

^{253}No ϵ decay [2011An13](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 114, 1041 (2013)	1-Mar-2012

Parent: ^{253}No : $E=0$; $J^\pi=(9/2^-)$; $T_{1/2}=1.62$ min 15; $Q(\epsilon)=3186$ 32; $\% \epsilon + \% \beta^+$ decay=45 3

^{253}No - $J^\pi, T_{1/2}$: From Adopted Levels for ^{253}No .

^{253}No - $Q(\epsilon)$: From systematics ([2011AuZZ](#)).

^{253}No - $\% \epsilon + \% \beta^+$ decay: $\% \epsilon + \% \beta^+ = 45$ 3 based on evaluation of α decay of ^{257}Rf to ^{253}No ([2011An13](#)).

^{253}No produced by $^{207}\text{Pb}(^{48}\text{Ca}, 2n)$ $E(^{48}\text{Ca})=218.4$ MeV from ECR-ion source of the UNILAC at GSI. Target= ^{207}Pb of thickness $418 \mu\text{g}/\text{cm}^2$ enriched to 98.9% evaporated on a $40 \mu\text{g}/\text{cm}^2$ carbon backing. Evaporation residues (ERs) separated by velocity filter SHIP, implantation events detected by position-sensitive 16-strip PIPS detector in the focal plane of SHIP. γ -rays detected using a four crystal Ge-clover detector, calibrated with ^{133}Ba and ^{152}Eu with estimated accuracy of ± 0.3 keV. Measured E_γ , I_γ , $\gamma\gamma$ coin, $\gamma(\text{ce})$ coin, (Md K x rays) γ coin, (x rays)(ce) coin.

 ^{253}Md Levels

E(level)	J^π	Comments
0	$(7/2^-)$	Configuration= $7/2[514]$ (2011An13) based on decay to ^{253}Fm .
$\geq 1000?$		Strong γ rays are observed at 394.2 and 453.5 keV, in coin with Md K x rays and conversion electrons between 40 to 400 keV. The two γ rays are not in mutual coincidence.

 ϵ, β^+ radiations

E(decay)	E(level)
(2.19×10^3) 3)	$\geq 1000?$

 $\gamma(^{253}\text{Md})$

E_γ	$E_i(\text{level})$
$^x 394.2^\dagger$	
$^x 453.5^\dagger$	

† One possibility is that the two gamma rays decay from the level, one to the ground state and the other to a low-lying $9/2^-$ member of $K^\pi=7/2^-$ g.s. band.

x γ ray not placed in level scheme.