

$^{98}\text{Rb}$  IT decay (0.358  $\mu\text{s}$ ) 2012Ka36,2009Fo05

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh		NDS 164, 1 (2020)	15-Feb-2020

Parent:  $^{98}\text{Rb}$ :  $E=178.3\ 5$ ;  $T_{1/2}=0.358\ \mu\text{s}\ 7$ ; %IT decay=100.0

**2012Ka36:**  $^{98}\text{Rb}$  ions were produced via  $\text{Be}(^{238}\text{U},\text{F})$  with  $E=345\ \text{MeV/nucleon}$   $^{238}\text{U}$  beam provided by the RIBF accelerator complex at RIKEN facility. Fission fragments were separated and analyzed by BigRIPS separator, transported to focal plane of ZeroDegree spectrometer and finally implanted in an aluminum stopper. Particle identification was achieved by  $\Delta E$ -tof- $B\rho$  method. Delayed gamma rays from microsecond isomers were detected by three clover-type HPGe detectors. Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\gamma\gamma$ -coin, implant- $\gamma(t)$ . Deduced levels, isomer half-life. Comparison with previous studies.

**2009Fo05:**  $^{98}\text{Rb}$  was produced through the  $^9\text{Be}(^{238}\text{U},\text{X})$  reaction with  $^{238}\text{U}$  beam at  $E=8.00\ \text{MeV/nucleon}$  provided by the K500 and K1200 cyclotrons at the National Superconducting Laboratory at Michigan State University. Reaction products were separated using the A1900 fragment separator and detected using two parallel plate avalanche counters, a Si  $\Delta E$  detector, four Si detectors, and a plastic scintillator. Particle identification was achieved by  $\Delta E$ -tof- $B\rho$  method.  $\gamma$  rays were detected with one HPGe detector. Measured  $E_\gamma$ ,  $I_\gamma$ , (particle) $\gamma$ -coin, implant- $\gamma(t)$ . Deduced isomer half-life.

Level scheme is from [2012Ka36](#).

 $^{98}\text{Rb}$  Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$T_{1/2}$	Comments
0.0	$0^{(-)}$		
123.8 5	$(1,2^-)$		
178.3 5		0.358 $\mu\text{s}\ 7$	<b>Additional information 1.</b> $T_{1/2}$ : from implant- $\gamma(t)$ in <a href="#">2012Ka36</a> . Other: 0.70 $\mu\text{s}$ +6-5 from implant- $\gamma(t)$ in <a href="#">2009Fo05</a> .

$^\dagger$  From  $E_\gamma$ .

$^\ddagger$  From the Adopted Levels.

 $\gamma(^{98}\text{Rb})$ 

An unplaced 116.0 keV  $7\ \gamma$  with absolute  $I_\gamma=2\ 1$  proposed by [2009Fo05](#) is not confirmed by [2012Ka36](#).

$E_\gamma$	$I_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
(54.5)		178.3		123.8	$(1,2^-)$	$E_\gamma$ : from level-energy difference. This transition is not observed by <a href="#">2012Ka36</a> and <a href="#">2009Fo05</a> ; placed from a 54 level by <a href="#">2009Fo05</a> assuming the 124 $\gamma$ deexcites the 178 level.
123.8 5	100 2	123.8	$(1,2^-)$	0.0	$0^{(-)}$	$E_\gamma$ : weighted average of 123.7 5 ( <a href="#">2012Ka36</a> ) and 124.0 7 ( <a href="#">2009Fo05</a> ). <a href="#">2009Fo05</a> place this $\gamma$ from 178 level. $I_\gamma$ : other: 19 3 per 100 fragments (g.s.+isomer) ( <a href="#">2009Fo05</a> ).
178.3 5	45 2	178.3		0.0	$0^{(-)}$	$E_\gamma$ : weighted average of 178.4 5 ( <a href="#">2012Ka36</a> ) and 178.0 7 ( <a href="#">2009Fo05</a> ). $I_\gamma$ : other: 7 1 per 100 fragments (g.s.+isomer) ( <a href="#">2009Fo05</a> ).

$^\dagger$  From [2012Ka36](#). Quoted uncertainty is statistical only and a 15% systematic uncertainty due to detection efficiency should be added ([2012Ka36](#)).

**$^{98}\text{Rb}$  IT decay (0.358  $\mu\text{s}$ ) 2012Ka36,2009Fo05**Decay SchemeIntensities: Relative  $I_\gamma$   
%IT=100.0

## Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - -→  $\gamma$  Decay (Uncertain)

