Adopted Levels:unobserved

	History		
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. E. Purcell, C. G. Sheu	ENSDF	11-Jan-2018

S(p)=-4.5×10^{3} *SY* 2017Wa10

The ^{5}Be nucleus is particle unbound to proton decay; no resonances have been experimentally observed.

2013Ti01 gives ^{5}Be mass defect as 34.10 MeV *12* by improved Kelson-Garvey systematics. Using this value for the ^{5}Be mass defect, the ground state of ^{5}Be would be 4.59 MeV *12* above the $^{3}He+2p$ threshold.

The 2016 mass table (2017Wa10) gives the estimated mass defect of ^{5}Be as 37.1 MeV *20*. Using this value, the ground state of ^{5}Be would be 7.6 MeV *20* above the $^{3}He+2p$ threshold.

Negative experimental results:

$^{3}He(^{3}He,n)^{5}Be$:

1967Ad05: ^{3}He beams from CIT and Stanford accelerators with energies from 18 MeV to 26 MeV collided with ^{3}He in a gas target and the neutron spectrum measured. No structure was observed corresponding to ^{5}Be states. It was concluded that any ^{5}Be states must be at least 4.2 MeV above the $^{3}He+2p$ threshold.

Theory:

1981Be10: The author presented a shell model calculation of A=5 nuclei with the goal of testing the T=3/2 IMME for A=5. His calculated binding energy for ^{5}Be is 1.5 MeV. This gives a mass defect of 35.7 MeV and a resonance energy of 6.2 MeV relative to the $^{3}He+2p$ threshold. There is no mention of the J^{π} value for the state.

2003Ar18: The authors used a three body cluster model with effective interactions that give reasonable results for other nearby nuclei as well as $p+^{3}He$ phase shifts. The authors suspect that the absence of a tensor component in their effective interaction may be of significance. They obtained the following results, where the resonance energies are given relative to the $^{3}He+2p$ threshold.

Note that the $3/2^{+}$ and $5/2^{+}$ states are nearly degenerate and very broad and are not likely to show up in reactions as separate resonances.

See other more general theoretical analyses in (1975Be31, 1981Ka39, 1982Ng01, 2004Sa50).

theoretical estimate from (2003Ar18)

J^{π}	E_R (MeV)	Γ_R (MeV)
$1/2^{+}$	3.15	3.62
$5/2^{+}$	4.5	5.6
$3/2^{+}$	4.6	6.3