Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh	NDS 111, 897 (2010)	12-Jan-2010

Q(β^-)=1.30×10^4 *SY*; S(n)=3.1×10^3 *SY* 2012Wa38
Note: Current evaluation has used the following Q record.
S(2n)=^{5320,}S(2p)=41540 (1997Mo25,calculated).
Q values from 2009AuZZ or 2003Au03 are not available.
Q(β^-)=12600 *CA*; S(n)=4770 *CA*; S(p)=23390 *CA*; Q(α)=−17270 *CA* 1997Mo25

2009Ta24, 2009Ta05: ^{58}Ca identified by fragmentation of ^{76}Ge beam at 132 MeV/nucleon at NSCL facility using A1900 fragment separator combined with S800 analysis beam line to form a two stage separator system. The transmitted fragments were analyzed event-by-event in momentum and particle identification. The nuclei of interest were stopped in eight Si diodes which provided measurement of energy loss, nuclear charge and total kinetic energy. The time-of-flight of each particle that reached the detector stack was measured in four different ways using plastic scintillators, Si detectors, and parallel-plate avalanche counters. The simultaneous measurement of ΔE signals, the magnetic rigidity, total kinetic energy and the time-of-flight (TOF) provided unambiguous identification of the atomic number, charge state and mass number.

Additional information 1.

^{58}Ca Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0	0$^+$	>620 ns	%β^-=?; %β^-n=? Expected to decay entirely by β^- decay. T$_{1/2}$: limiting value estimated from time-of-flight=620-650 ns (e-mail reply of Sept 23, 2009 from the first author of 2009Ta24). Actual half-life is expected to be much longer as suggested by calculated (1997Mo25) value of 12.4 ms. Production cross section=10 fb *+12−54* (from e-mail reply of Nov 11, 2009 from the first author of 2009Ta24, see also figure 8 for cross sections in 2009Ta24). Calculated delayed-neutron decay modes: %β^-n=1.5, %β^-2n=4 (1997Mo25).