



. 1 . 2

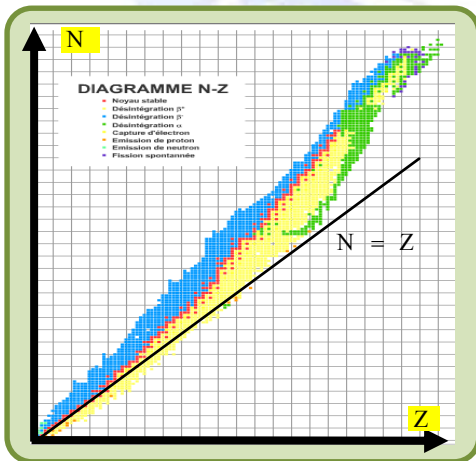
. 2 . 2

$\beta^+$   $\beta^-$   $\alpha$

. 3 . 2

$\gamma$   $\beta$   $\alpha$  :

$\gamma$   $\beta$   $\alpha$

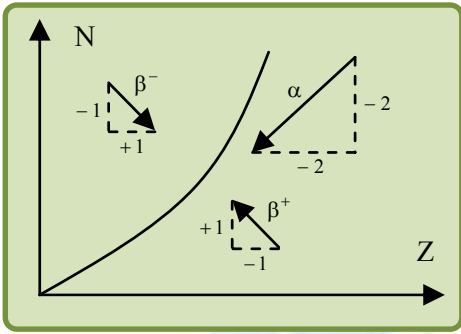


$N = Z$

$(\beta^-)$

$(\beta^+)$

2 Z N



N (β⁻)

Z

Z N (β⁺)

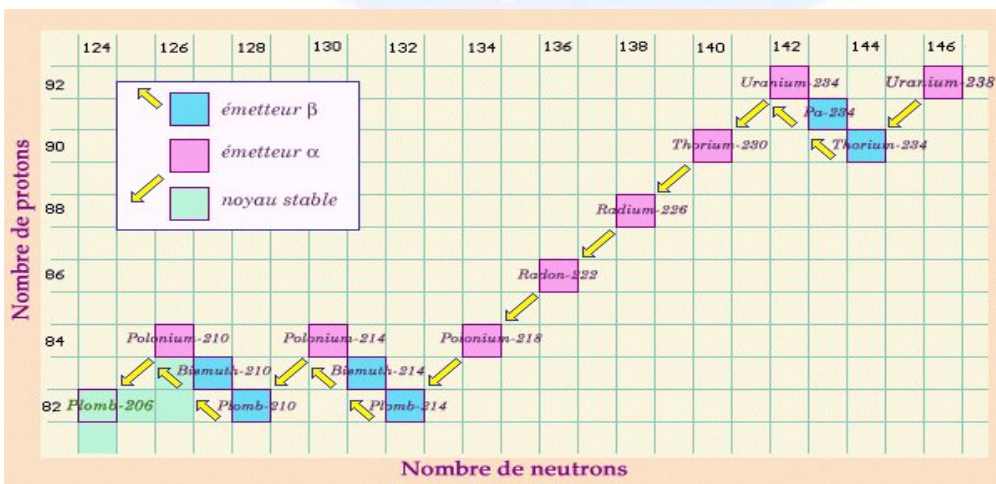
235

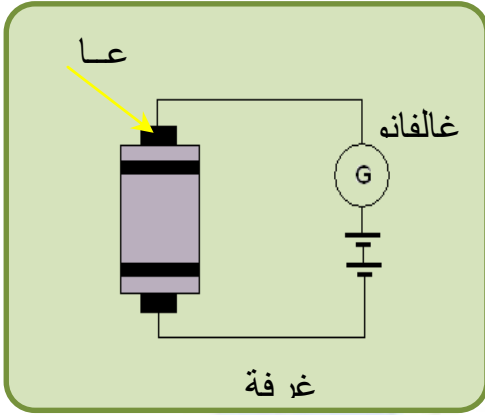
207

207

235

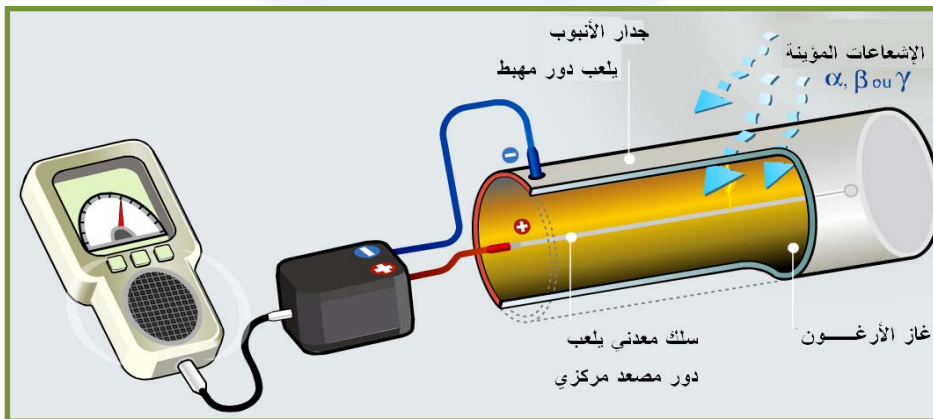
.235





ADN

(Geiger ) Geiger-Muller



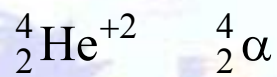
$\beta^+ \quad \beta^- \quad \alpha$

. 3 . 2

$\beta^+ \quad \beta^- \quad \alpha$

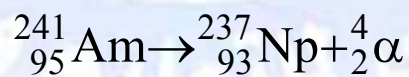
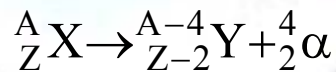
:

$\gamma$



$\alpha$

$\alpha$



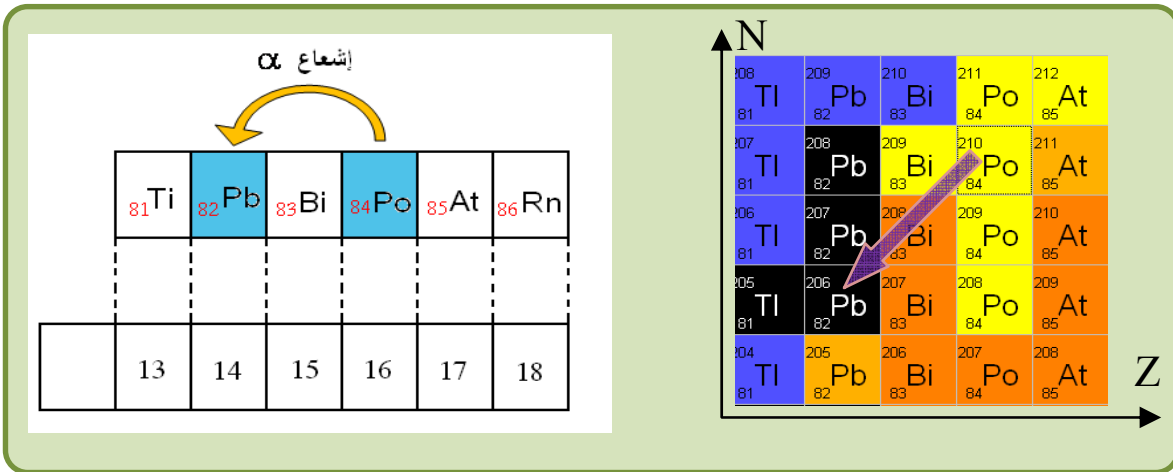
$(95=93+2 \quad 241=237+4)$

(N,Z)

:

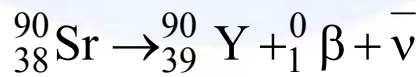
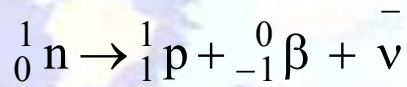
.206

210



$\beta^-$

$\beta^-$

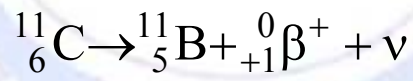
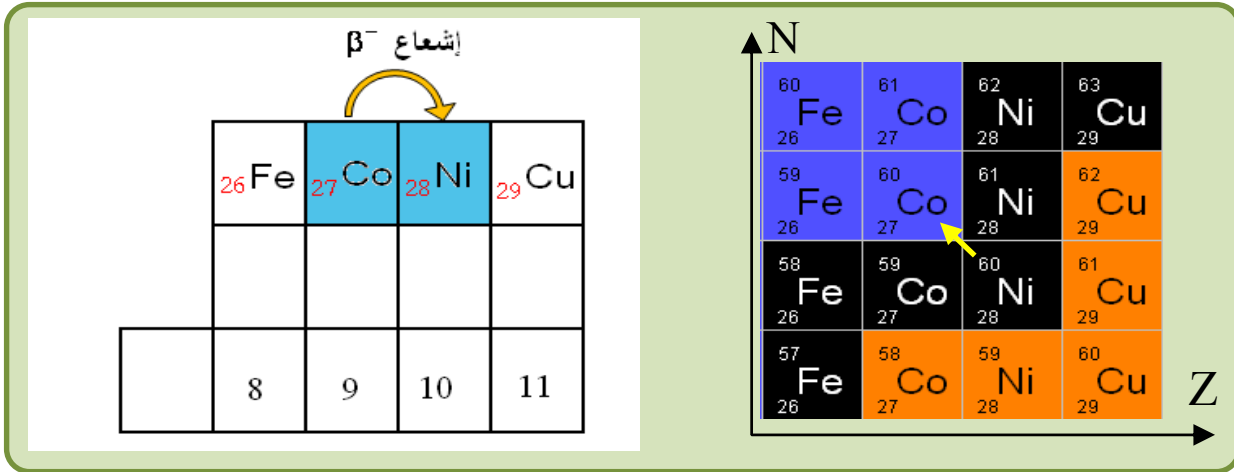


$\beta^-$

$\beta^-$

(N,Z)

.60 60



( $\nu$ )

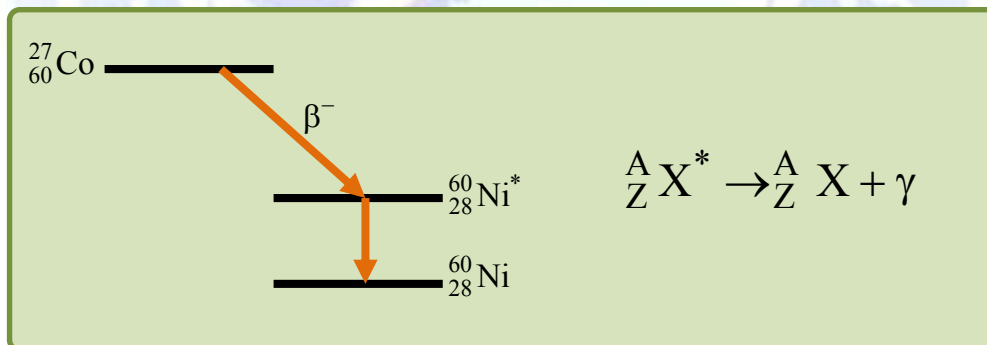
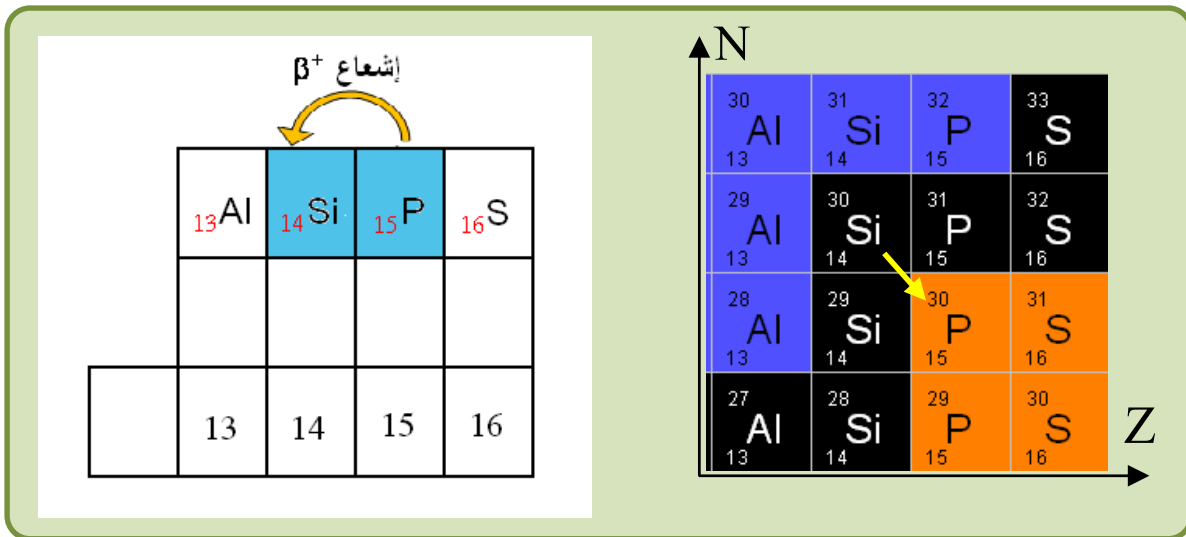
$\beta^+$

$\beta^+$

(N,Z)

.30

30

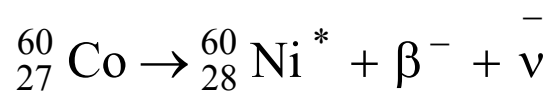


$\beta^-$     $\alpha$

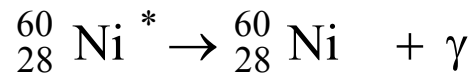
60

$\beta^-$

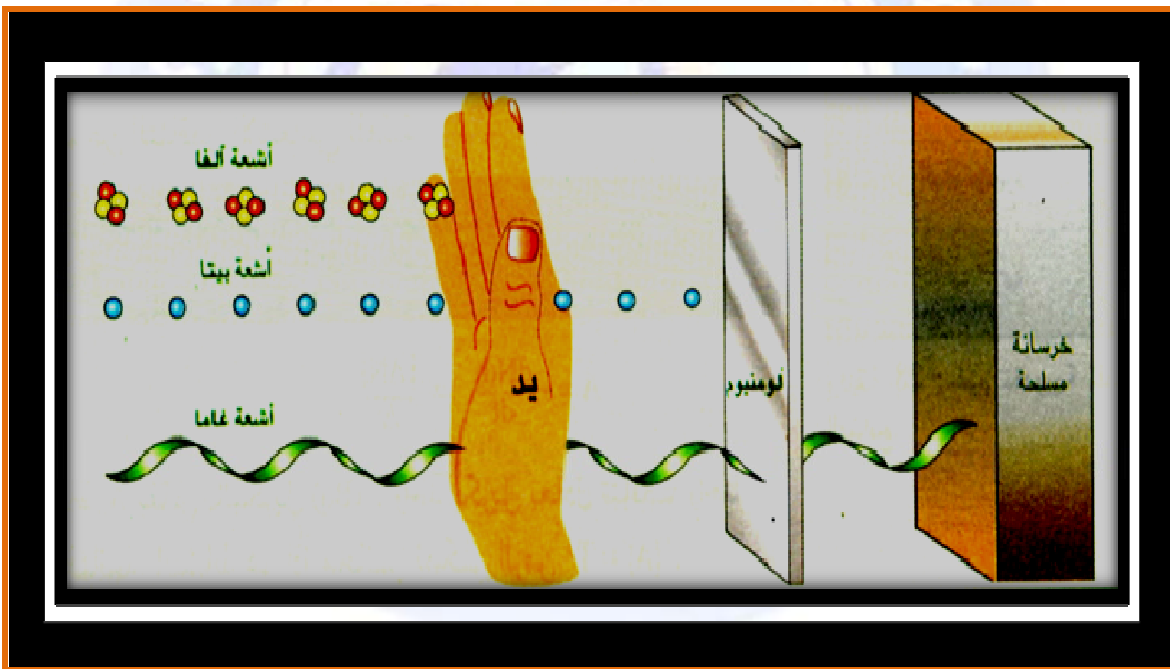
:







:



$\gamma$	$\beta$	$\alpha$	
1/mm	$10^2/\text{mm}$	$10^4/\text{mm}$	
10cm 1m		$10^2\text{mm}$	
$3 \times 10^8 \text{m/s}$	$10^8 \text{m/s}$	$10^7 \text{m/s}$	