^{32}S(d,^{2}He) 2004Gr18

Type	Author	History Citation	Literature Cutoff Date
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2004Gr18: E=170 MeV deuteron beam was produced at KVI, Groningen. Target was an oval pellet of natural sulphur with a thickness of 8.4 mg/cm^2 of ^{32}S. Reaction products were detected with the ESN detector consisting of a focal-plane detection system (FWHM=150 keV) of the Big-Bite spectrometer (BBS). Measured σ(E(^{2}He),θ), θ_{cm}=0° to 8°. Deduced levels, J, π, L-transfers, B(GT) strengths from DWBA analysis. Comparisons with available data and theoretical calculations.

All data are from 2004Gr18, unless otherwise noted.

^{32}P Levels

Additional information 1.

Values of dσ/dΩ given under comments are for zero momentum transfer (q=0).

E(level)	J$^\pi$[†]	L[‡]	B(GT$^+$)[#]	Comments
0.0	1$^+$		3.8×10^{-4} *19*	E(level): g.s. and 80 are unresolved. B(GT$^+$): from calculations; systematic uncertainty could not be estimated. Transition is L-forbidden.
80	2$^{(+)}$			E(level): g.s. and 80 are unresolved.
1150 *25*	1$^+$	0	0.37 *5*	dσ/dΩ=0.66 mb/sr *4*.
1320[&]	2$^{(+)}$			
2230[@&]	1$^+$		0.039 *16*	
2740[&]	1$^+$		0.066 *27*	
3030[&]	(3$^+$)			
3260 *25*	2$^{(-)}$	3		Additional information 2.
3790[@&]	1$^+$		0.12 *5*	
4200 *25*	1$^+$	0	1.06 *15*	dσ/dΩ=1.88 mb/sr *10*.
4550[&]				E(level): This state is weakly excited in the current reaction and is obscured by the peaks at 4200-4550 keV.
4710 *25*	1$^+$	0	0.59 *8*	B(GT$^+$): state not taken into account for calibration of B(GT) strengths. dσ/dΩ=1.05 mb/sr *6*.
5670[&] *25*	1$^+$	0	0.10 *4*	dσ/dΩ=0.181 mb/sr *13*.
6310[@&]			0.040 *16*	
6510[@] *25*	(1$^+$,2$^+$)		0.12 *5*	J$^\pi$: $\sigma(\theta)$ indicated presence of higher multipoles: (1,2)$^-$ and (2,3)$^+$ from neighboring unresolved states, unable to assign a distinct spin.
7010 *25*	1$^+$	0	0.093 *15*	dσ/dΩ=0.164 mb/sr 13.

[†] Proposed in 2004Gr18. 1$^+$ from ΔL=0 indicated by forward peaking of $\sigma(\theta)$ distribution.

[‡] From DWBA analysis of measured $\sigma(\theta)$.

[#] B(GT)=Gamow−Teller transition strengths. The uncertainty in B(GT) strength for each level is the sum of statistical and systematic uncertainties, unless otherwise stated. 2004Gr18 have compared the deduced strengths with those from (p,n); (e,e′) and (p,p′) reactions.

[@] Peak carries additional strength from higher multipole contributions and which have been assigned an extra 30% uncertainty. 2004Gr18 estimate the uncertainty in the excitation of genuinely identified peaks to be less than 25 keV, which depends on counting statistics.

[&] Weakly excited state.