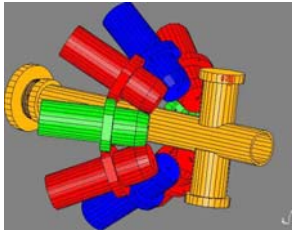




Sources of γ -radiation: CATE

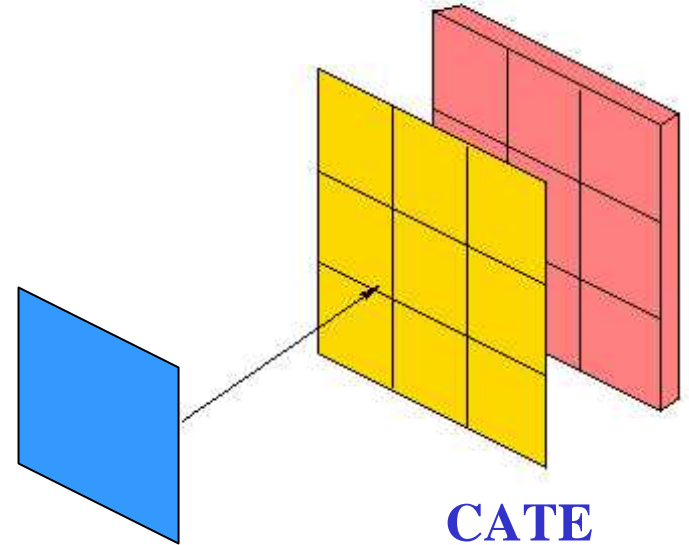


γ -detection system:
BaF₂ detectors
HECTOR array

distance HECTOR-target: 35cm
distance HECTOR-CATE: 175cm

ratio of solid angles: factor 25

distance target-CATE: 140cm



Be-target (0.7g/cm²)

CATE

CsI $\rho=4.51\text{g/cm}^3$
1-2.5cm thick



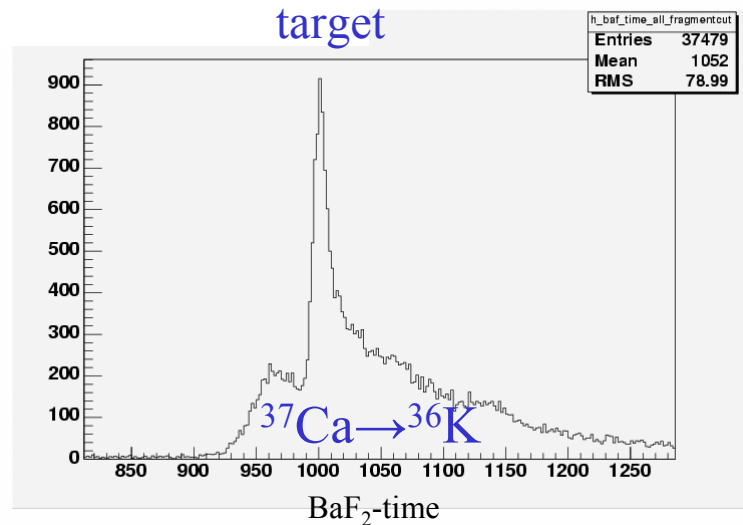
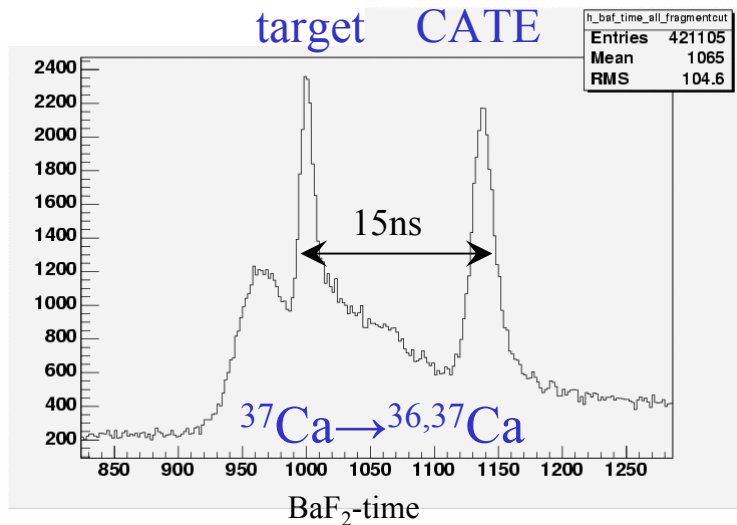
Sources of γ -radiation: CATE

$$\text{target atoms [cm}^{-2}\text{]} = \frac{0.7 \cdot 6.02 \cdot 10^{23}}{9} = 4.7 \cdot 10^{22}$$

$$\text{CsI atoms [cm}^{-2}\text{]} = \frac{4.5 \cdot 6.02 \cdot 10^{23}}{130} = 2.1 \cdot 10^{22} \quad (\text{nuclear range in CsI} = 1\text{cm})$$

Ca \rightarrow Be: $\sigma_{\text{reac}}=1227[\text{mb}]$ $\sigma_{\text{in}}=10[\text{mb}]$ Ca \rightarrow CsI: $\sigma_{\text{reac}}=4807[\text{mb}]$

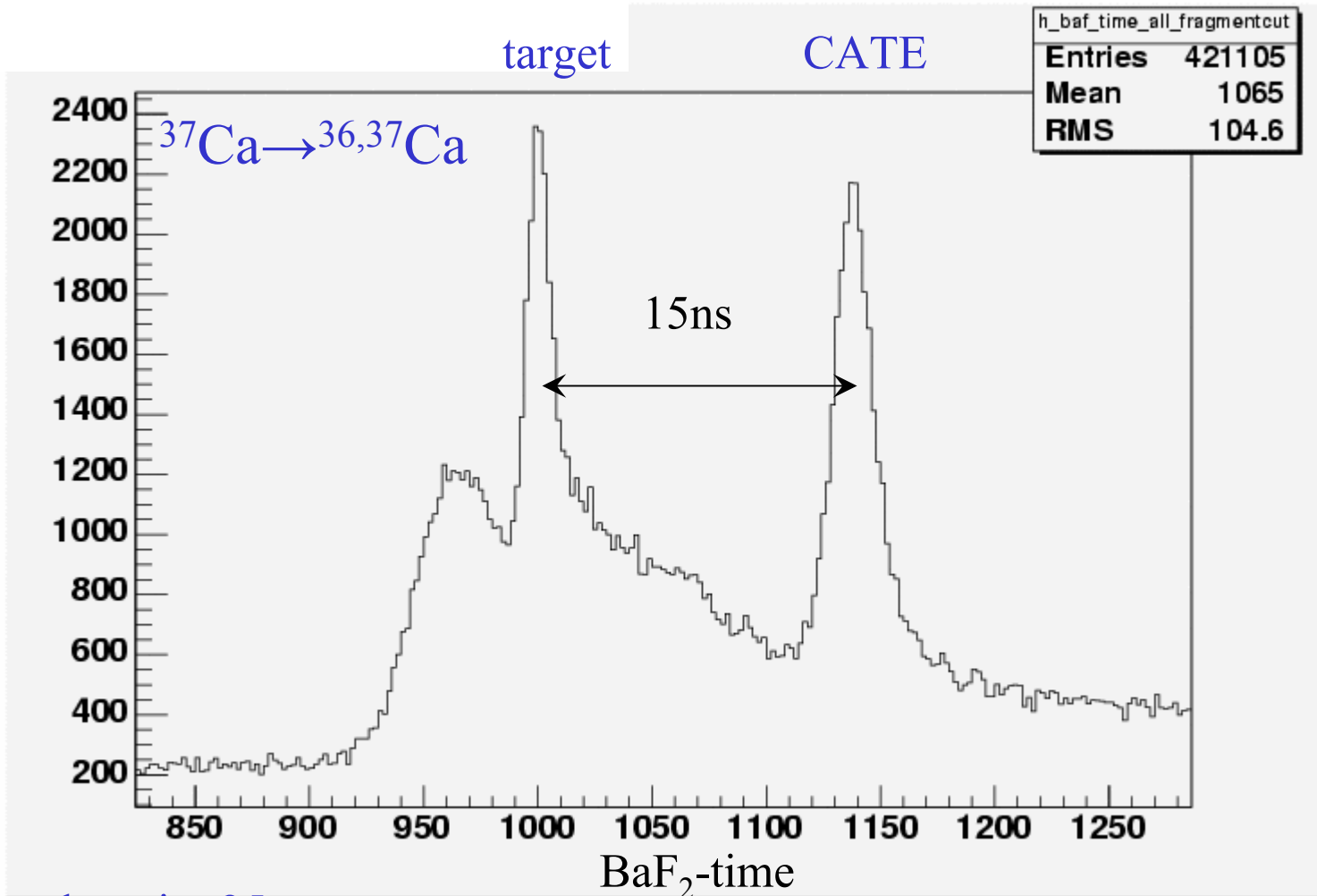
Ca \rightarrow Be: $\text{rate}=57.5[\text{s}^{-1}]$ $\text{rate}=0.5[\text{s}^{-1}]$ Ca \rightarrow CsI: $\text{rate}=100.4[\text{s}^{-1}]$ (for 10^3 fragments/s)



ratio of solid angles: 25



Sources of γ -radiation: elastic channel

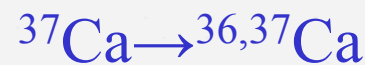
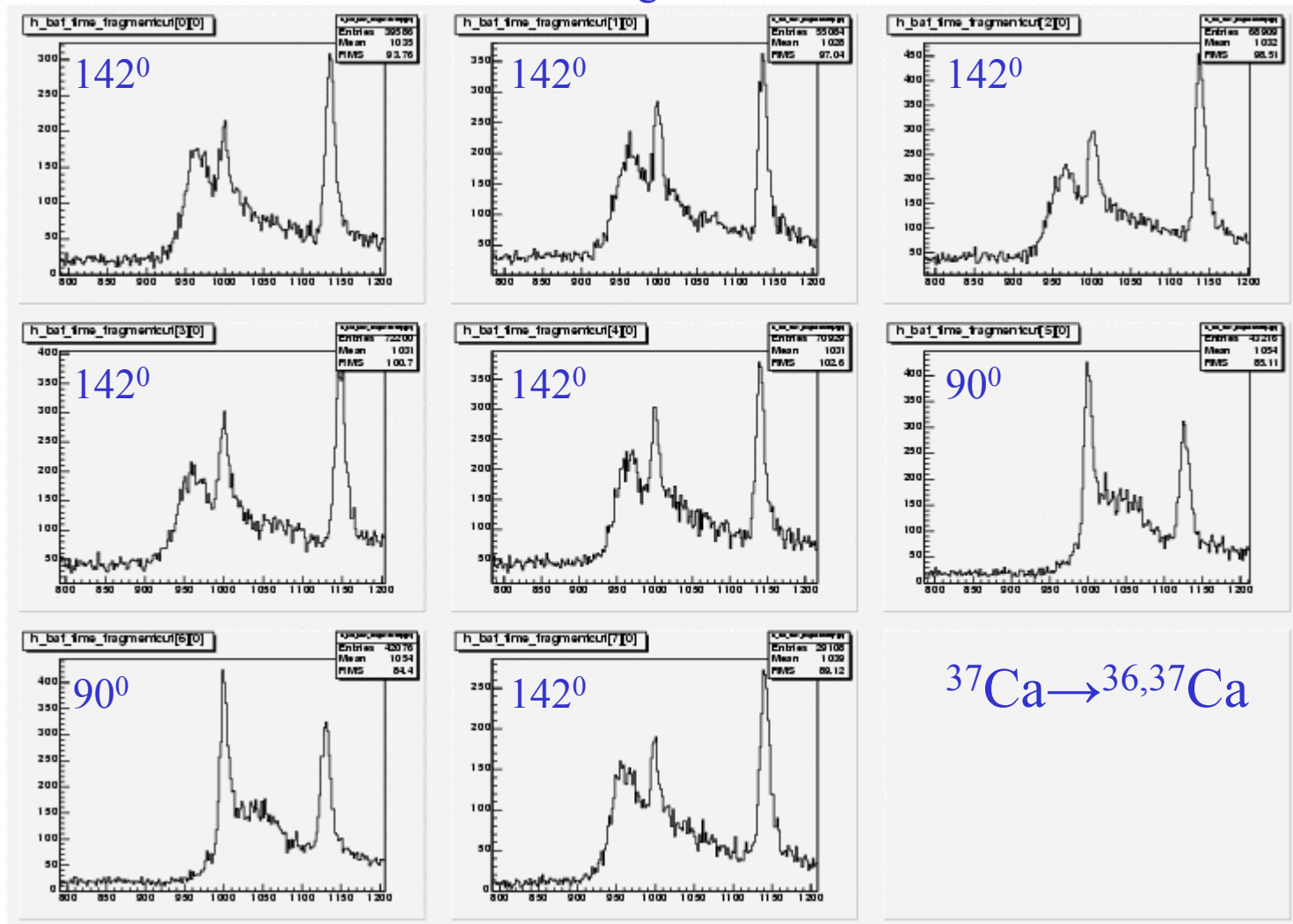


solid angle ratio: 25



Sources of γ -radiation: elastic channel

target CATE



BaF₂-time



Sources of γ -radiation: 1p fragmentation

