Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 188,1 (2023)	17-Jan-2023

Q(β^-)=15310 *syst*; S(n)=4240 *syst*; S(p)=18270 *syst*; Q(α)=−17300 *syst* 2021Wa16
ΔQ(β^-)=640, ΔS(n)=710, ΔS(p)=ΔQ(α)=780 (syst,2021Wa16).
S(2n)=7400 *640*, Q(β^-n)=12200 *580* (syst,2021Wa16).
Q(β^-2n)=6440 *540*, Q(β^-3n)=3070 *540* (deduced by evaluators from masses in 2021Wa16). S(2p)=17430 (2019Mo01, theory).
2010Oh02: ^{71}Mn nuclide identified in Be(^{238}U,F) and Pb(^{238}U,F) reactions with a $^{238}U^{86+}$ beam energy of 345 MeV/nucleon produced by the cascade operation of the RIBF-RIKEN accelerator complex of the linear accelerator RILAC and four cyclotrons RRC, fRC, IRC and SRC. Identification of ^{71}Mn nuclei was made on the basis of magnetic rigidity, time-of-flight and energy loss of the fragments using BigRIPS fragment separator.
Theoretical calculations:
2016Sh39: calculated β^- decay half-life using proton-neutron finite-amplitude method (pn-FAM) with Skyrme energy-density functionals (EDFs).
2014Mi23: calculated β^--delayed-neutron emission probabilities using effective density model.

^{71}Mn Levels

E(level)	Comments
0	%β^-=100; %β^-n=?; %β^-2n=?; %β^-3n=? Decay mode has not been experimentally detected. As β^- decay, followed by delayed-neutron emission, is the only possible decay, 100% β^- decay is assigned by inference. Theoretical $T_{1/2}$=7.4 ms, %β^-n=43, %β^-2n=2, %β^-3n=0 (2019Mo01). Theoretical $T_{1/2}$=18.5 ms, %β^-n=85.5, 87.1; %β^-2n=1.26, 2.1; %β^-3n=0.008, 0.046 (2021Mi17). Based on A/Q spectrum and Z versus A/Q plot, three counts were assigned to ^{71}Mn isotope. (Q=charge state). As stated by 2010Oh02, misidentification of ^{71}Mn isotope is not possible since no events were observed for hydrogen-like peaks. Measured σ=4 pb (2010Oh02), systematic uncertainty ≈50%. E(level): it is assumed that the observed activity is associated with the ground state of ^{71}Mn. $T_{1/2}$: half-life of ^{71}Mn decay has not been measured. It is expected to be >637 ns from time-of-flight in 2010Oh02, as communicated to one of the evaluators by T. Kubo in an e-mail reply of July 14, 2010. From a trend of decreasing half-lives with increasing neutron number in neutron-rich nuclei, half-life is expected to be <20 ms, based on measured half-lives of 19.9 ms for ^{70}Mn, 22.1 ms for ^{69}Mn and 33.7 ms for ^{68}Mn. J^π: $5/2^-$ from systematics (2021Ko07); $\Omega_p=5/2^-$ orbital (2019Mo01, theory).