

# Design and Performance of the VASSILISSA separator.

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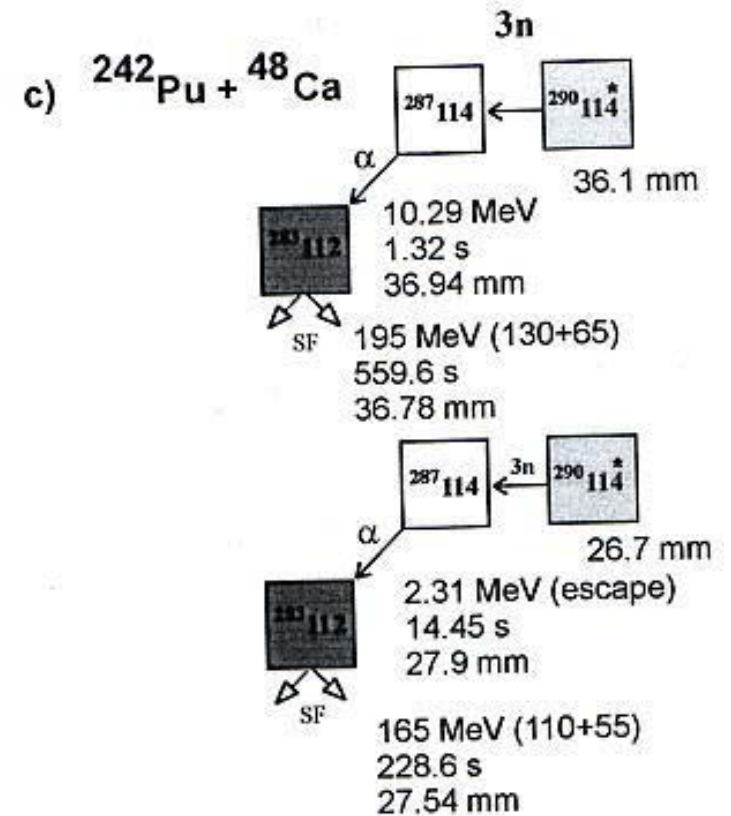
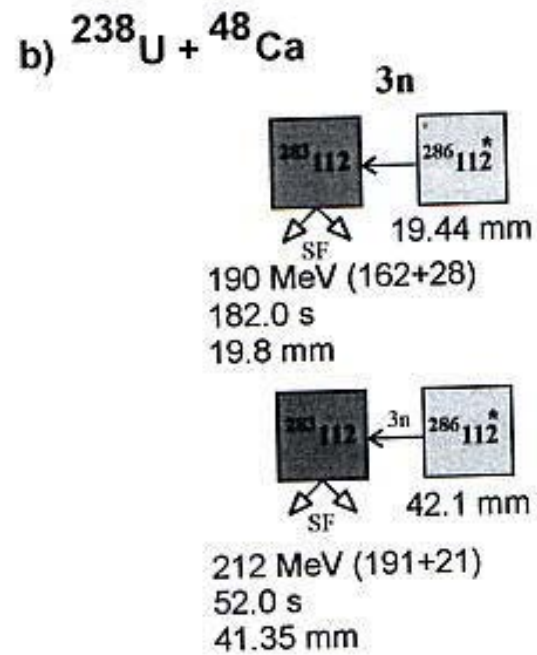
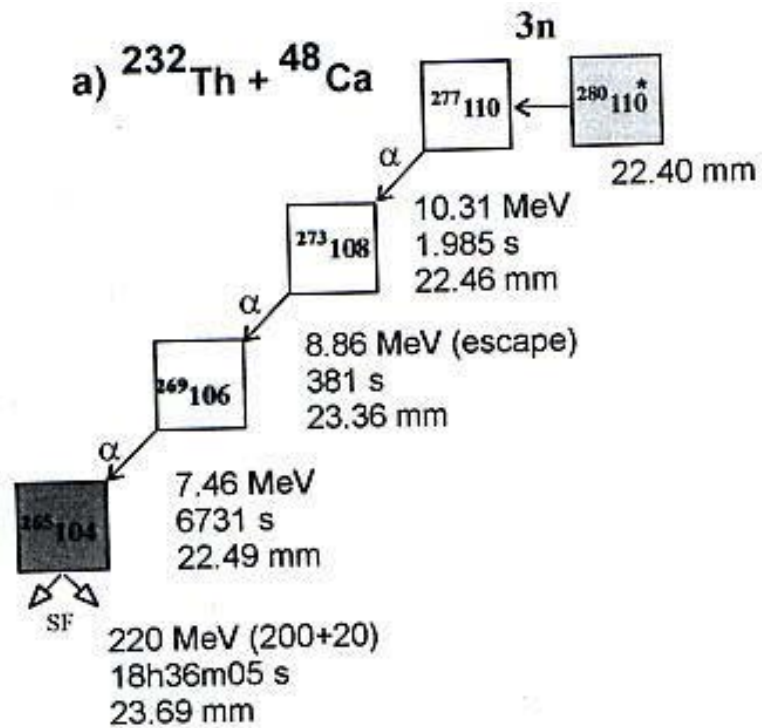
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**Performed experiments and obtained results with  $^{48}\text{Ca}$  beams at VASSILISSA separator.**

Reaction studied	Energy MeV	Time of irradi.	Beam dose	Nuclide detected	Cross section
$^{48}\text{Ca} + ^{238}\text{U}$	231	25 days	$3.5 \times 10^{18}$	$^{283}_{112}$	$5^{+6}_{-3}$ pb
$^{48}\text{Ca} + ^{238}\text{U}$	238	14 days	$2.2 \times 10^{18}$		lim 7 pb
$^{48}\text{Ca} + ^{232}\text{Th}$	238	15 days	$1.8 \times 10^{18}$		lim 9 pb
$^{48}\text{Ca} + ^{232}\text{Th}$	228	28 days	$4.6 \times 10^{18}$	$^{277}_{110}$	$2^{+4.6}_{-1.7}$ pb
$^{48}\text{Ca} + ^{242}\text{Pu}$	235	32 days	$7.5 \times 10^{18}$	$^{287}_{114}$	$2.5^{+3.3}_{-1.6}$ pb



## Separator VASSILISSA

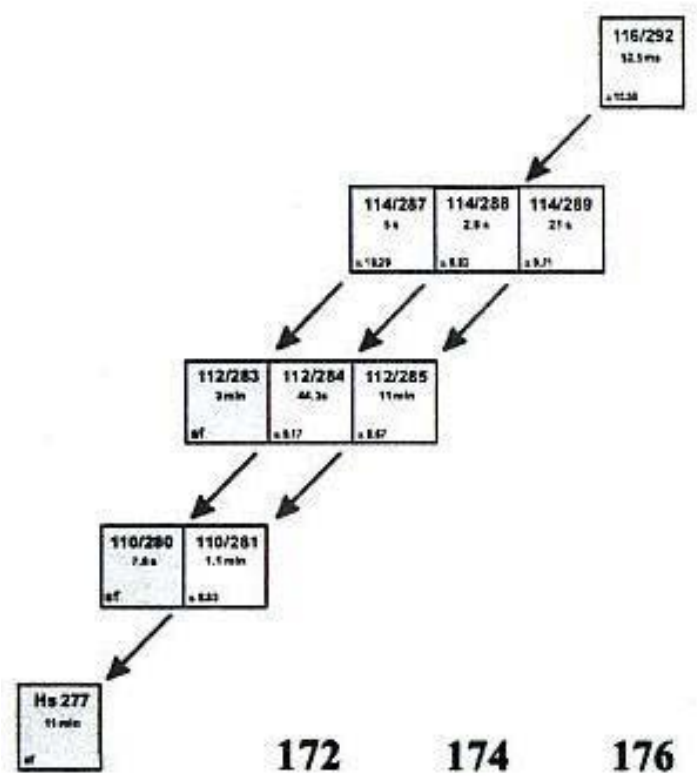
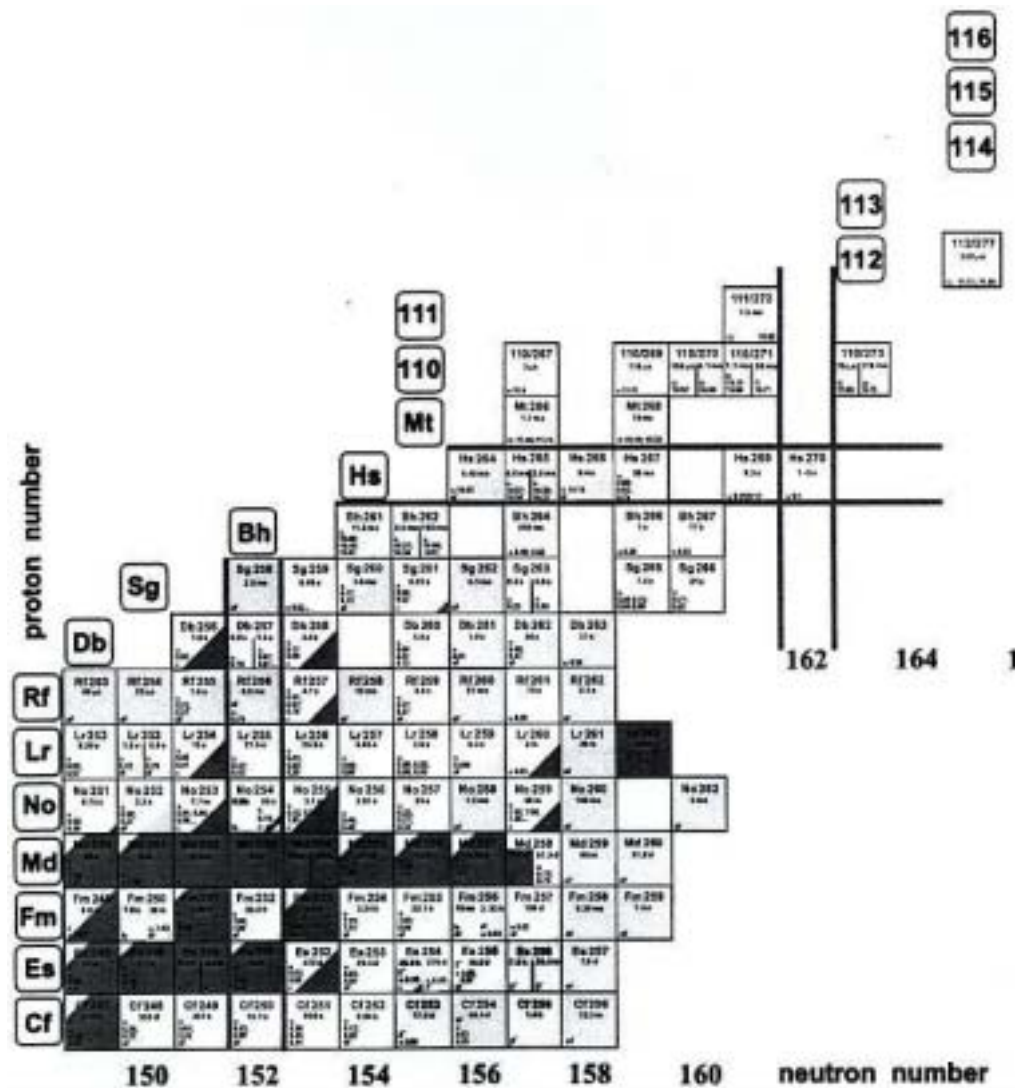
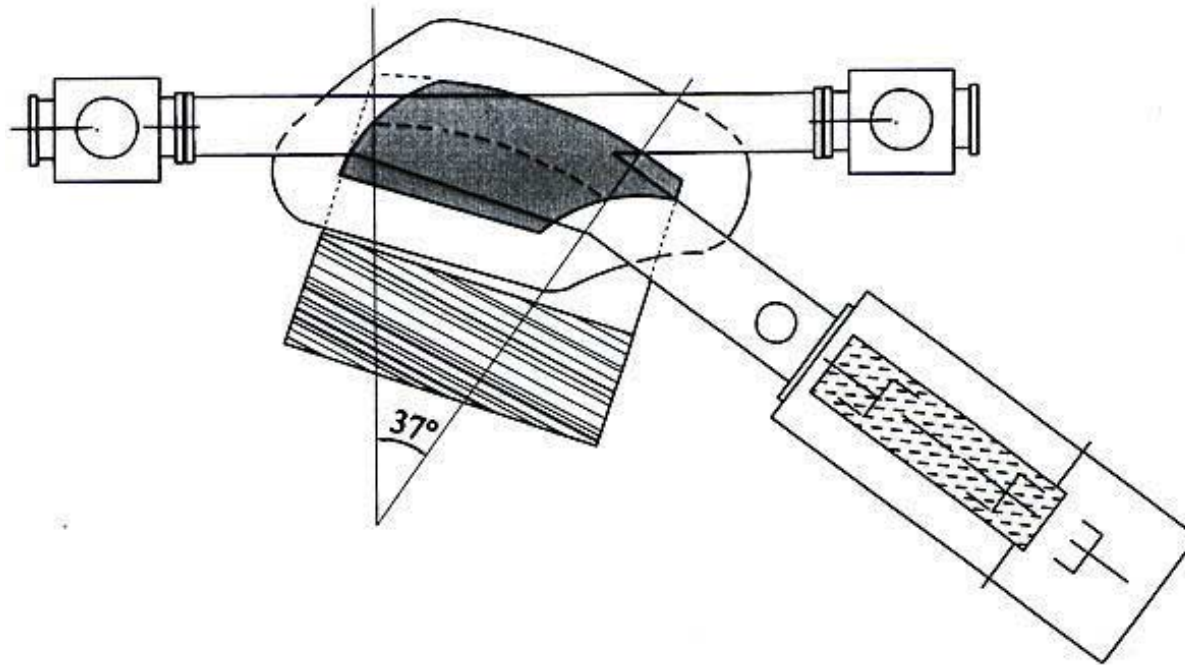
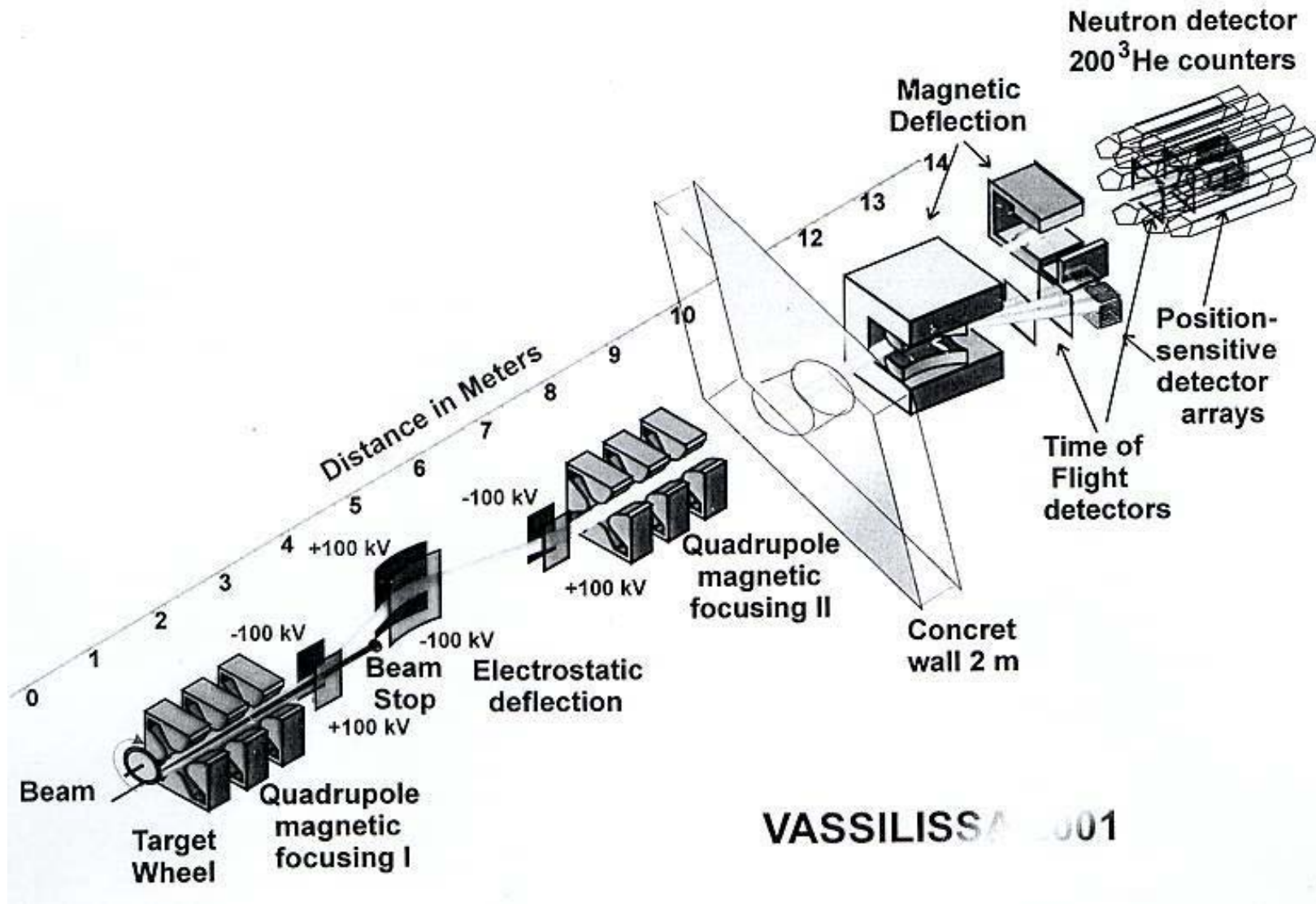


Chart of the Nuclides 2001

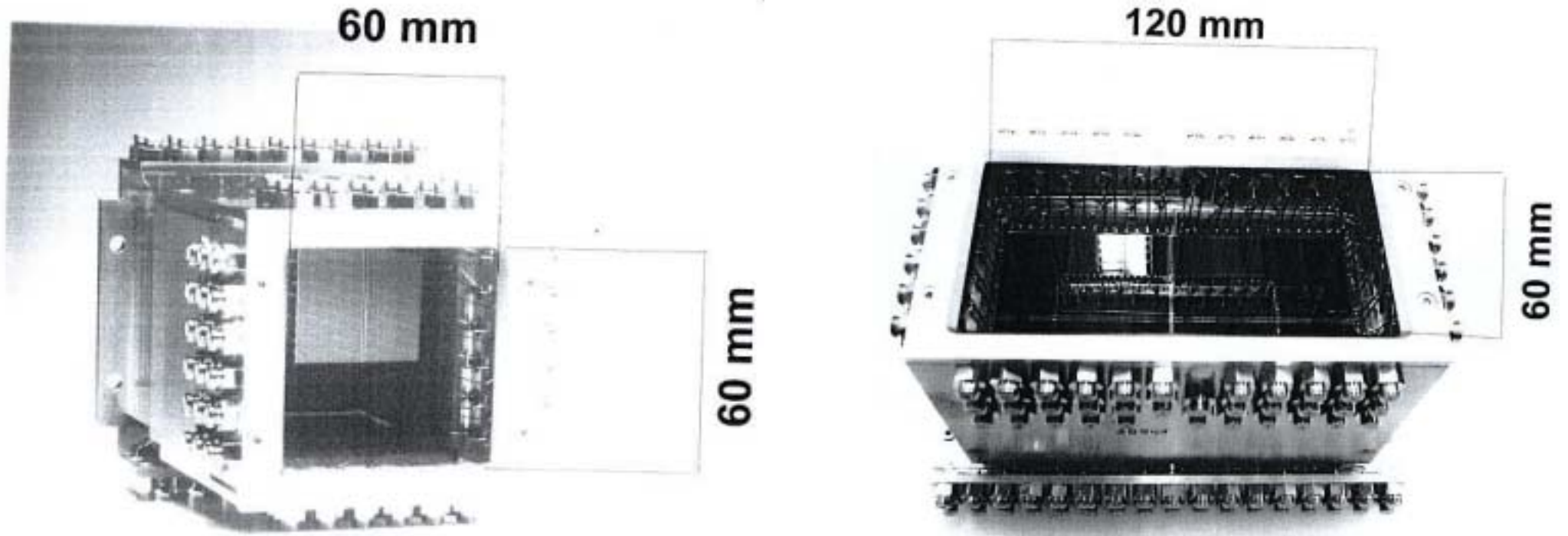
## VASSILISSA 2000 DIPOLE



$$\begin{array}{ll} \alpha = 37.0^{\circ} & R_O = 1.0 \text{ m} \\ R_{\text{inp}} = +0.5 \text{ m} & \beta_{\text{inp}} = +46.0^{\circ} \\ R_{\text{out}} = -0.5 \text{ m} & \beta_{\text{out}} = -43.0^{\circ} \end{array}$$



# Focal Plane Detectors of the Recoil Separator VASSILISSA



Performed experiments and obtained results  
with upgraded VASSILISSA separator.

Reactions studied:

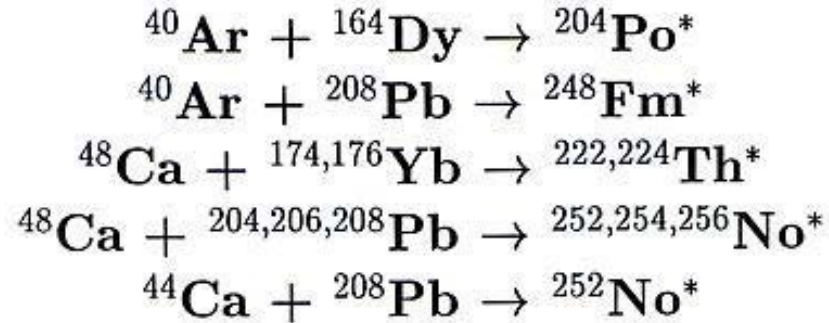
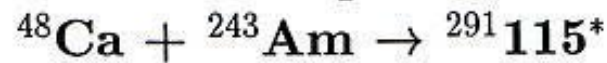


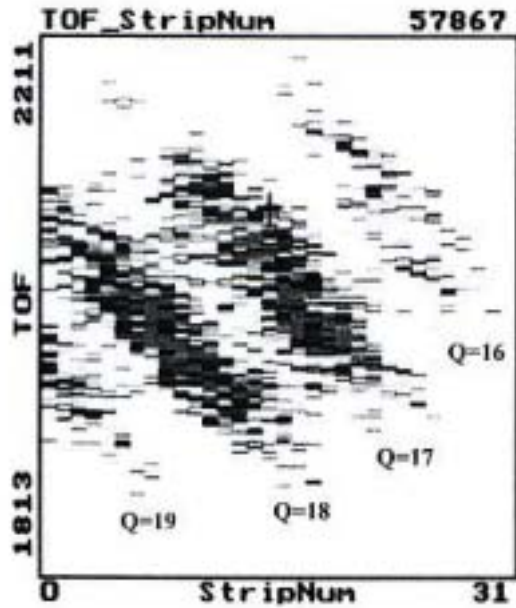
Table 1: Decay properties of neutron deficient Nobelium isotopes

	N events	$T_{1/2SF}$ $\mu\text{s}$	$b_\alpha$
$^{250}\text{No}$	56	$5.6^{+0.9}_{-0.7}$	$\leq 10\%$
$^{249}\text{No}$	24	$54.0^{+13.9}_{-9.2}$	$\leq 20\%$
$^{248}\text{No}$	—	$\leq 0.5 \mu\text{s}$	—

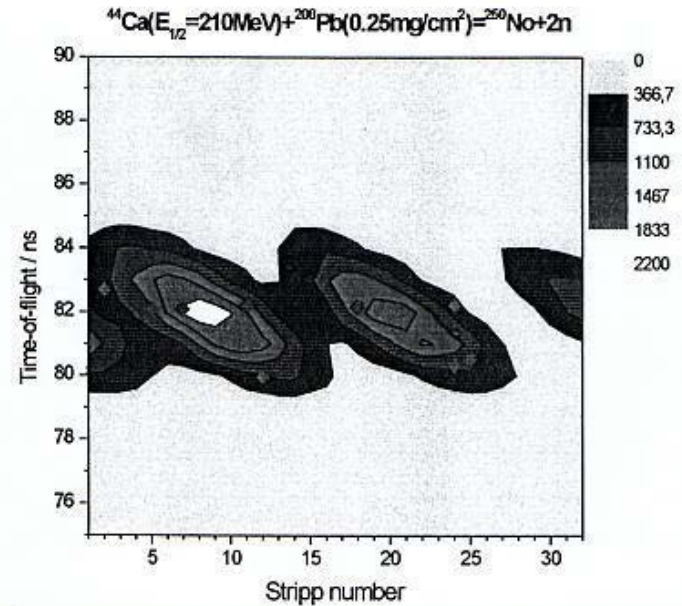
Closest plans:







“TOF - strip number” distribution of  $^{198}\text{Po}$  evaporation residues  $^{40}\text{Ar} + ^{164}\text{Dy}$  reaction



“TOF - strip number” distribution of  $^{250}\text{No}$  evaporation residues  $^{44}\text{Ca} + ^{208}\text{Pb}$  reaction

