

## Astrophysical $^{26}\text{Si}(\alpha,p)^{29}\text{P}$ nuclear reaction rate study

X-ray bursts are interesting astrophysical phenomena that occur in binary star systems of neutron stars and companion stars. As the results of the X-ray bursts, the heavy elements up to the Sn-Te region can be synthesized within only a few seconds. The  $^{26}\text{Si}(\alpha,p)^{29}\text{P}$  nuclear reaction rate plays a crucial role in understanding the X-ray burst phenomena, since the reaction rate significantly affects the X-ray light curves and the abundances of heavy nuclei. To estimate the reaction rate at stellar temperatures, the  $^{26}\text{Si} + \alpha$  scattering experiment was performed at Center for the Nuclear Study Radioactive Ion Beam Separator (CRIB) of the University of Tokyo. The  $^{26}\text{Si}$  radioactive ion beam was produced through the  $^3\text{He}(^{24}\text{Mg},^{26}\text{Si})n$  reaction by In-flight method. The wide energy range in  $^{30}\text{S}$  was investigated by adopting the thick target method. The  $^{26}\text{Si}$  radioactive ion beams were monitored by two PPACs. The recoiling  $\alpha$  particles were detected by silicon detector telescope. The detail of experiment will be discussed.

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