

TAVOLA PERIODICA DEI NUCLEI ATOMICI

configurazione dei livelli nucleari degli isotopi **TORIO** **Z = 90-a**

$\frac{E_c(\text{MeV})}{E_s(\text{MeV})}$	Sa	$\frac{m_c}{m_s}$	n	1	2	3	4	5	6	7	$\frac{E_p(\text{eV})}{P-T_{1/2}}$
$\frac{1592.31}{-}$	Th ₉₀ ²⁰⁸	$\frac{208.01730}{-}$	90n	2+0	8+0	18+0	32+0	0+19	1+9	1+0	$\frac{8.200M}{\alpha 1.70ms}$
$\frac{1600.61}{1600.0}$	Th ₉₀ ²⁰⁹	$\frac{209.01705}{209.01772}$	90n	2+0	8+0	18+0	30+1	1+19	1+9	1+0	$\frac{8.270M}{\alpha 2.50ms}$
$\frac{1610.76}{1610.5}$	Th ₉₀ ²¹⁰	$\frac{210.01482}{210.015075}$	90n	2+0	8+0	18+0	30+1	1+20	0+9	1+0	$\frac{8.069M}{\alpha 16.0ms}$
$\frac{1619.06}{1618.7}$	Th ₉₀ ²¹¹	$\frac{211.01458}{211.01493}$	90n	2+0	8+0	18+0	30+1	0+21	0+9	1+0	$\frac{7.914M}{\alpha 48.0ms}$
$\frac{1629.21}{1628.6}$	Th ₉₀ ²¹²	$\frac{212.01234}{212.01298}$	90n	2+0	8+0	18+0	28+2	0+22	1+8	1+0	$\frac{7.958M}{\alpha 31.7ms}$
$\frac{1637.51}{1636.7}$	Th ₉₀ ²¹³	$\frac{213.01210}{213.01301}$	90n	2+0	8+0	18+0	26+3	1+22	1+8	1+0	$\frac{7.840M}{\alpha 144ms}$
$\frac{1645.80}{1646.1}$	Th ₉₀ ²¹⁴	$\frac{214.01186}{214.011500}$	90n	2+0	8+0	18+0	26+3	0+23	1+8	1+0	$\frac{7.827M}{\alpha 87.0ms}$
$\frac{1654.10}{1654.0}$	Th ₉₀ ²¹⁵	$\frac{215.01162}{215.01173}$	90n	2+0	8+0	18+0	24+4	1+23	1+8	1+0	$\frac{7.665M}{\alpha 1.20s}$
$\frac{1662.40}{1662.7}$	Th ₉₀ ²¹⁶	$\frac{216.01137}{216.011062}$	90n	2+0	8+0	18+0	24+4	0+24	1+8	1+0	$\frac{8.073M}{\alpha 26.0ms}$
$\frac{1668.84}{1668.8}$	Th ₉₀ ²¹⁷	$\frac{217.01312}{217.013114}$	90n	2+0	8+0	18+0	24+4	0+24	0+9	1+0	$\frac{9.435M}{\alpha 241\mu s}$
$\frac{1677.13}{1676.8}$	Th ₉₀ ²¹⁸	$\frac{218.01289}{218.013284}$	90n	2+0	8+0	18+0	22+5	1+24	0+9	1+0	$\frac{9.849M}{\alpha 117ns}$
$\frac{1682.45}{1682.7}$	Th ₉₀ ²¹⁹	$\frac{219.01584}{219.01554}$	90n	2+0	8+0	18+0	22+5	1+24	0+9	0+1	$\frac{9.510M}{\alpha 1.05\mu s}$
$\frac{1690.01}{1690.6}$	Th ₉₀ ²²⁰	$\frac{220.01639}{220.015748}$	90n	2+0	8+0	18+0	20+6	1+24	0+10	1+0	$\frac{8.953M}{\alpha 9.7\mu s}$
$\frac{1696.45}{1696.4}$	Th ₉₀ ²²¹	$\frac{221.01814}{221.018184}$	90n	2+0	8+0	18+0	18+7	1+24	1+10	1+0	$\frac{8.127M}{\alpha 2.80ms}$
$\frac{1704.75}{1704.2}$	Th ₉₀ ²²²	$\frac{222.01898}{222.018468}$	90n	2+0	8+0	18+0	18+7	0+25	1+10	1+0	$\frac{7.780M}{\alpha 52.0ms}$
$\frac{1710.07}{1710.1}$	Th ₉₀ ²²³	$\frac{223.020811}{223.020811}$	90n	2+0	8+0	18+0	18+7	0+25	1+10	0+1	$\frac{7.567M}{\alpha 0.60s}$

$\frac{E_c(\text{MeV})}{E_s(\text{MeV})}$	Sa	$\frac{m_c}{m_s}$	n	1	2	3	4	5	6	7	$\frac{E_p(\text{eV})}{p \cdot T_{1/2}}$
$\frac{1717.62}{1717.6}$	Th ₉₀ ²²⁴	$\frac{224.021467}{224.021467}$	90n	2+0	8+0	18+0	16+8	0+25	1+11	1+0	$\frac{7.298M}{\alpha 0.81s}$
$\frac{1722.95}{1723.3}$	Th ₉₀ ²²⁵	$\frac{225.02435}{225.023951}$	90n	2+0	8+0	18+0	16+8	0+25	1+11	0+1	$\frac{6.9214M}{\alpha 8.75m}$
$\frac{1729.77}{1730.5}$	Th ₉₀ ²²⁶	$\frac{226.02570}{226.024903}$	90n	2+0	8+0	18+0	14+9	1+24	1+13	0+0	$\frac{6.4509M}{\alpha 30.57m}$
$\frac{1736.21}{1736.0}$	Th ₉₀ ²²⁷	$\frac{227.02745}{227.027704}$	90n	2+0	8+0	18+0	14+9	1+24	0+14	0+0	$\frac{6.1466M}{\alpha 18.68d}$
$\frac{1742.65}{1743.1}$	Th ₉₀ ²²⁸	$\frac{228.02920}{228.028741}$	90n	2+0	8+0	18+0	12+10	1+24	1+14	0+0	$\frac{5.52005M}{\alpha 1.9116a}$
$\frac{1749.09}{1748.3}$	Th ₉₀ ²²⁹	$\frac{229.03095}{229.031762}$	90n	2+0	8+0	18+0	12+10	1+24	0+15	0+0	$\frac{5.1676M}{\alpha 7932a}$
$\frac{1755.53}{1755.1}$	Th ₉₀ ²³⁰	$\frac{230.03270}{230.033134}$	90n	2+0	8+0	18+0	10+11	1+24	1+15	0+0	$\frac{4.7698M}{\alpha 7.54 \cdot 10^4 a}$
$\frac{1760.11}{1760.2}$	Th ₉₀ ²³¹	$\frac{231.03645}{231.036304}$	90n	2+0	8+0	18+0	10+11	0+24	1+16	0+0	$\frac{390.7M}{\beta^- 25.52h}$
$\frac{1766.55}{1766.7}$	Th ₉₀ ²³²	$\frac{232.03820}{232.038055}$	90n	2+0	8+0	18+0	10+11	0+24	0+17	0+0	$\frac{4.0816M}{\alpha 1.4 \cdot 10^{10} a}$ 100%
$\frac{1771.13}{1771.5}$	Th ₉₀ ²³³	$\frac{233.04195}{233.041582}$	90n	2+0	8+0	18+0	8+12	1+23	0+18	0+0	$\frac{1.2461M}{\beta^- 21.83m}$
$\frac{1777.57}{1777.7}$	Th ₉₀ ²³⁴	$\frac{234.04370}{234.043601}$	90n	2+0	8+0	18+0	6+13	1+23	1+18	0+0	$\frac{273.0K}{\beta^- 24.10d}$
$\frac{1781.77}{1782.1}$	Th ₉₀ ²³⁵	$\frac{235.04786}{235.04751}$	90n	2+0	8+0	18+0	6+13	1+23	0+18	0+1	$\frac{1.920K}{\beta^- 7.20m}$
$\frac{1789.33}{1788.97}$	Th ₉₀ ²³⁶	$\frac{236.04841}{236.04987}$	90n	2+0	8+0	18+0	4+14	1+23	0+19	1+0	$\frac{1.100M}{\beta^- 37.3m}$
$\frac{1792.05}{1792.3}$	Th ₉₀ ²³⁷	$\frac{237.05415}{237.05389}$	90n	2+0	8+0	18+0	2+15	1+22	1+20	1+0	$\frac{2.600M}{\beta^- 4.70m}$
$\frac{1797.38}{1797.9}$	Th ₉₀ ²³⁸	$\frac{238.05709}{238.05650}$	90n	2+0	8+0	18+0	2+15	1+22	1+20	0+1	$\frac{1.900M}{\beta^- 9.40m}$
$\frac{1801.96}{-}$	Th ₉₀ ²³⁹	$\frac{239.06084}{-}$	90n	2+0	8+0	18+0	2+15	0+22	1+21	0+1	$\frac{3.300M}{\beta^-}$

$\frac{E_c(\text{MeV})}{E_s(\text{MeV})}$	Sa	$\frac{m_c}{m_s}$	n	1	2	3	4	5	6	7	$\frac{E_p(\text{eV})}{p \cdot T_{1/2}}$
$\frac{1807.66}{-}$	Th_{90}^{240}	$\frac{240.06339}{-}$	90n	2+0	8+0	18+0	0+16	1+21	0+23	1+0	$\frac{2.222M}{\beta^-}$
$\frac{1811.13}{-}$	Th_{90}^{241}	$\frac{241.06833}{-}$	90n	2+0	8+0	18+0	0+16	0+21	1+23	0+1	$\frac{3.642M}{\beta^-}$
$\frac{1816.82}{-}$	Th_{90}^{242}	$\frac{242.07088}{-}$	90n	2+0	8+0	16+1	0+16	1+20	0+25	1+0	$\frac{2.542M}{\beta^-}$

$E_c(\text{MeV})$ = valore calcolato dell'energia di legame

$E_s(\text{MeV})$ = valore sperimentale dell'energia di legame

m_c = valore calcolato della massa atomica

m_s = valore sperimentale della massa atomica

n = numero di neutroni centrali attivi

1-7 = numero quantico associato al livello

$p + d$ = (numero di protoni) + (numero di deutoni) in orbita

$p \cdot T_{1/2}$ = particella emessa – periodo di dimezzamento

$E_p(\text{eV})$ = energia della particella emessa

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