^{9}Be(^{29}Ne,N27F) 2012Ch12,2012Ch02,2005Sc20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 114, 1189 (2013)	1-Apr-2013

2012Ch12,2012Ch02: ^{9}Be(^{29}Ne,n^{27}F): ^{29}Ne was produced from the ^{48}Ca primary beam, E=140 MeV/u, fragmentation on a Be target. Reaction products were separated using the A1900 fragment separator at NSCL. Secondary beam of ^{29}Ne, E=62 MeV/u, bombarded another Be target and one-proton knock out produced states of ^{28}F. Fragments, neutrons and γ rays were detected in coincident mode. The γ rays were detected using an array of cesium iodide detectors. Neutrons were detected in the Modular Neutron Array; The decay energy of the breakup of the unbound states in ^{28}F was deduced from the invariant mass analysis. No γ-ray events were recorded in the caesar array in the coincidence mode. Resonant states were modeled by Breit-Wigner line shape with energy dependent width, derived from R-matrix analysis.

2005Sc20: Secondary beam of ^{29}Ne was produced from the ^{48}Ca primary beam, E=142 MeV/u, fragmentation on a Be target. The reaction products were separated using the A1900 fragment separator at NSCL. An attempt of a p-stripping reaction of the ^{29}Ne secondary beam on a C target shows no evidence of ^{28}F in the mass-indicator spectra. An upper limit for inclusive cross section of 1.2 mb is extracted in 2005Sc20 and conclude that ^{28}F is most likely unbound, since such upper limit is sufficiently small compared to common estimates.

^{28}F Levels

E(level)	$T_{1/2}$	Comments
0.0	≈0.046 as	E(level): From 220 keV *50* resonance energy. g.s. of ^{28}F is neutron unbound. A resonance in the ^{27}F+n continuum at 220 keV *50*, Γ_0=10 keV, is determined in 2012Ch02 (^{29}Ne,n^{27}F). This resonance energy is referred to be the g.s. of ^{28}F in 2012Ch02 and in good agreement with shell model predictions. $T_{1/2}$: Deduced by the evaluator from Γ_0=10 keV (2012Ch02).
590 *50*	≈0.0046 as	E(level): From 810 keV resonance energy. This upper resonance energy at 810 keV, Γ_0=100 keV, is also deduced in the ^{27}F+n continuum (^{29}Ne,n^{27}F). It is speculated in 2012Ch02 that contributions from other unresolved resonances may be present, since stronger population of this excited resonance state was not expected. $T_{1/2}$: Deduced by the evaluator from Γ_0=100 keV (2012Ch02).