

MASS DETERMINATION OF  
RADIOACTIVE ISOTOPES IN FULL  
FUSSION REACTIONS  $^{40}\text{Ar} + ^{\text{nat}}\text{Sm}$  and  
 $^{40}\text{Ar} + ^{166}\text{Er}$  AND IN MULTINUCLEON  
TRANSFER REACTION  $^{48}\text{Ca} + ^{242}\text{Pu}$  AT  
MASHA FACILITY

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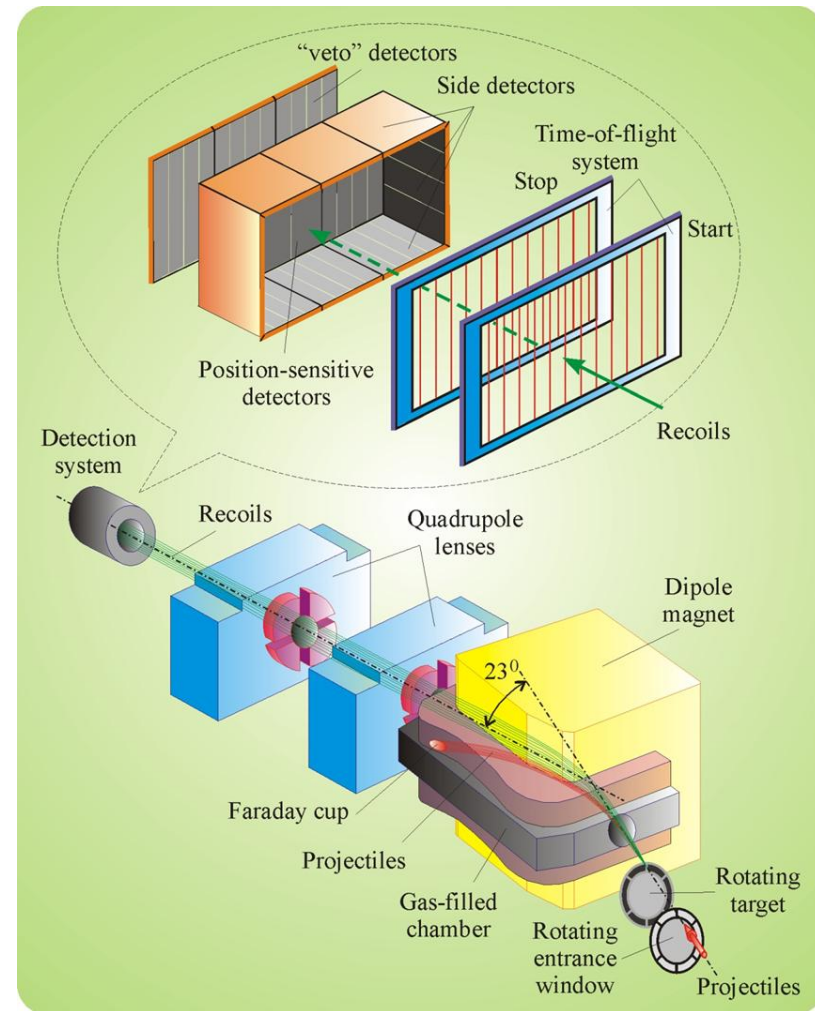
Filip Rychnovsky

Supervisors: Lubosh Krupa & Vyacheslav Vedeneev FLNR JINR

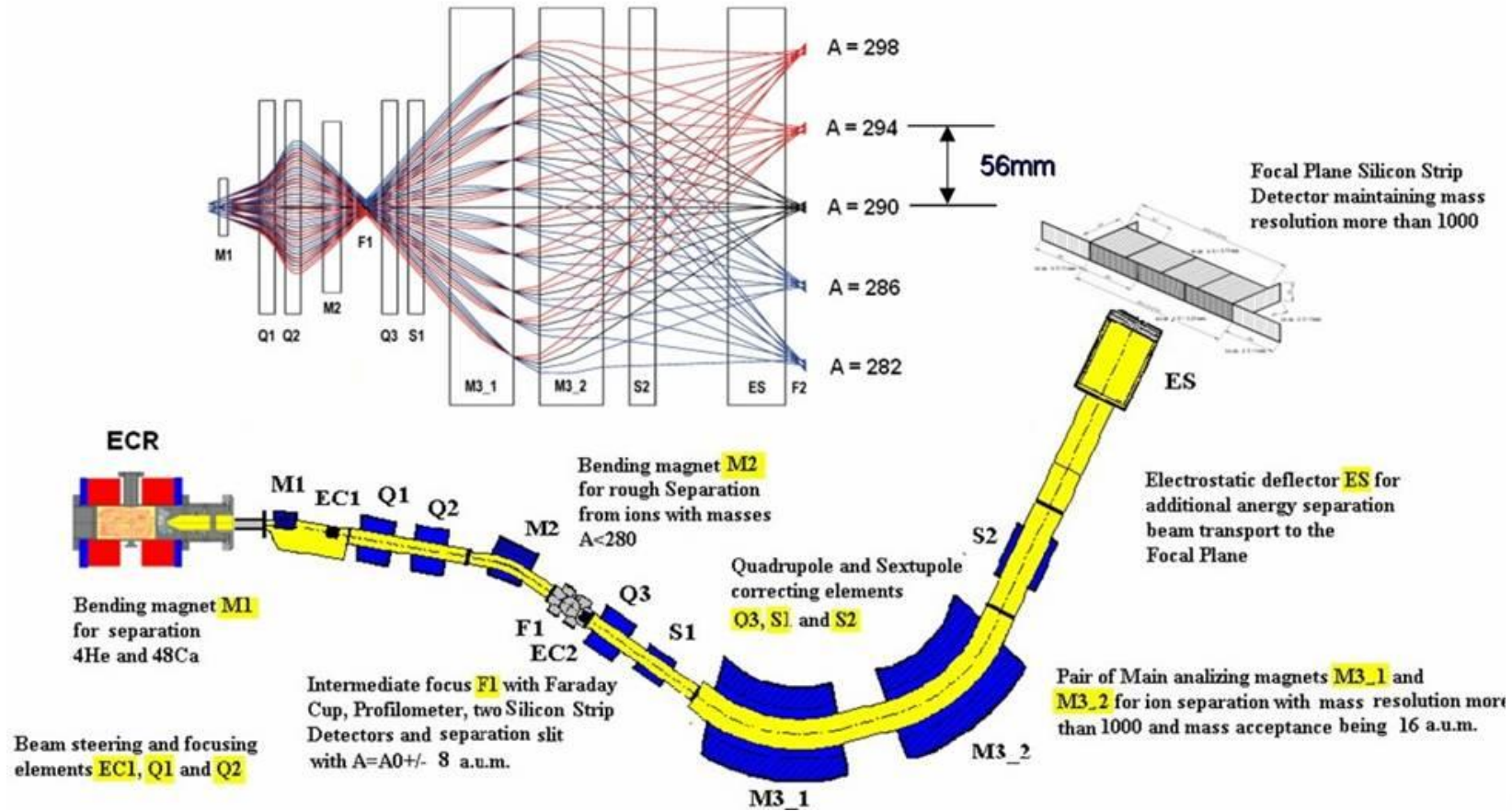
# Mass-Analyzer of Super Heavy Atoms

- U-400M cyclotron of the FLNR
- Synthesis of super heavy elements and alpha spectroscopy
- Target – Hot catcher – ECR source

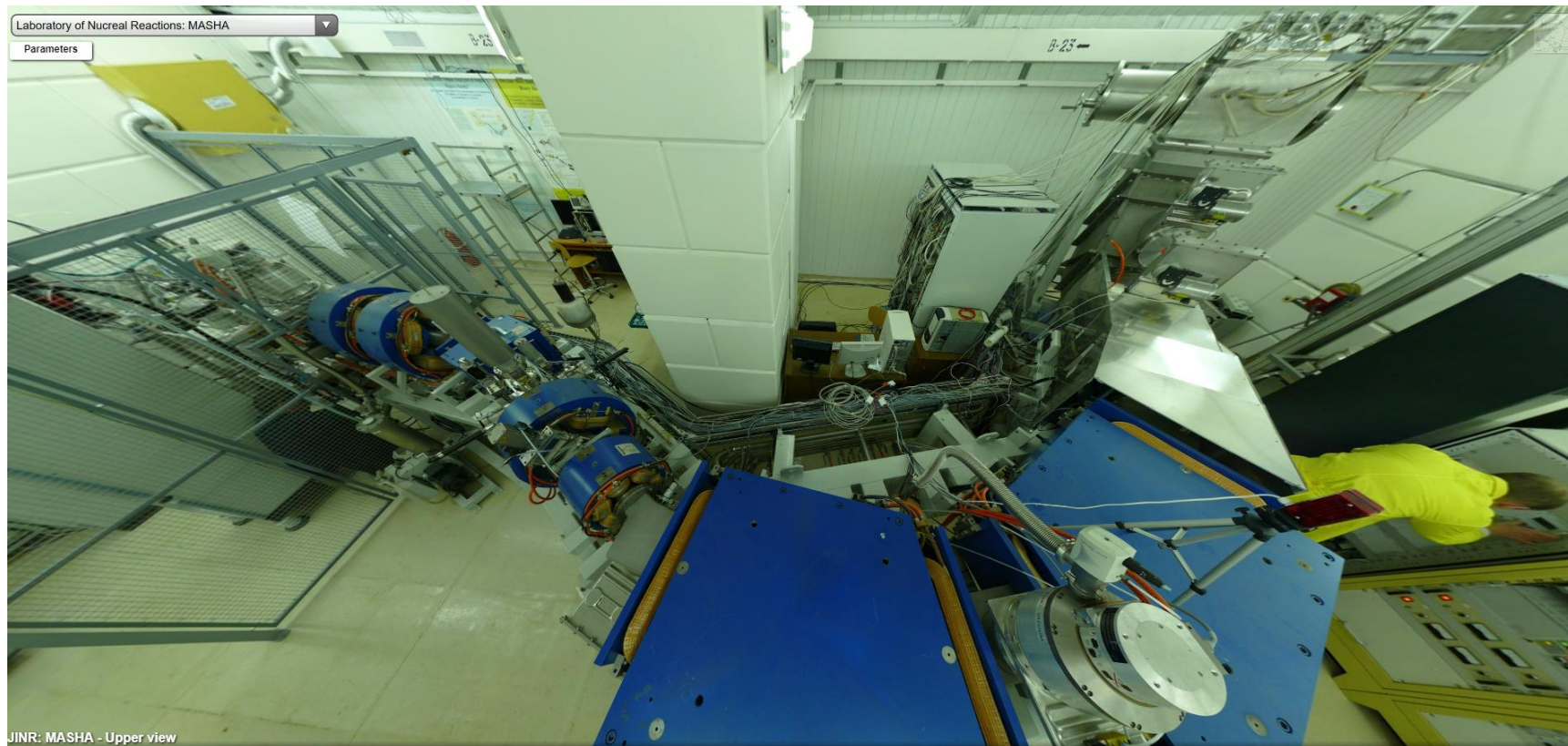
# MASHA



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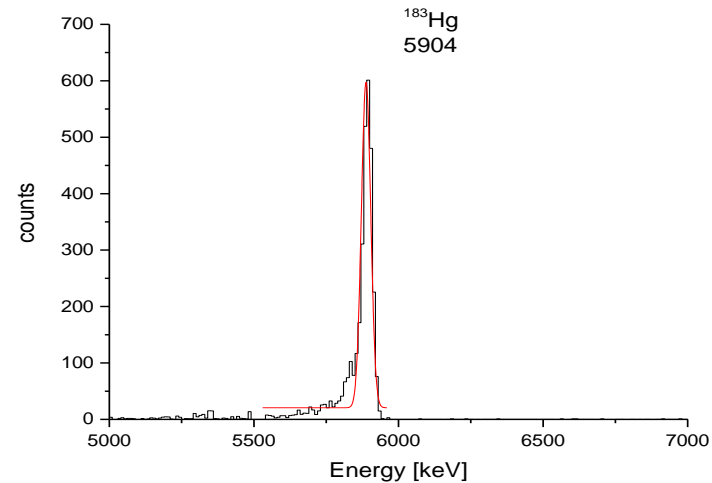
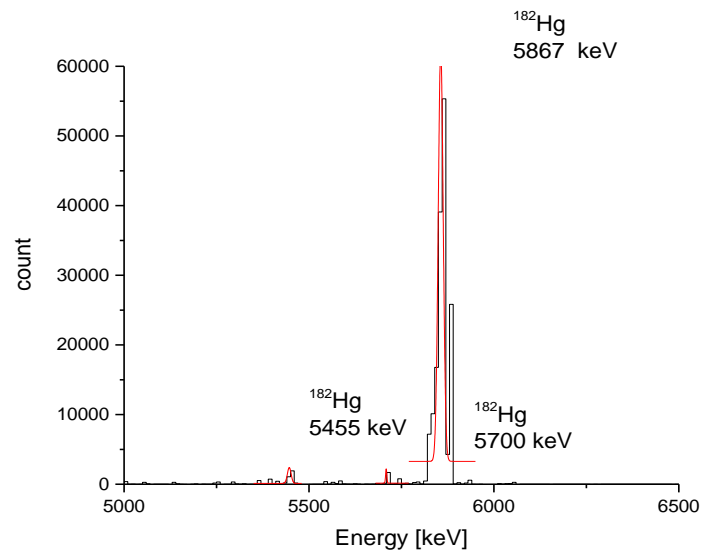
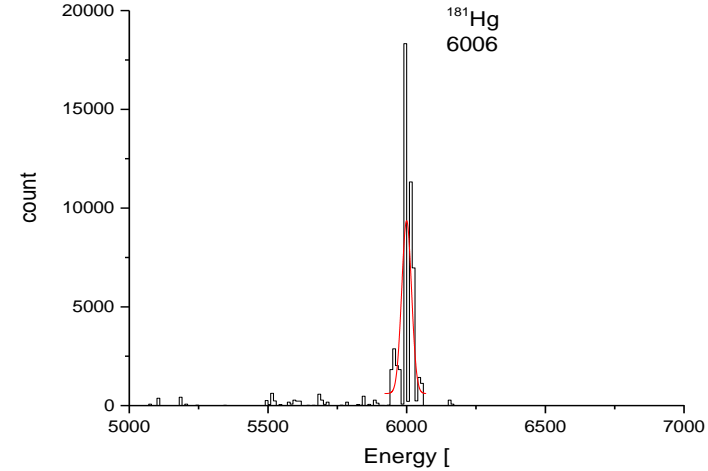
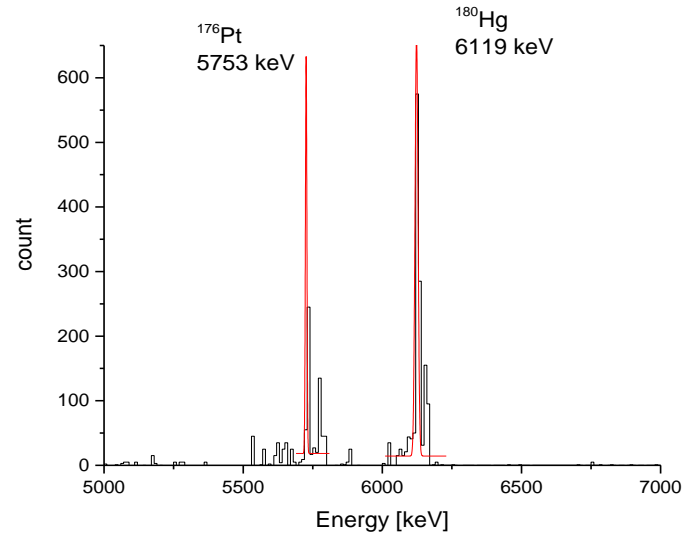


# Strip detector

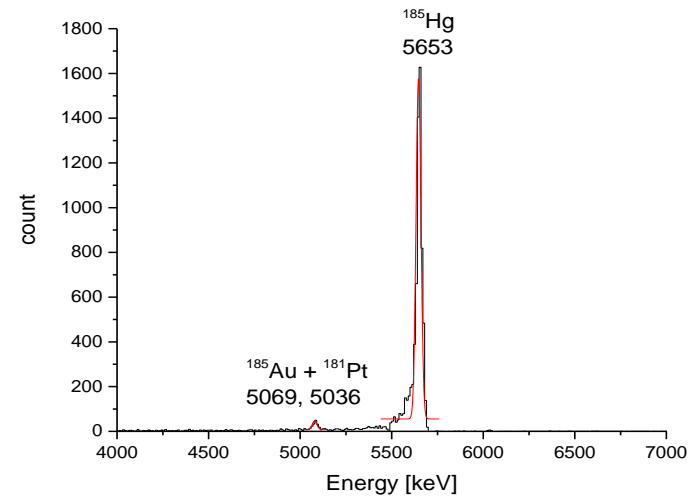
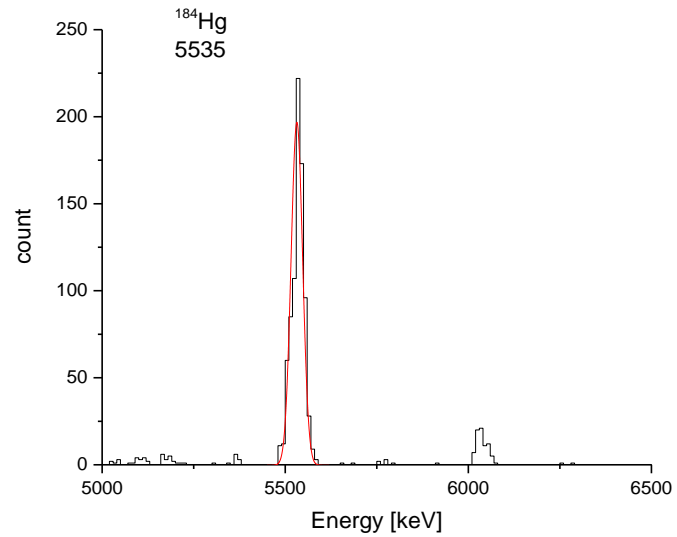


- Resolution: 20 keV
- Front: 3 crystals 64 strip, Step: 1.25 mm
- Side: 4 crystals each side 16 strips, Step: 4 mm
- Latter: 1 crystal similar to side ones

# Histograms of $^{180}\text{Hg}$ , $^{181}\text{Hg}$ , $^{182}\text{Hg}$ and $^{183}\text{Hg}$

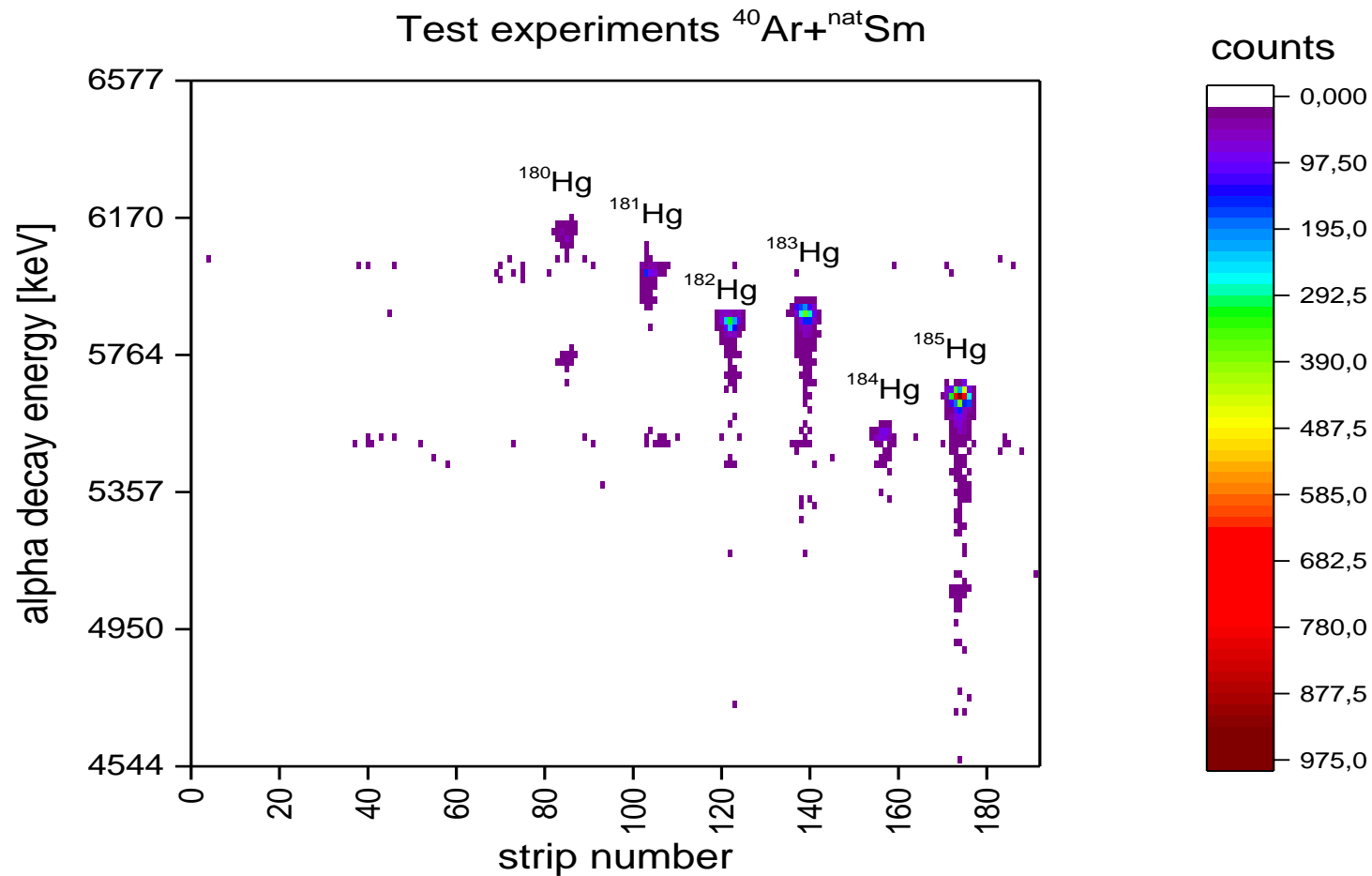


# Histograms of $^{184}\text{Hg}$ and $^{185}\text{Hg}$

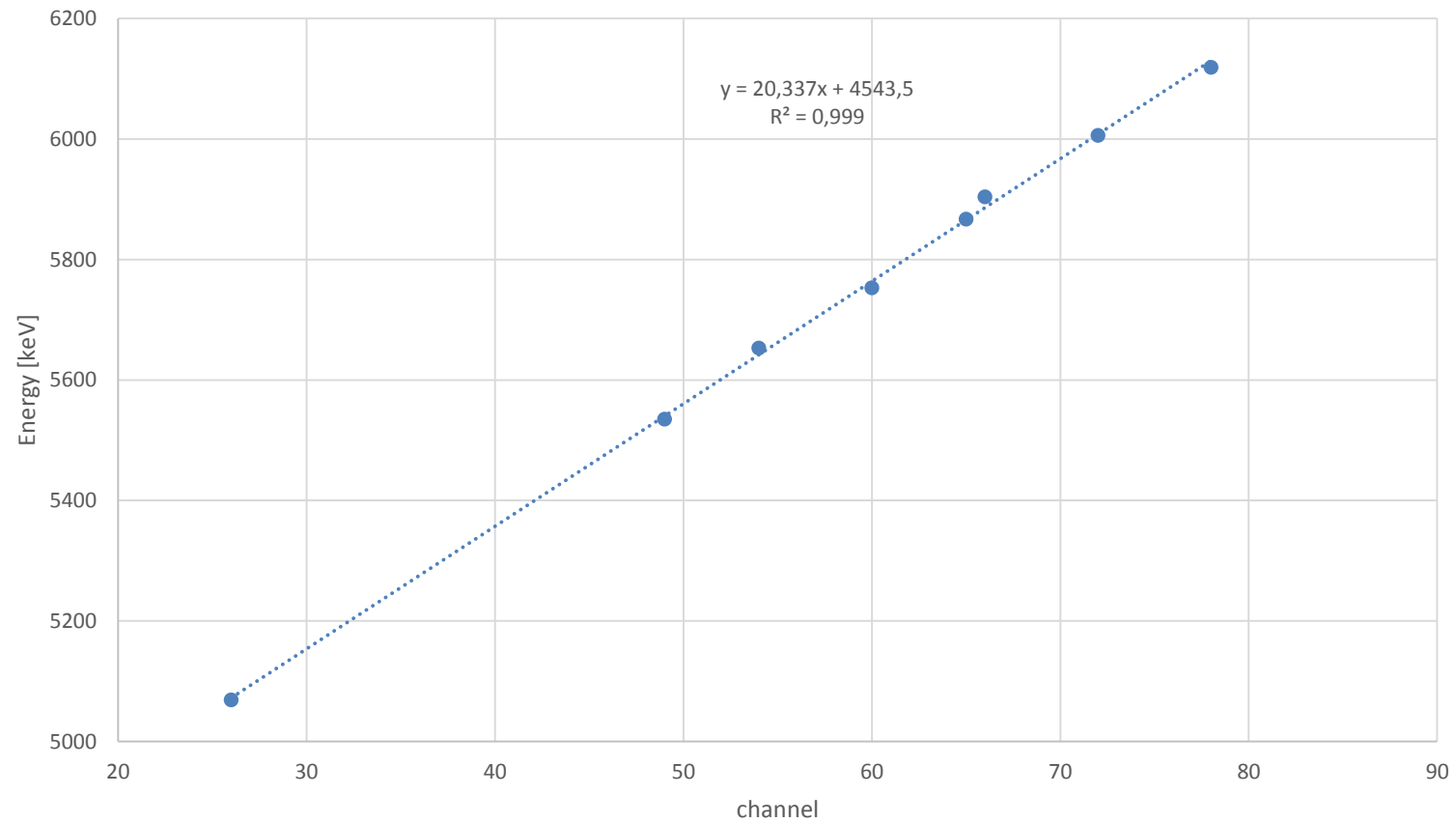




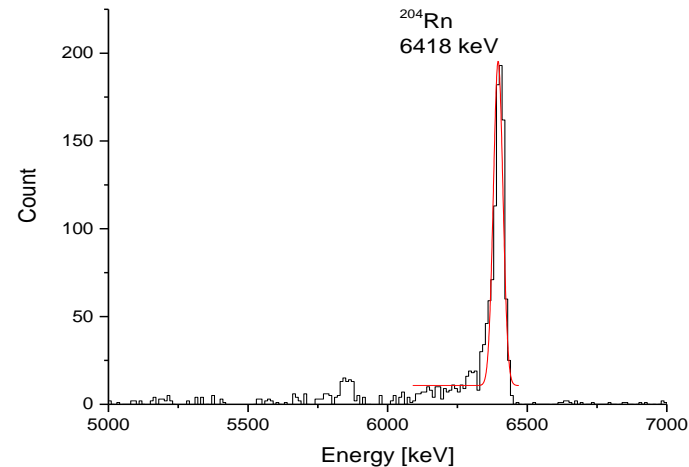
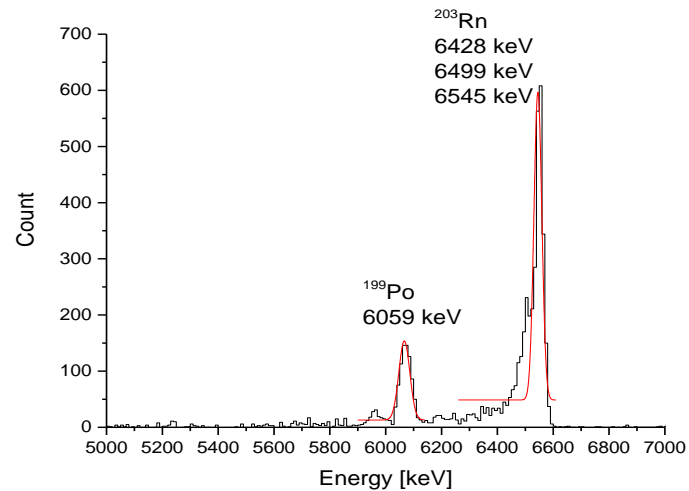
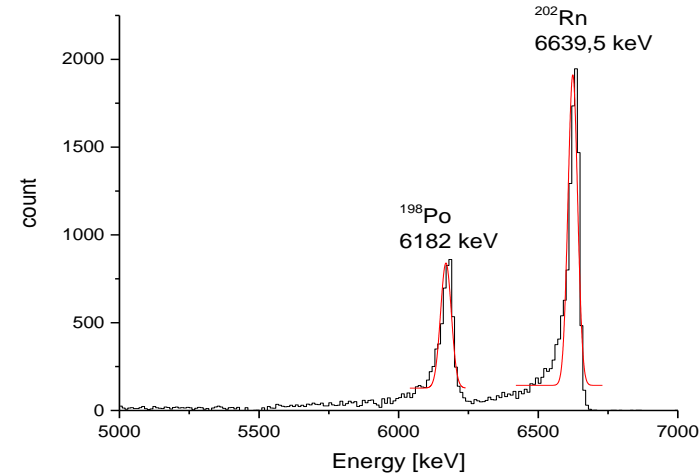
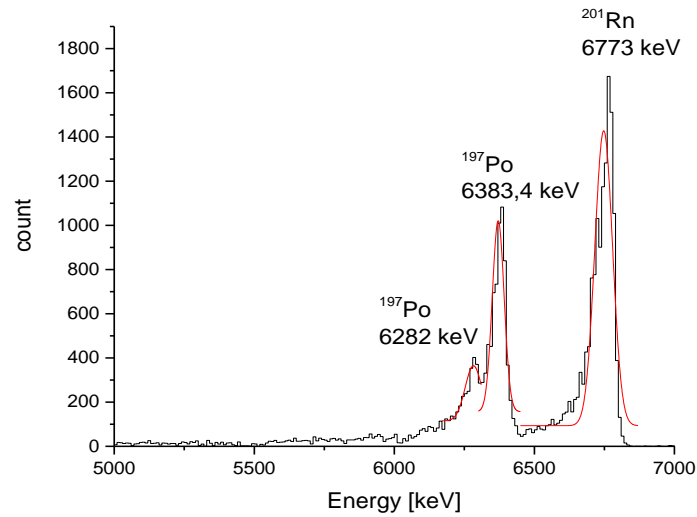
# 2D plot of products from reaction $^{40}\text{Ar} + \text{natSm}$



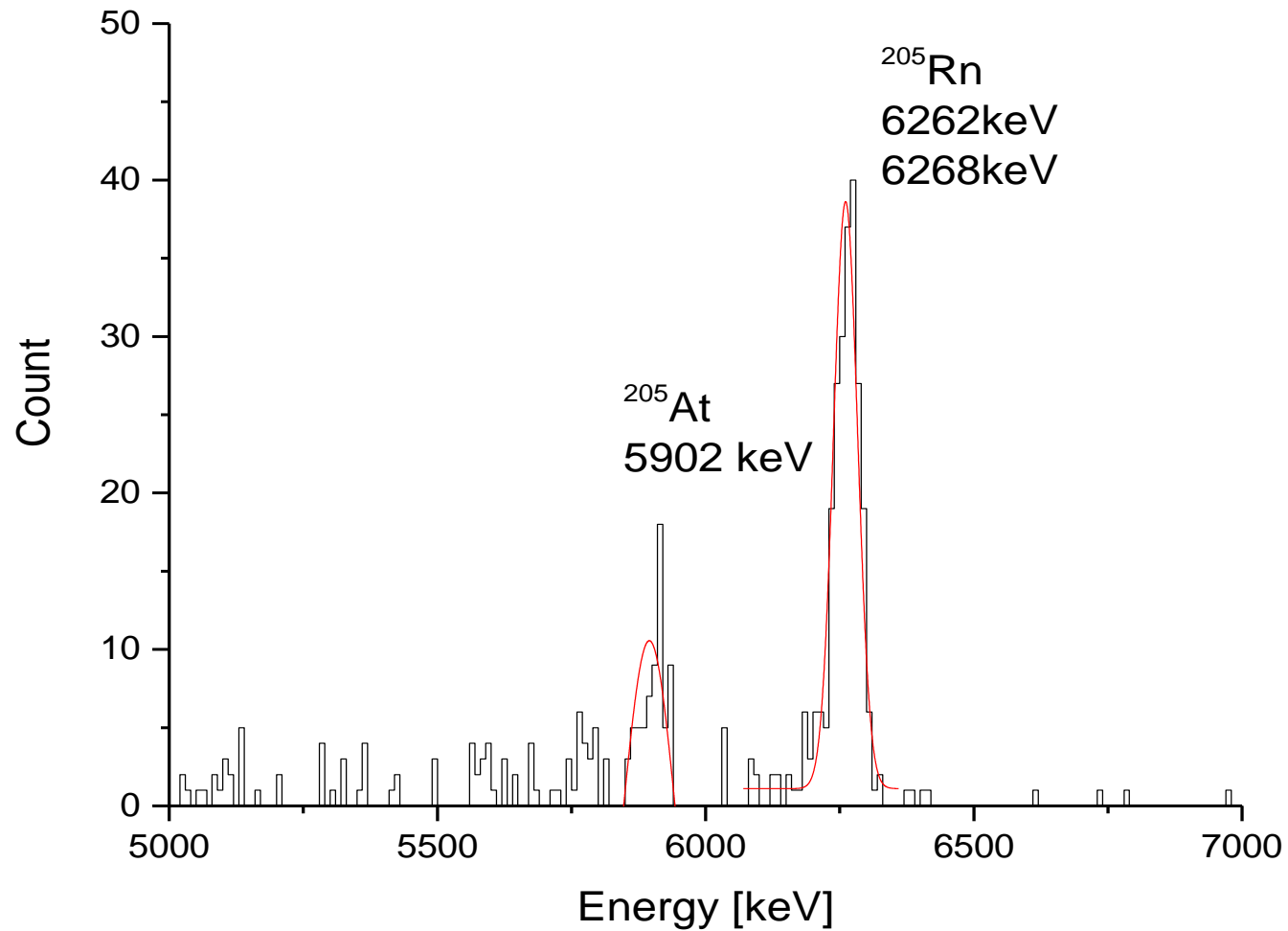
# Energy calibration



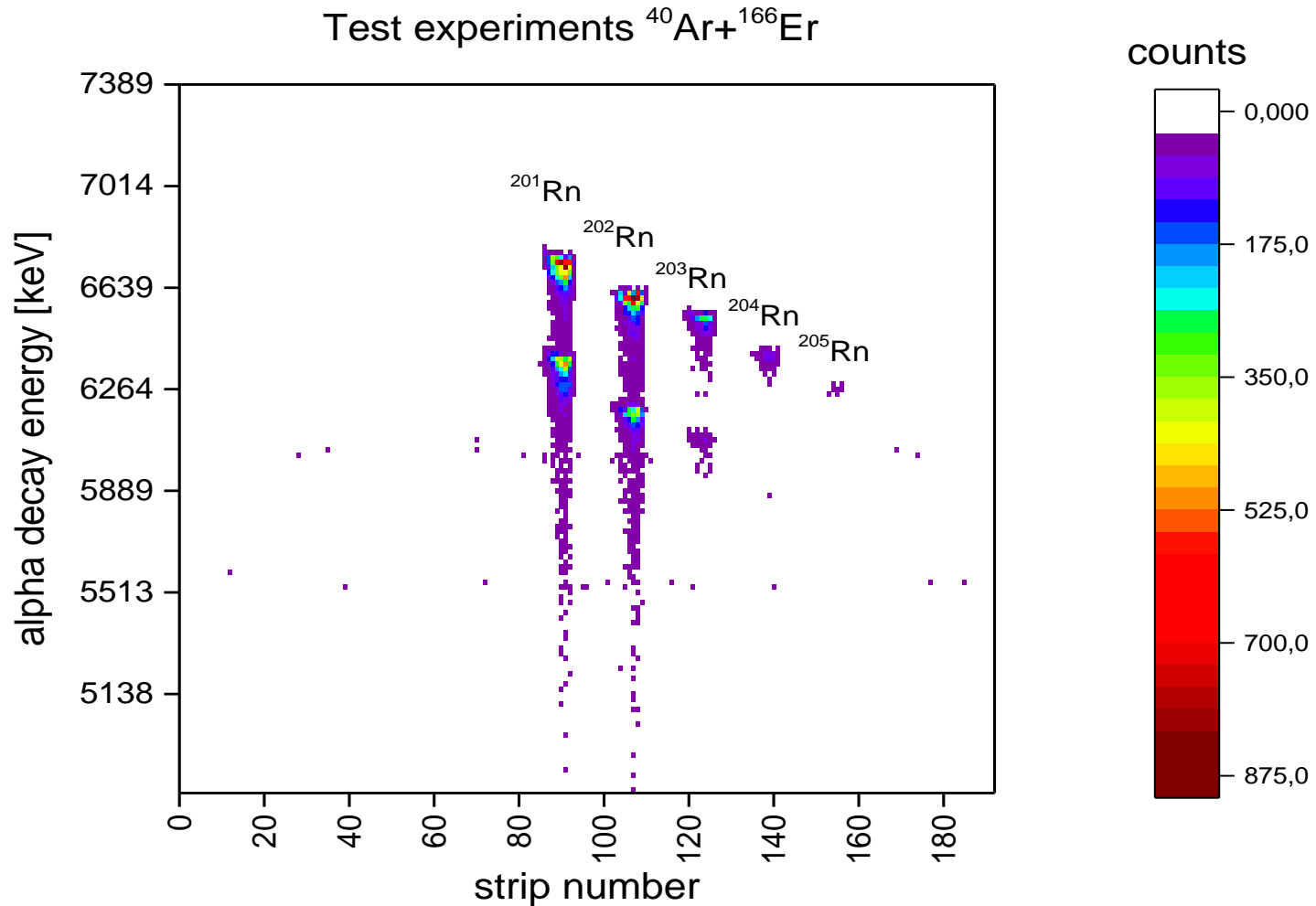
# Histograms of $^{201}\text{Rn}$ , $^{202}\text{Rn}$ , $^{203}\text{Rn}$ and $^{204}\text{Rn}$



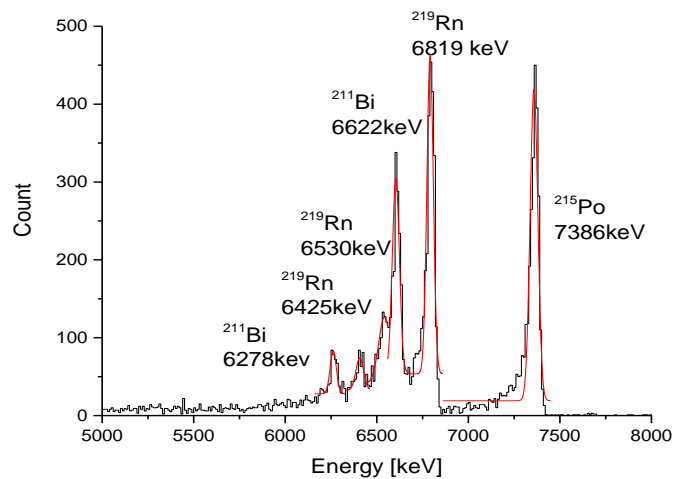
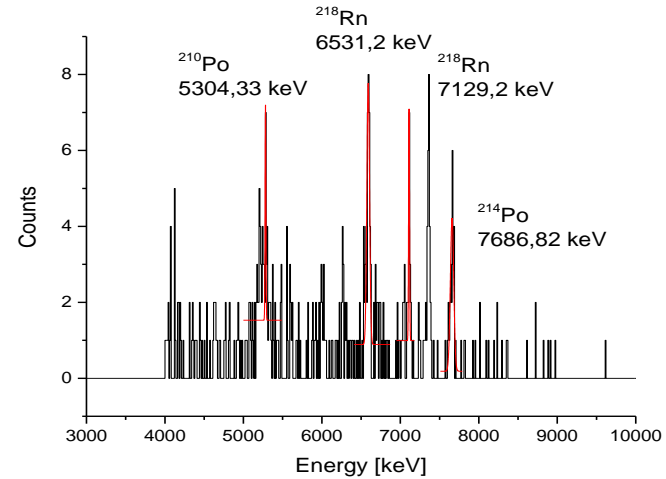
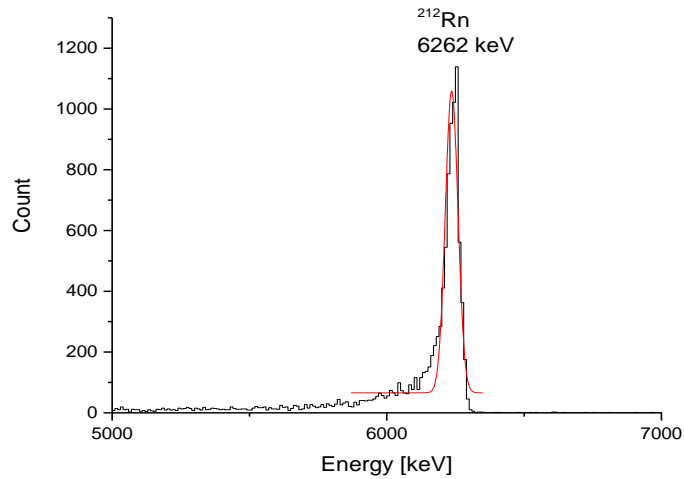
# Histograms of $^{205}\text{Rn}$



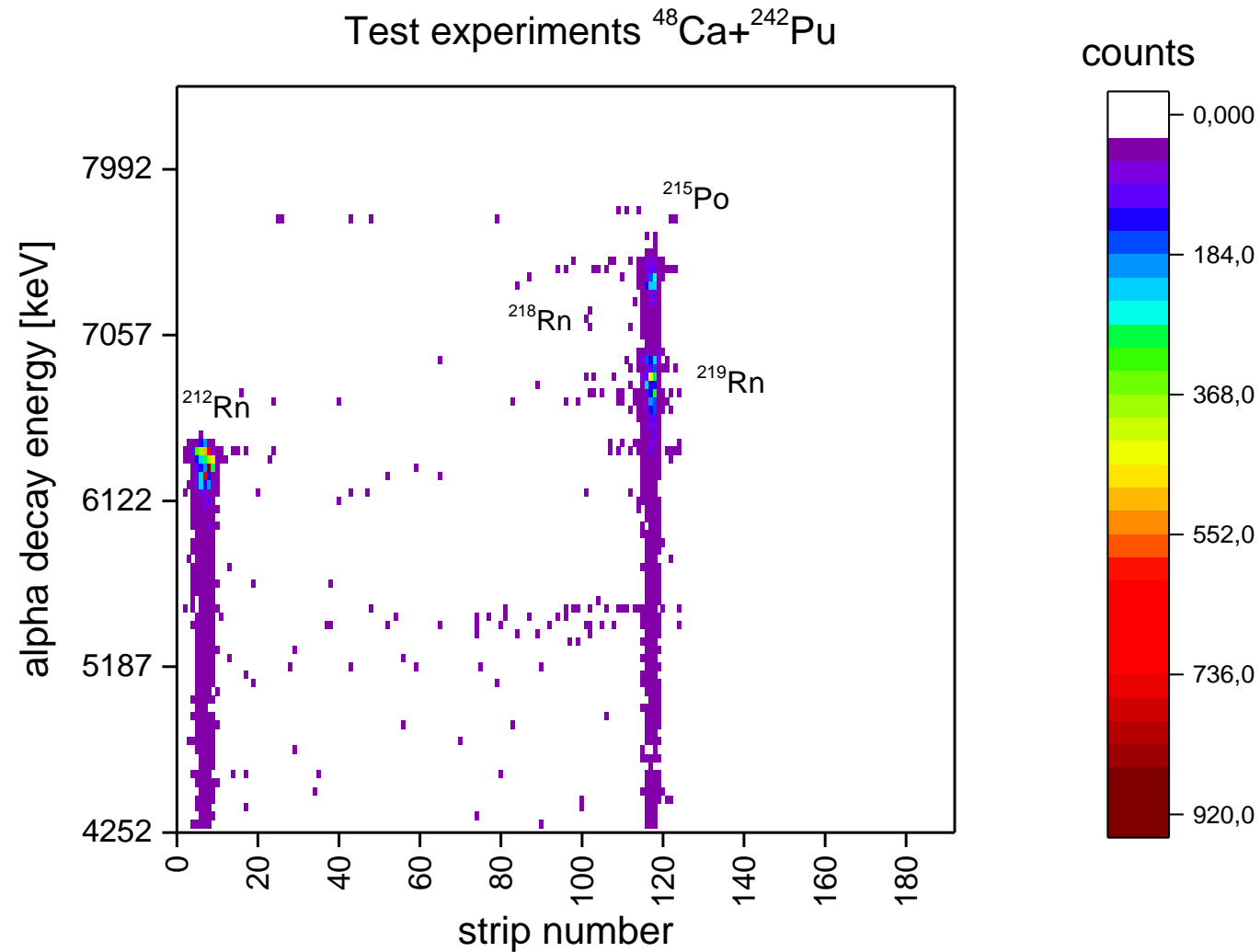
# 2D plot of products from reaction $^{40}\text{Ar} + ^{166}\text{Er}$



# Histograms of $^{212}\text{Rn}$ , $^{218}\text{Rn}$ and $^{219}\text{Rn}$



# 2D plot of products from reaction $^{48}\text{Ca} + ^{242}\text{Pu}$



Thank you for your attention



Questions?