^{26}Ne β^- decay 2007Su05,2004We11,1987DuZU

History

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

Parent: ^{26}Ne: E=0.0; $J^\pi=0^+$; $T_{1/2}$=197 ms *2*; Q(β^-)=7340 *19*; %β^- decay=100.0

2007Su05: ^{26}Ne radioactive beam produced from a primary beam of ^{48}Ca at 140 MeV/nucleon bombarding a ^{9}Be target at NSCL facility. The fragments were separated by A1900 fragment separator on the basis of magnetic rigidities. The beam of ^{26}Ne was used in a pulsed mode of 300 ns timing. The detection system consisted of implantation detector, an array of 16 neutron time-of-flight detectors and eight γ-ray detectors of SeGA array. Particle (^{26}Na) identification was achieved by time-of-flight and energy loss information in silicon detectors. Measured Eγ, Iγ, $\gamma\gamma$, (particle)γ coin, β, $\gamma\beta$ coin, isotopic half-life by timing of γ rays. Comparisons with shell-model calculations.

2004We11: Mass separated ^{26}Ne beam from the ISOLDE facility obtained from fission of uranium by 1.4 GeV protons. Measured Eγ, Iγ, $\gamma\gamma$, $\beta\gamma$ coin using Ge detector for γ rays and plastic scintillator for β rays.

1987DuZU: Projectile-fragment isotopic separation technique used to produce ^{26}Ne. Partial decay scheme of ^{26Na} deduced from β decay; γ-ray energies, but not intensities, reported. Measured $T_{1/2}$.

^{26}Na Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	3^+		
82.0 *23*	1^+	9 μs *2*	$T_{1/2}$: From 1987DuZu.
232.9 *18*	2^+		
404 *3*	2^+		J^π: Reported as (0^+,1^+,2^+) in 2007Su05.
1511 *4*	(1^+)		J^π: Reported as (0^+,1^+) in 2007Su05.
2219 *4*	(4^+)		J^π: Reported as (0^+,1^+) in 2007Su05.
2721 *4*	(1^+)		J^π: Reported as (0^+,1^+) in 2007Su05.

† Taken from 2007Su05.
‡ From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-‡	Log *ft*†	Comments
(4619 *20*)	2721	1.9 *4*	4.7 *1*	av Eβ=2098.9 *95*
(5121 *20*)	2219	0.6 *2*	5.4 *2*	av Eβ=2345.0 *96*
(5829 *20*)	1511	4.2 *4*	4.8 *1*	av Eβ=2692.5 *96*
(6936 *19*)	404	0.4 *1*	6.1 *1*	av Eβ=3238.1 *95*
(7107 *19*)	232.9	1.7 *4*	5.6 *1*	av Eβ=3322.5 *95* Log *ft*: too low for ΔJ=2, $\Delta\pi$=no transition (evaluator's note).
(7258 *19*)	82.0	91.6 *2*	3.87 *6*	av Eβ=3397.0 *96*

† Deduced by evaluators using log *ft* code at www.nndc.bnl.gov. These values are nearly the same as in 2007Su05.
‡ Absolute intensity per 100 decays.

$\gamma(^{26}$Na)

E$_\gamma$†	I$_\gamma$†‡	E$_i$(level)	J_i^π	E$_f$	J_f^π	α#	I$_{(\gamma+ce)}$‡	Comments
84 *3*	84.2 *15*	82.0	1^+	0.0	3^+	0.128 *20*	95	I$_\gamma$: deduced by evaluators from I(γ+ce) and α=0.128 *20* (from BrIcc code). I$_{(\gamma+ce)}$: 2007Su05 quote intensity from 2004We11.

Continued on next page (footnotes at end of table)

^{26}Ne β^- decay 2007Su05,2004We11,1987DuZU (continued)

$\gamma(^{26}Na)$ (continued)

E_γ †	I_γ †‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
						Evaluators note that 2004We11 give I(γ+ce)(82.5γ)=100 but β feeding=92 *5* for 82.5-keV level. The latter value implies I(γ+ce)(82.5γ)=95, which has been used by 2007Su05.
153 *3*	3.4 *2*	232.9	2^+	82.0	1^+	
232 *2*	4.4 *2*	232.9	2^+	0.0	3^+	
404 *3*	0.4 *1*	404	2^+	0.0	3^+	
1212 *3*	1.2 *3*	2721	(1^+)	1511	(1^+)	
1279 *3*	5.4 *2*	1511	(1^+)	232.9	2^+	
2219 *4*	0.6 *2*	2219	(4^+)	0.0	3^+	
2486 *4*	0.7 *2*	2721	(1^+)	232.9	2^+	

† Taken from 2007Su05.
‡ Absolute intensity per 100 decays.
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays