Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 160, 1 (2019)	21-Oct-2019

Q(β^-)=9850 (syst) *500*; S(n)=4472 (syst) *500*; S(p)=12399 (syst) *640*; Q(α)=−6126 (syst) *640* 2017Wa10
S(2n)=8013 (syst) *500*; Q(β^-n)=6218 (syst) *447*; Q(β^-2n)=8.×10$^{2(syst)}$ *447* 2017Wa10

2017Wu04: ^{155}La nuclide produced at RIBF-RIKEN facility using ^{9}Be(^{238}U,F) reaction at E=345 MeV/nucleon. Two experiments, optimized for transmission of ^{158}Nd and ^{170}Dy ions, were carried out with average beam intensities of 7 pnA and 12 pnA, respectively. Identification of nuclide of interest was made in BigRIPS separator by determining the atomic number and the mass-to-charge ratio using the tof-Bρ-ΔE method. Reaction products transported through ZeroDegree Spectrometer and implanted into beta-counting system WAS3ABi surrounded by EURICA array comprising of 84 HPGe detectors. Typical implantation rate ≈100 ions/s. Measured: implanted ion-β^--t, implanted ion-β^--γ-t and implanted ions-γ-t correlations. Deduced: $T_{1/2}$.

2018Sh11, 2018Fu08: ^{155}La nuclide produced at RIBF-RIKEN facility using the ^{9}Be(^{238}U,F) reaction at E=345 MeV/nucleon. Target=^{9}Be with thickness of 2.92 mm. Nuclidic identification (PID) made by determining the atomic number Z and mass-to-charge (A/Q) ratio of ions using magnetic rigidity, time-of-flight, and energy loss (tof-Bρ-ΔE method) using the BigRIPS fragment separator. Time-of-flight measured with thin plastic scintillators placed at foci of BigRIPS. Bρ values deduced from trajectory reconstruction of measured position and angle of fragments at each focus using parallel plate avalanche counters (PPACs). ΔE values measured using multisampling ionization chambers (MUSICs). Two HPGe clovers were used for isomer tagging by detecting delayed gamma rays from known μs isomers in fission fragments. Separated ions were then transported to the EURICA setup, where decay measurements were made through ZeroDegree spectrometer. Comparison of measured cross sections with theoretical calculations using LISE$^+$ abrasion-fission (AF) model.

2017Wu04, 2018Sh11, 2018Fu08 are interrelated and done by essentially same group.

^{155}La Levels

E(level)	$T_{1/2}$	Comments
0.0	101 ms *28*	%β^-=100; %β^-n=? Only β^- decay mode is expected followed by delayed-neutron decay. J^π: (1/2$^+$) is predictible from systematics of known quasiparticle states in neighboring nuclei and the proposed configuration. Additional information 1. $T_{1/2}$: From 2017Wu04, using a fit to the implanted ion-β^--t spectrum using the least-squares and maximum-likelihood methods. The data analysis included contributions from the parent, daughter and grand-daughter decays, as well as a constant background. E(level): it is assumed that the observed events correspond to ground-state activity. Theoretical $T_{1/2}$=130 ms, %β^-n=57.6, %β^-2n=0.01 (2003Mo09). Theoretical $T_{1/2}$=89.3 ms, %β^-n=40.1, %β^-2n=0.1 (2016Ma12). A total of 58 counts were assigned to ^{155}La, with spectrometer setting on Te. Probability of misidentification of this isotope is <0.01% (2018Sh11). In 2018Fu08, 143 counts were reported for spectrometer setting on Pr, and 16 counts for setting on Gd. Production σ=0.34 nb for Te setting (2018Sh11), 0.12 nb *2* for Pr setting and 62 pb *+20−15* for Gd setting (2018Fu08), with 30% systematic uncertainty on σ value in 2018Sh11, and 50% uncertainty for σ values in 2018Fu08. configuration: π1/2[420] ($d_{5/2}$) Nilsson orbital, tentatively expected from systematics of well-deformed nuclei in the region.