

$^9\text{Be}(^{20}\text{Mg},^{19}\text{Na})$ 2010Mu12

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, G. C. Sheu		ENSDF	29-July-2015

2010Mu12: The decay product particle correlations for two-proton decay of ^{20}Mg and one-proton decay of ^{19}Na were evaluated.

Angular correlations were measured; momenta were not measured; hence properties of excited states are deduced based on GEANT simulations of the $p\text{-}^{18}\text{Ne}$ and $(p_1\text{-}^{18}\text{Ne})(p_2\text{-}^{18}\text{Ne})$ angular correlations.

A 591 MeV/nucleon beam of ^{24}Mg , from the SIS facility at GSI, was used to produce a beam of 450 MeV/nucleon ^{20}Mg in the FRS. Following breakup of ^{20}Mg in a ^9Be target, the angular correlations were analyzed to determine: the ^{20}Mg decay mode (2p or sequential proton decay) and the excitation energies of states involved in the reactions.

2004Ze05: The invariant mass of $^{18}\text{Ne}+p$ ejectiles was determined following interactions of 43 MeV/nucleon ^{20}Mg ions with a 47 mg/cm 2 ^9Be target at GANIL. The ^{18}Ne ejectiles were momentum analyzed using the SPEG spectrometer while protons were detected using eight telescopes of the position sensitive MUST array. The energy resolution was cited as 150 keV. A peak at $E_x \approx 0.16$ MeV $1I$ was observed, and associated with contributions from both the ground and first excited states.

 ^{19}Na Levels

E(level)	Γ	Comments
0	<40 keV	E(level): From $Q_{1p}(^{19}\text{Na})=0.328$ MeV 22 group (2010Mu12) which is associated with ^{19}Na decay to $^{18}\text{Ne}_{g.s.}$ observed in analysis of $(p_1\text{-}^{18}\text{Ne})(p_2\text{-}^{18}\text{Ne})$ correlations from ^{20}Mg breakup. 2010Mu12 state that $\Gamma < 40$ keV reflects the experimental resolution of the detector system. The actual Γ is expected to be <1 eV.