Muonic atom

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 122, 293 (2014)	30-Jun-2013

Muonic atom ($T_{1/2}$= 50.8 ns *20*) muon decay electrons measured (1977Jo09). Muonic atom ($T_{1/2}$= 48.6 ns *5*) fission fragments measured (1980Wi06); the longer $T_{1/2}$ obtained by measuring electrons may be due to interference of long-lived background caused by muon capture by prompt fission fragments.

Muonic x-rays measured with Ge(Li). Muons stopped in 99.1% ^{239}Pu target. From analysis of K, L, and M x-rays 1986Zu01 derived B(E2) and Q values for the g.s. band up to $9/2^+$ as well as parameters for the deformed-Fermi charge distribution (1986Zu01).

^{239}Pu Levels

B(E2) and Q (spectroscopic moment) values from 1986Zu01.

E(level)	J^π	Comments
0	$1/2^+$	$\beta(2)$= 0.2607 *7*, $\beta(4)$= 0.0896 *18*, Q= 11.56 *6*, moment (E4)= 0.0896 *18* (1986Zu01). Other: Q= 11.66 *11*, moment (E4)= 0.85 *16* (1978Cl03). The analysis is model dependent, see 1986Zu01 for details.
7.861	$3/2^+$	B(E2)($1/2^+$ to $3/2^+$)= 5.313 *22*, Q=− 2.319 *7*.
57.276	$5/2^+$	B(E2)($1/2^+$ to $5/2^+$)= 7.95 *4*, B(E2)($3/2^+$ to $5/2^+$)= 1.10 *3* Q=− 3.345 *13*.
75.706	$7/2^+$	B(E2)($3/2^+$ to $7/2^+$)= 7.00 *4*, B(E2)($5/2^+$ to $7/2^+$)= 0.476 *13* Q=− 3.826 *26*.
163.76	$9/2^+$	B(E2)($5/2^+$ to $9/2^+$)= 6.43 *3*.