Aniquilación e+ - e- y correlación angular

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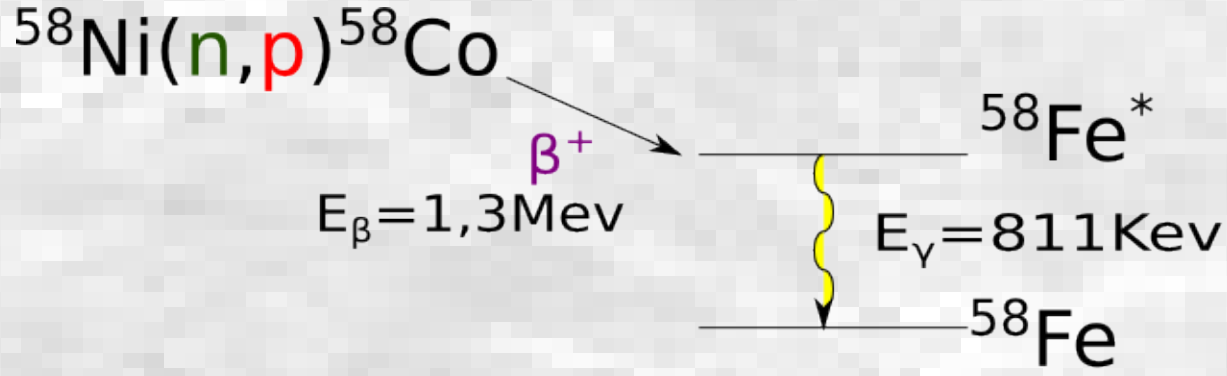
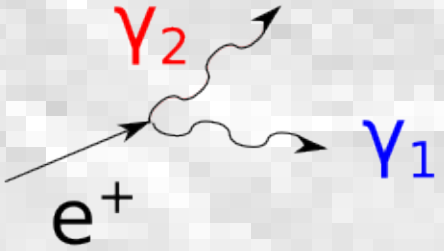
Introduccion a Particulas y Física Nuclear
2014

Aniquilación e+ - e-



Caso 1:



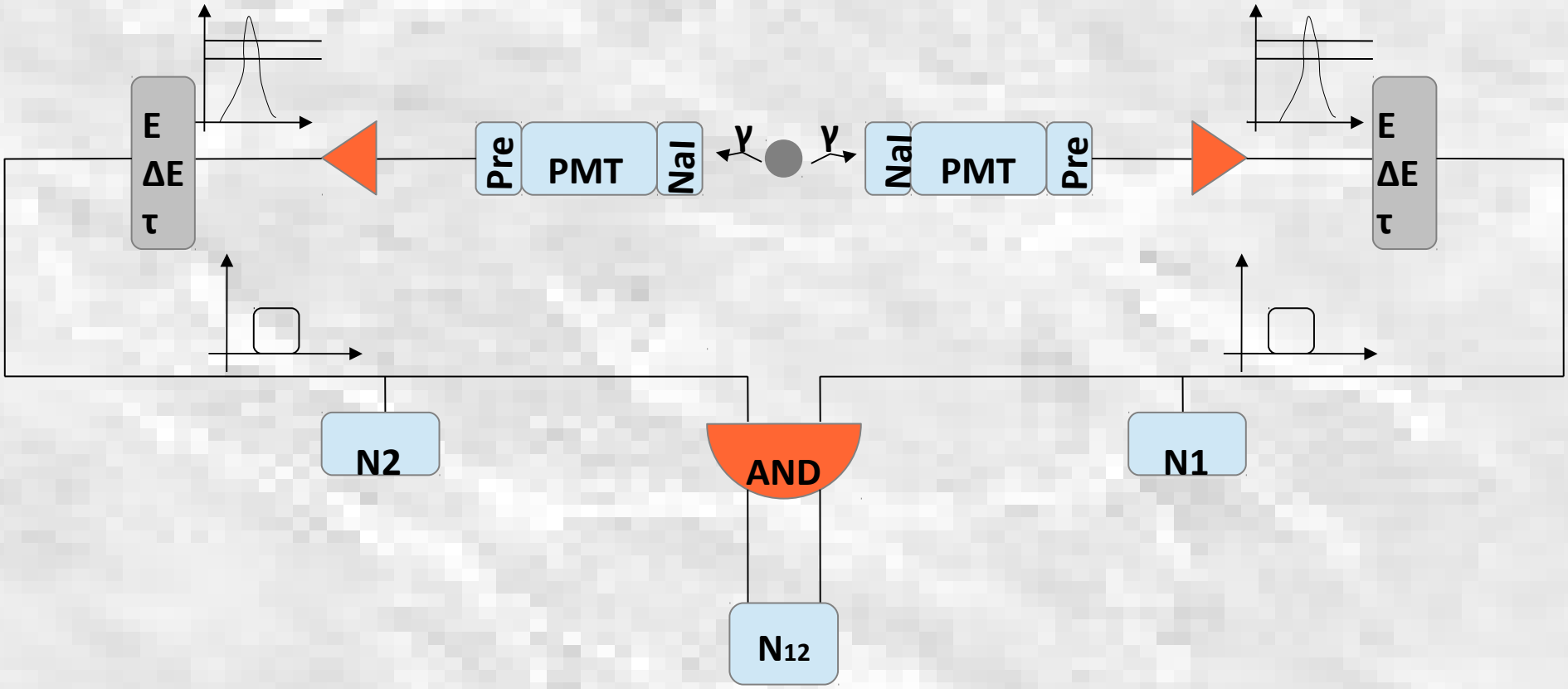
$$\frac{T_{e+} + 2m_e c^2}{2} = E_{\gamma 1}$$

Caso2:

$$T_{e+} = 0$$

$$E_{\gamma 1} = E_{\gamma 2} = 511KeV$$

Aniquilación e+ - e-: arreglo

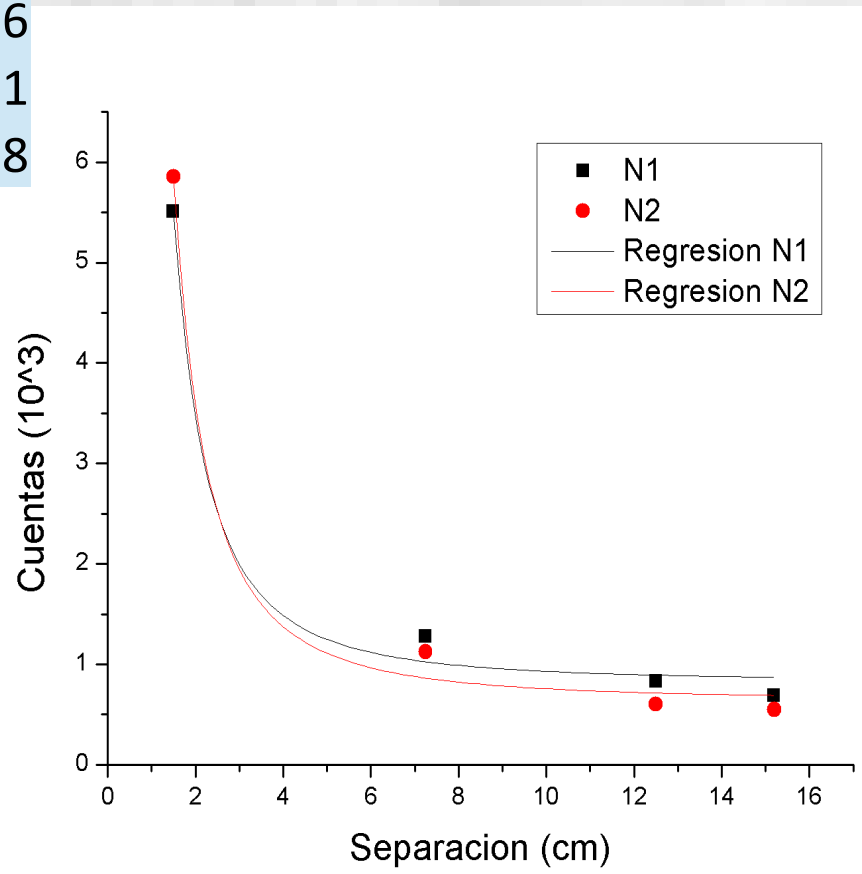


Aniquilación e+ - e-: resultados

corr (cm)	dist (cm)	N1	N12	N2
0	30,4	689	47	549
0	25	829	601	602
0	14,5	1279	146	1126
2,54	14,5	1048	1	1031
0	3	5511	751	5858

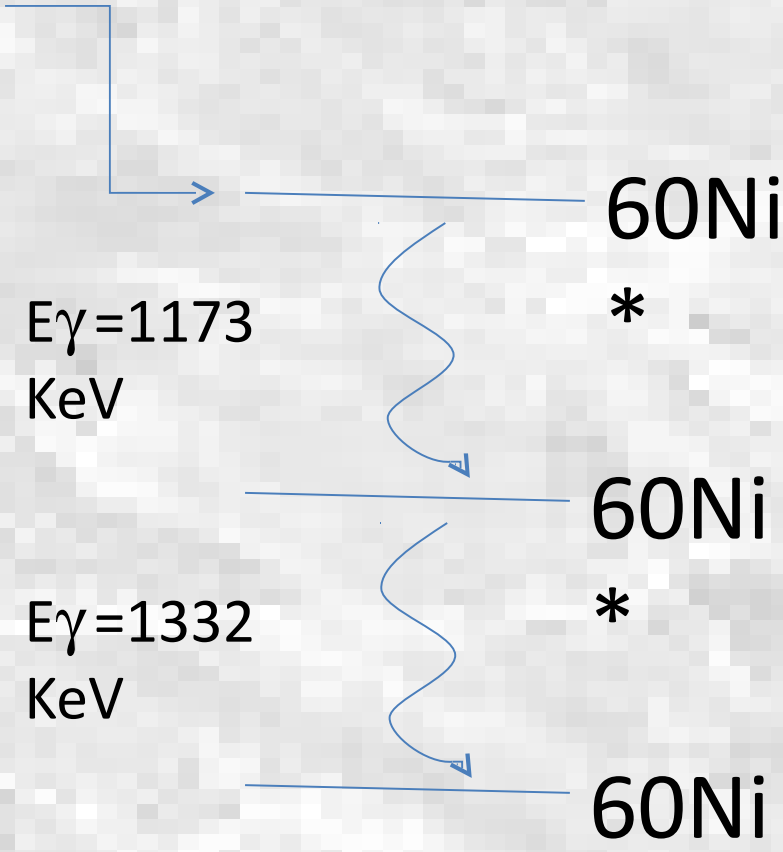
$$N_i = N_{dec}\,\Omega\, e_i / 4\pi$$

180º +/- 9º

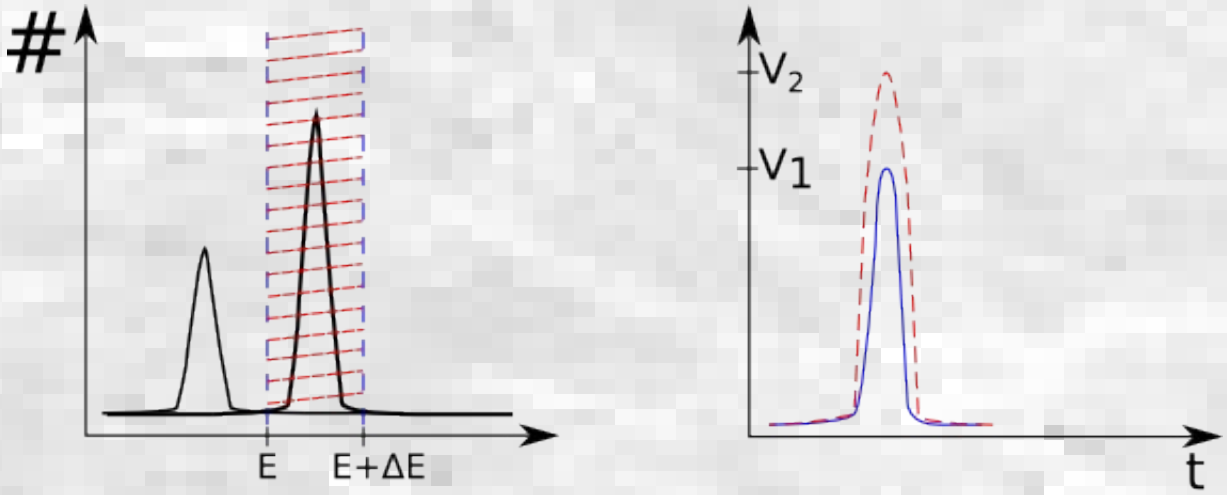


Correlación angular

60Co(n,e-)60Ni

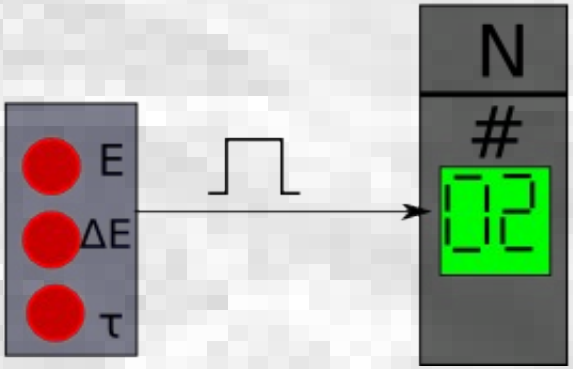


Correlación angular: calibración

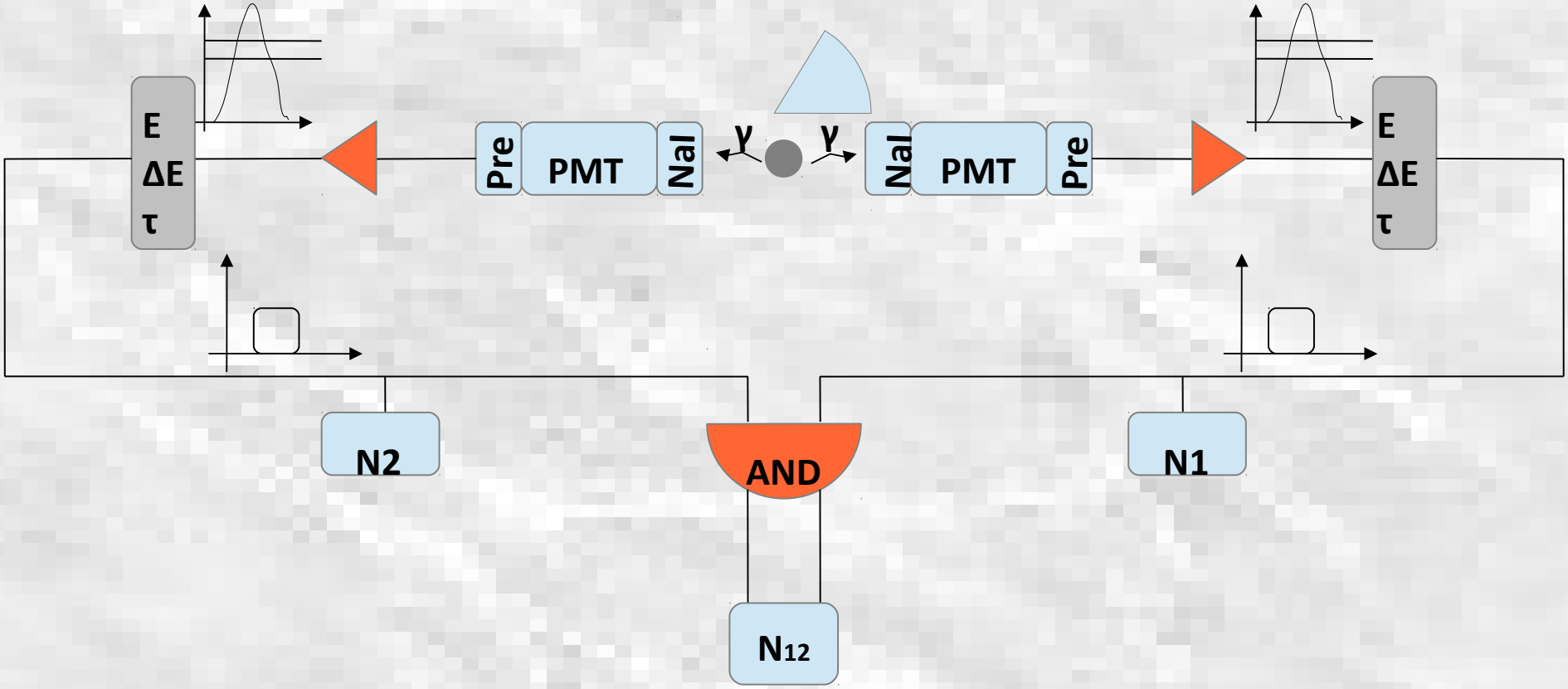


$V_1 \sim E$

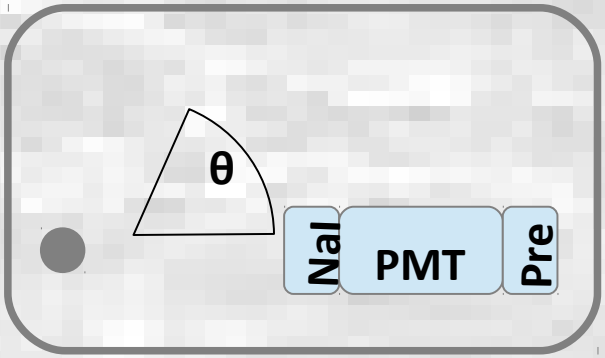
$v_2 \sim E+\Delta E$



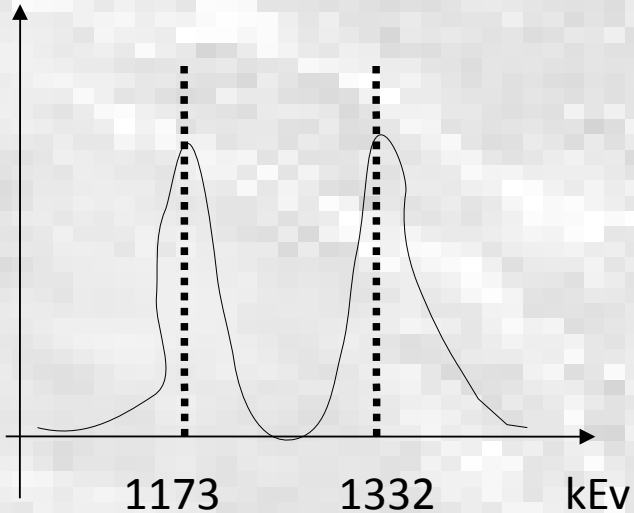
Correlación angular: arreglo



Correlación angular: resultados



$$w(\theta) = 1 + \frac{\cos^2(\theta)}{8} + \frac{\cos^4(\theta)}{24}$$



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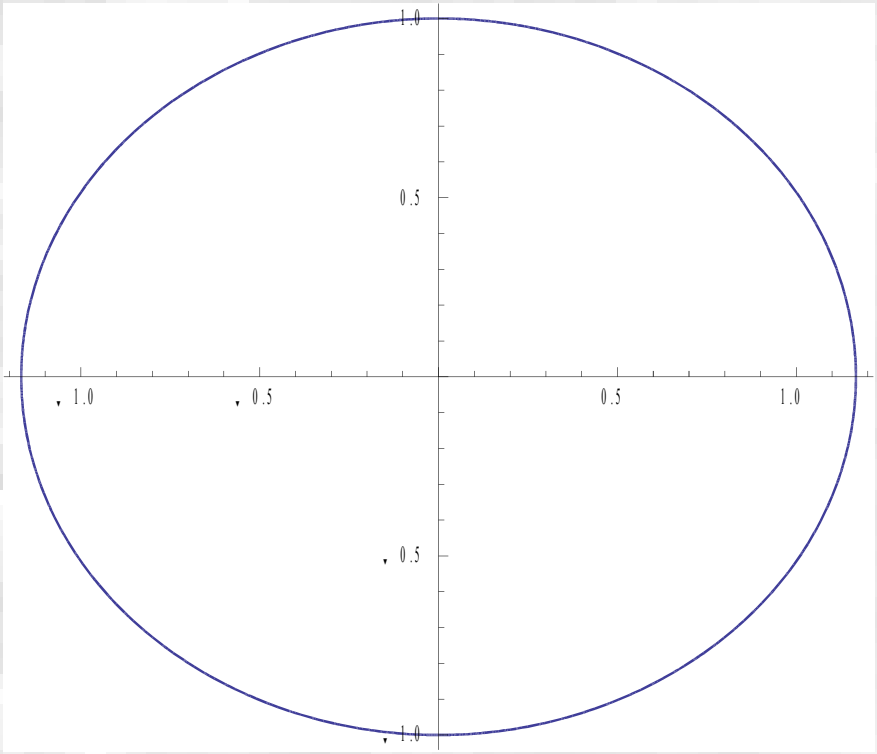

15 hs – 35 mm	π	π/2	Cociente
Coincidencias	35179	30097	1,16885 ~ 7/6