

Study of $^{22,23}\text{Na}+p$ resonance scattering via thick-target inverse kinematics method

Tuesday, 10 September 2024 15:40 (15 minutes)

$^{22,23}\text{Na}+p$ resonance scattering were studied via thick-target inverse kinematics method, for the exit-channel resonance parameters of compound nuclei $^{23,24}\text{Mg}$. High-purity ^{22}Na secondary beam was produced by $^1\text{H}(^{22}\text{Ne},^{22}\text{Na})n$ reaction at RIBLL1, excitation functions of $^{22}\text{Na}(p,p)$ were obtained at two angles up to 4MeV. The deduced ^{23}Mg resonances were used for the evaluation of the reaction rates of the $^{19}\text{Ne}(a,p)^{22}\text{Na}$ reaction. In the case of $^{23}\text{Na}+p$, the proton and alpha decay partial width of compound nucleus ^{24}Mg were deduced and applied for the astrophysical S-factor of the $^{12}\text{C}+^{12}\text{C}$ fusion reaction.

Primary author: WANG, youbao (China Institute of Atomic Energy)

Presenter: WANG, youbao (China Institute of Atomic Energy)

Session Classification: Experimental Nuclear Physics for Astrophysics

Track Classification: Experimental Nuclear Physics for Astrophysics