

Abstract Submitted  
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**Coulomb Dissociation of  $^{27}\text{P}$  for Study of  $^{26}\text{Si}(p,\gamma)^{27}\text{P}$  Reaction** YASUHIRO TOGANO, Department of Physics, Rikkyo University, RIKKYO UNIV.-RIKEN-ATOMKI-TIT-UNIV. OF TOKYO-TOHOKU UNIV.-CNS-KYOTO UNIV. COLLABORATION — The  $^{26}\text{Si}(p,\gamma)^{27}\text{P}$  reaction was investigated by the Coulomb dissociation of  $^{27}\text{P}$ . This reaction is suggested to be relevant to the synthesis of  $^{26}\text{Al}$  whose 1.8 MeV  $\gamma$ -line distribution in the Galaxy is observed by satellite telescopes. In order to estimate the reaction flow around  $^{26}\text{Al}$ , we determined the gamma decay widths of excited states in  $^{27}\text{P}$ , which mainly determine the resonant capture reaction rate. The experiment was performed at RIPS beam line in RIKEN. A beam of the unstable  $^{27}\text{P}$  nucleus at 57 MeV/nucleon was produced by the fragmentation of a 115-MeV/nucleon  $^{36}\text{Ar}$  beam. The  $^{27}\text{P}$  beam bombarded a Pb target. The excitation energy of  $^{27}\text{P}$  was extracted by combining the momentum vectors of  $^{26}\text{Si}$  and proton. The three known excited states in  $^{27}\text{P}$  [1] as well as a new excited state at around 2.0 MeV were observed. The gamma decay width of the first excited state was deduced to be  $(1.3 \pm 0.8) \times 10^{-3}$  eV. Details of experiment and astrophysical implications of the measured gamma decay widths will be presented.

[1] J.A. Caggiano *et al.*, Phys. Rev. C **64**, 025802 (2001).

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