^{1}H(^{40}Si,P′γ),^{1}H(^{42}P,Xγ) 2006Ca26,2007Ca35

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

2007Ca35: Primary beam of ^{48}Ca at 140 MeV/nucleon was provided by the Coupled Cylcotron Facility. ^{9}Be target used. ^{40}Si secondary beam isolated using A1900 fragment separator. Si particles directed onto the RIKEN LH_2 target. The γ-ray measuring array around the LH_2 target consisted of 16 SeGA detectors at angles of 37° and 90°. Deformation parameter deduced from measured excitation cross section.

2006Ca26: Beams=^{40}Si and ^{42}P, target=liquid hydrogen (LH_2). Beams of ^{40}Si and ^{42}P were obtained from fragmentation of primary beam of ^{48}Ca at 140 MeV/nucleon impinging upon a ^{9}Be target. The secondary target was liquid hydrogen (LH_2). The fragments were separated by A1900 fragment separator Bρ-ΔE-Bρ method at NSCL, Michigan facility. Prompt γ rays were detected by SeGa γ-detector array of 32-fold segmented HPGe detectors. FWHM ≈ 3% at 1 MeV.

^{40}Si Levels

E(level)	J$^{\pi}$	Comments
0	0^{+}	
986 *5*	2^{+}	feeding-corrected excitation cross-section=20.2 mb *+21−47* (2007Ca35). β_2(p,p′)=0.37 *+2−5* (Vibrational), 0.35 *+2−4* (prolate), 0.39 *+2−5* (oblate). Sign of β_2 is not given (2007Ca35).
1624?[†] *7*		
1831?[†] *8*		

[†] 2006Ca26 suggest that one of 638γ and 845γ feeds the 2^{+} state, giving a level at 1624 or 1831.

γ(^{40}Si)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
638[‡#] *5*	≈50	1624?		986	2^{+}	
845[‡#] *6*	≈50	1831?		986	2^{+}	
986 *5*	100	986	2^{+}	0	0^{+}	E$_\gamma$: most intense γ seen in both reactions.

[†] From 2006Ca26.
[‡] Weak γ seen only in pn removal reaction from ^{42}P.
[#] Placement of transition in the level scheme is uncertain.

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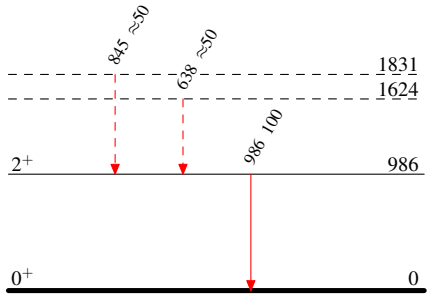
Level Scheme

Intensities: Relative I_γ



$^{40}_{14}Si_{26}$