^{9}Be(^{36}S,^{20}N),^{12}C(x,^{20}Nγ) 2008So09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. G. Sheu, J. H. Kelley	ENSDF	31-Dec-2018

2008So09: XUNDL dataset compiled by McMaster University, 2008.

An E(^{36}S)=77.5 MeV/nucleon beam was delivered to the GANIL/SPEG spectrometer. In the first part of the experiment, the beam bombarded a 2.77 mg/cm^2 ^{9}Be target and the SPEG magnetic spectrometer was used to momentum analyze the reaction products and identify $^{20}N_{g.s.}$.

In the second part, a ^{12}C target, at the entrance of the SISSI device, produced a cocktail beam of ^{24}F, ^{25,26}Ne, ^{27,28}Na, and ^{29,30}Mg that was purified in the α spectrometer and then delivered to a carbon target at the dispersive image of the SPEG spectrometer. The target was surrounded by the 74 element BaF_2 *Chateau de crystal* array and four HPGe detectors. The γ rays observed in coincidence with ^{20}N ions detected at the SPEG focal plane were analyzed to obtain information on the ^{20}N level structure. Eγ, Iγ, $\gamma\gamma$-coin were measured using 74 BaF_2 crystals and four HPGe detectors.

Energy levels and J$^\pi$ values were proposed from comparison with shell-model calculations.

See also (2008SoZT).

^{20}N Levels

E(level)	J$^{\pi}$†
0	(2$^-$)
843 *4*	(3$^-$)
944 *24*	
1336 *23*	(1$^-$,2$^-$)
1559 *30*	
1895 *34*	(3$^-$)
2943 *32*	(4$^-$)

† From comparison with shell-model calculations.

γ(^{20}N)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
615 *18*	37 *5*	1559		944	
843 *4*	100 *14*	843	(3$^-$)	0	(2$^-$)
944 *24*	36 *8*	944		0	(2$^-$)
1052 *29*	25 *5*	1895	(3$^-$)	843	(3$^-$)
1336 *23*	16 *4*	1336	(1$^-$,2$^-$)	0	(2$^-$)
2100 *26*	18 *5*	2943	(4$^-$)	843	(3$^-$)

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