

$^{164}\text{Dy}(^{54}\text{Cr},4n\gamma)$ 2007Kh22

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Shaofei Zhu and E. A. Mccutchan		NDS 175, 1 (2021)	1-May-2021

Includes $^{176}\text{Hf}(^{40}\text{Ar},2n\gamma)$ by 2021Zh24.

2007Kh22: ^{214}Th was produced in $^{164}\text{Dy}(^{54}\text{Cr},4n)$ with a pulsed beam at 246 MeV; evaporation residues (ER) were separated in-flight by the velocity filter SHIP and implanted in 16 strip Si detectors at the focal plane; γ rays from the decay were detected by a clover detector with four HPGe crystals. Isomeric decay of $^{214\text{m}}\text{Th}$ were established by ER- γ - α correlations. Measured E_γ and I_γ .

2021Zh24: $E(^{40}\text{Ar})=183, 190$ MeV; evaporation residues separated using the SHANS gas-filled recoil separator and implanted into three position-sensitive silicon strip detectors (PSSDs). Measured implant- $\alpha\gamma(t)$; deduced $T_{1/2}$ of the 8^+ isomer.

α : [Additional information 1](#).

 ^{214}Th Levels

E(level) [†]	J^π	$T_{1/2}$	Comments
0 [‡]	0 ⁺		
623.0 [‡] 10	2 ⁺		
1453.0 [‡] 15	4 ⁺		
2092.0 [‡] 18	6 ⁺		
2181 [‡] 3	8 ⁺	1.21 μs 12	%IT=100 $T_{1/2}$: weighted average of 1.18 μs 13 from implant- $\alpha\gamma(t)$ (2021ZH24) and 1.24 μs 12 from ER- $\gamma(t)$ (2007Kh22). Configuration= $\pi[1h_{9/2}\otimes 2f_{7/2}]$.

[†] From E_γ 's.

[‡] Seq.(A): Yrast cascade.

 $\gamma(^{214}\text{Th})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	α	$I_{(\gamma+ce)}$
89 2	4.9 16	2181	8 ⁺	2092.0	6 ⁺	(E2)	19.5 23	106 35
623 1	100	623.0	2 ⁺	0	0 ⁺	(E2)		
639 1	104 12	2092.0	6 ⁺	1453.0	4 ⁺	(E2)		
830 1	102 12	1453.0	4 ⁺	623.0	2 ⁺	(E2)		

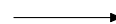


[†] From yrast cascade and intensity balance consistent with E2 .

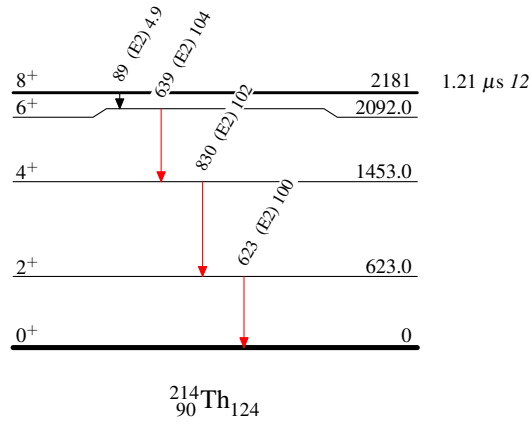
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Level Scheme

Intensities: Relative I_γ

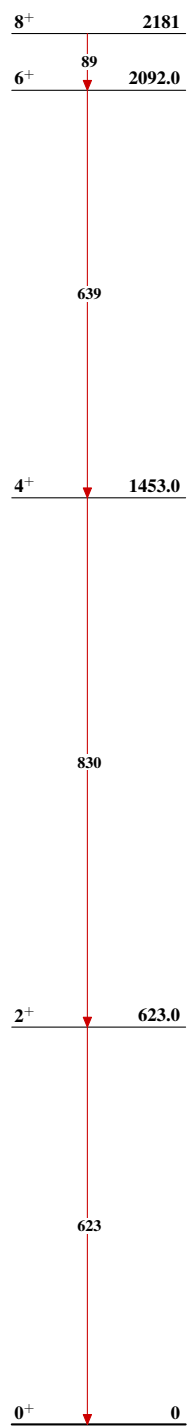
Legend

-  $I_\gamma < 2\% \times I_\gamma^{\max}$
-  $I_\gamma < 10\% \times I_\gamma^{\max}$
-  $I_\gamma > 10\% \times I_\gamma^{\max}$



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Seq.(A): Yrast cascade

 ${}^{214}_{90}\text{Th}_{124}$