Contribution ID: **122** Type: **3 Min. Talk for Poster Presentor**

Study of the 18F(p,a)15O reaction and the structure of 19Ne using a radioactive 15O beam

Thursday, 29 June 2017 17:34 (3 minutes)

The gamma-rays emitted from novae are mainly due to e+-e- annihilation, and the positrons are mostly from the beta decay of 18F. The amount of 18F in nova is determined by two reaction channels of 18F(p,a)15O and 18F(p,γ)19Ne. The 18F(p,a)15O reaction is known as the main destruction channel, and it also affects the reaction rate for calculating the type I x-ray burst model. For this reason, the resonance parameters in 19Ne above the proton threshold at Ex =6.411MeV play an important role to understand the 18F(p,a)15O reaction. Many experiments and theoretical works have been reported on 19Ne resonance states. However, many relevant parameters are still ambiguous. The alpha elastic scattering experiment was performed at the Center for Nuclear Study Radioactive Ion Beam Separator(CRIB). The 7MeV/u 15N primary beam from the AVF cyclotron bombarded a H2 gas target to produce a 15O radioactive beam, which in turn reacted with a 600 Torr He gas target. By detecting alpha particles using the deltaE-E silicon telescopes, the alpha elastic scattering on 15O was investigated using the thick target method in inverse kinematics for studying the structure of 19Ne. The scanned energy range of 19Ne was Ex=3.53~11.13MeV. The experimental details and the results on the structure of 19Ne and the 18F(p,a)15O reaction will be presented.

Presenter: KIM, Dahee

Session Classification: Poster session (Chair: K. Cho)