^{1}H(^{27}Si,^{26}Siγ) 2012Ch18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia and A. M. Hurst	NDS 134, 1 (2016)	1-Feb-2016

Also ^{12}C(^{27}Si,^{26}Siγ).

An 84.3-MeV/nucleon ^{27}Si beam bombarded a 180-mg/cm^2 $(C_3H_3)_n$ target at the National Superconducting Cyclotron Laboratory (NSCL). The ^{27}Si secondary beam was produced by fragmentation of a 150-MeV/nucleon ^{36}Ar^{18+} primary beam on a 940-mg/cm^2 ^{9}Be target and delivered to the S800 spectrograph using the A1900 fragment separator with an intensity of≈10^6 pps. Measured energy loss and residual energy of the ^{26}Si recoils using a segmented ionization chamber and plastic scintillator, respectively. The time of flight (TOF) between a diamond strip detector and the plastic scintillator for the ^{26}Si recoils was also measured. γ rays measured with the Segmented Germanium Array (SeGA) comprising 17 high-purity germanium crystals. Measured particle-γ and γ-γ coincidences. Deduced levels and E$_\gamma$.

^{26}Si Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0$^+$	3753 *5*	3$^+$	4802 *14*	4$^+$	5510 *8*	4$^+$
1796.1 *10*	2$^+$	4135 *20*	2$^+$	4810 *10*	(2$^+$)	5658 *20*	1$^+$
2785 *4*	2$^+$	4190 *7*	3$^+$	5144 *12*	2$^+$		
3329 *7*	0$^+$	4443 *6*	4$^+$	5283 *6*	4$^+$		

† From least-squares fit (by evaluators) to Eγ. 1334γ from the 5510-keV level not used in fit due to poor agreement with level scheme.

‡ From angular distribution measurements in 2007Se02.

γ(^{26}Si)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
839 *4*	5283	4$^+$	4443	4$^+$	
968 *4*	3753	3$^+$	2785	2$^+$	
987 *4*	2785	2$^+$	1796.1	2$^+$	
1067 *5*	5510	4$^+$	4443	4$^+$	
1334 *6*	5510	4$^+$	4190	3$^+$	E$_\gamma$: Poor fit; level-energy difference implies E$_\gamma$=1320(11) keV.
1405 *6*	4190	3$^+$	2785	2$^+$	
1533† *7*	3329	0$^+$	1796.1	2$^+$	E$_\gamma$: Doublet.
1533† *7*	5283	4$^+$	3753	3$^+$	E$_\gamma$: Doublet.
1652 *8*	4443	4$^+$	2785	2$^+$	
1796	1796.1	2$^+$	0.0	0$^+$	E$_\gamma$: Used for calibration.
1959 *9*	3753	3$^+$	1796.1	2$^+$	
2025 *9*	4810	(2$^+$)	2785	2$^+$	
2359 *11*	5144	2$^+$	2785	2$^+$	
2648 *12*	4443	4$^+$	1796.1	2$^+$	
2787 *13*	2785	2$^+$	0.0	0$^+$	
3006 *14*	4802	4$^+$	1796.1	2$^+$	
3500 *17*	5283	4$^+$	1796.1	2$^+$	
3862 *20*	5658	1$^+$	1796.1	2$^+$	
4135 *20*	4135	2$^+$	0.0	0$^+$	

† Multiply placed.

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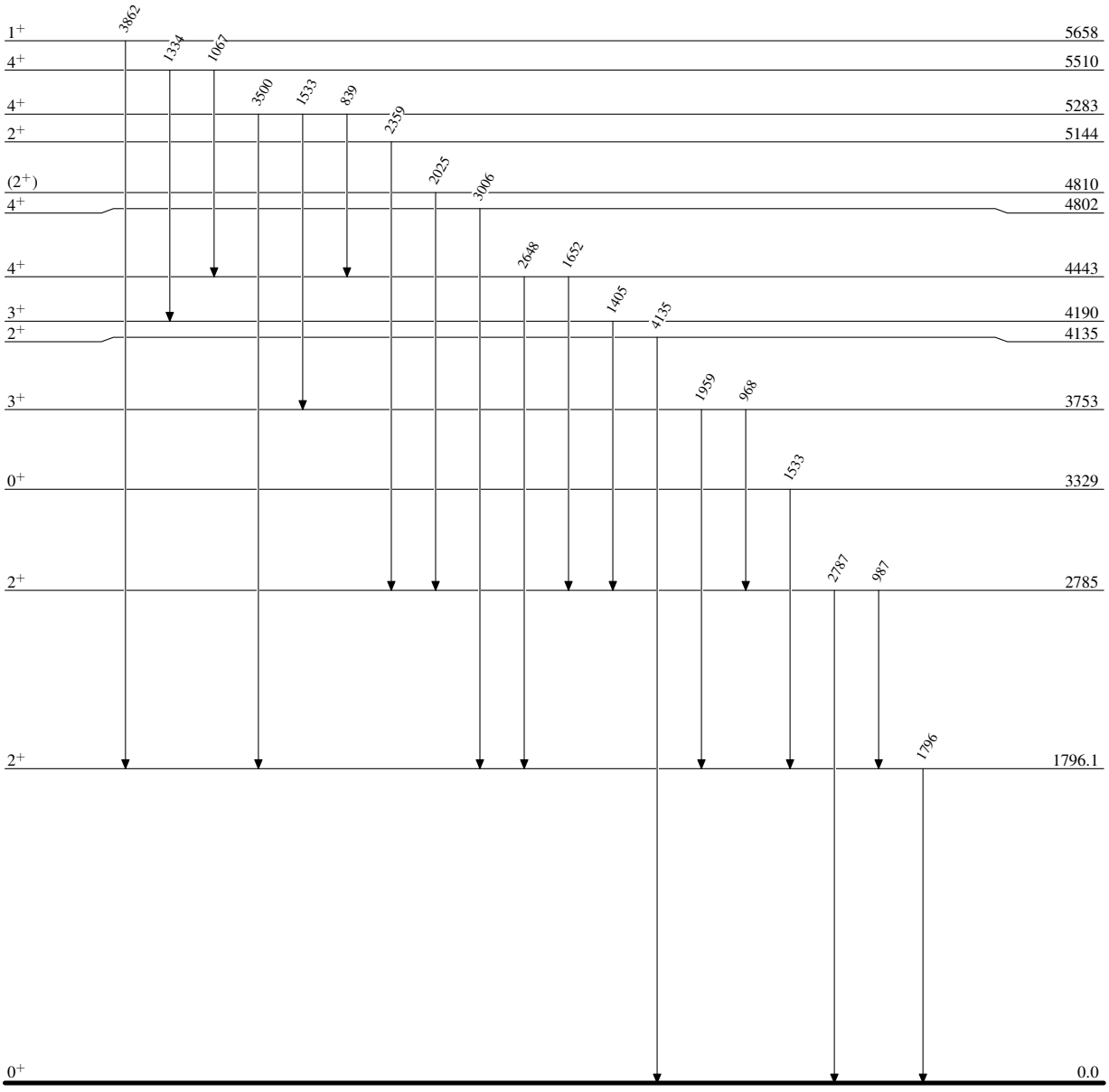
Level Scheme



$^{26}_{14}Si_{12}$