beam Line 04 in J-PARC. The (n, $\gamma$ ) reactions can be measured very precisely by the large intensity neutron beam and novel 22 Germanium cluster detectors at BL04. The coverage angle of the detectors were 32deg, 72deg, 73deg, 90deg, 108deg, 109deg and 144deg and energy resolutions were 2.6keV at 1.33MeV. The angular distributions and energy spectra of the  $\gamma$  rays from  $^{139}\text{La}$  0.75eV resonance,  $^{131}\text{Xe}$  3.2eV resonance and  $^{115}\text{In}$  6.8eV resonance were measured with 110kcps event rate.

We will talk about the result of the measurement of the angular correlations in the (n, $\gamma$ ) reaction in this session.