

Abstract Submitted  
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**Search for High-Spin Isomer in  $^{142}\text{Pr}$  by RI Beam Induced Fusion Reaction at RCNP** A. TAKASHIMA, M. SUGA, K. KURA, K. TAJIRI, M. KAZATO, Y. KENMOKU, Y. ITO, K. YAMAGUCHI, K. KURATA, J. TAKATSU, A. ODAHARA, T. SHIMODA, Dept. of Phys. Osaka Univ., S. GO, E. IDEGUCHI, CNS, Univ. of Tokyo, Y. GONO, S. NISHIMURA, H. WATANABE, RIKEN, C. PERTACHE, IPN Orsay and Univ. Paris Sud, T. SUZUKI, RCNP, Osaka Univ., Y. WAKABAYASHI, JAEA — Systematic studies of high-spin shape isomers in  $N=83$  isotones provided interesting information on the properties of pairing interactions. The high-spin isomer in  $^{142}\text{Pr}$ , which is not effectively populated by any combinations of stable beams and targets, was searched for in the fusion reaction induced by RI beam,  $^{130}\text{Te}(^{17}\text{N}, 5n)^{142}\text{Pr}$ , at RCNP, Osaka Univ. The  $^{17}\text{N}$  beam was produced in the  $^9\text{Be}(^{18}\text{O}, ^{17}\text{N})^{10}\text{B}$  reaction at 9.1 MeV/u. Gamma-rays at the secondary target were detected by a RCNP Ge array consisting of 14 HPGe detectors. Contaminant  $\gamma$ -rays due to  $\beta$ -decay of  $^{17}\text{N}$  and the natural activities could be eliminated with the coincidence requirement that the  $^{17}\text{N}$  particles were detected in the PPAC. The  $^{17}\text{N}$  beam of  $\sim 10^5$  pps has been obtained with energy of  $\sim 4.2$  MeV/u. In the preliminary analyses, clearly seen were the  $\gamma$ -rays deexciting the states with spins up to 21/2 in  $^{141}\text{Pr}$  and the reported  $\gamma$ -rays after the decay of (9+) isomer with  $T_{1/2}=61$  ns in  $^{142}\text{Pr}$ . The results of  $\gamma\gamma$  coincidence analyses searching for the isomers will be presented.

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