

⁴²Ca COULEX - CURRENT STATUS OF THE DATA ANALYSIS

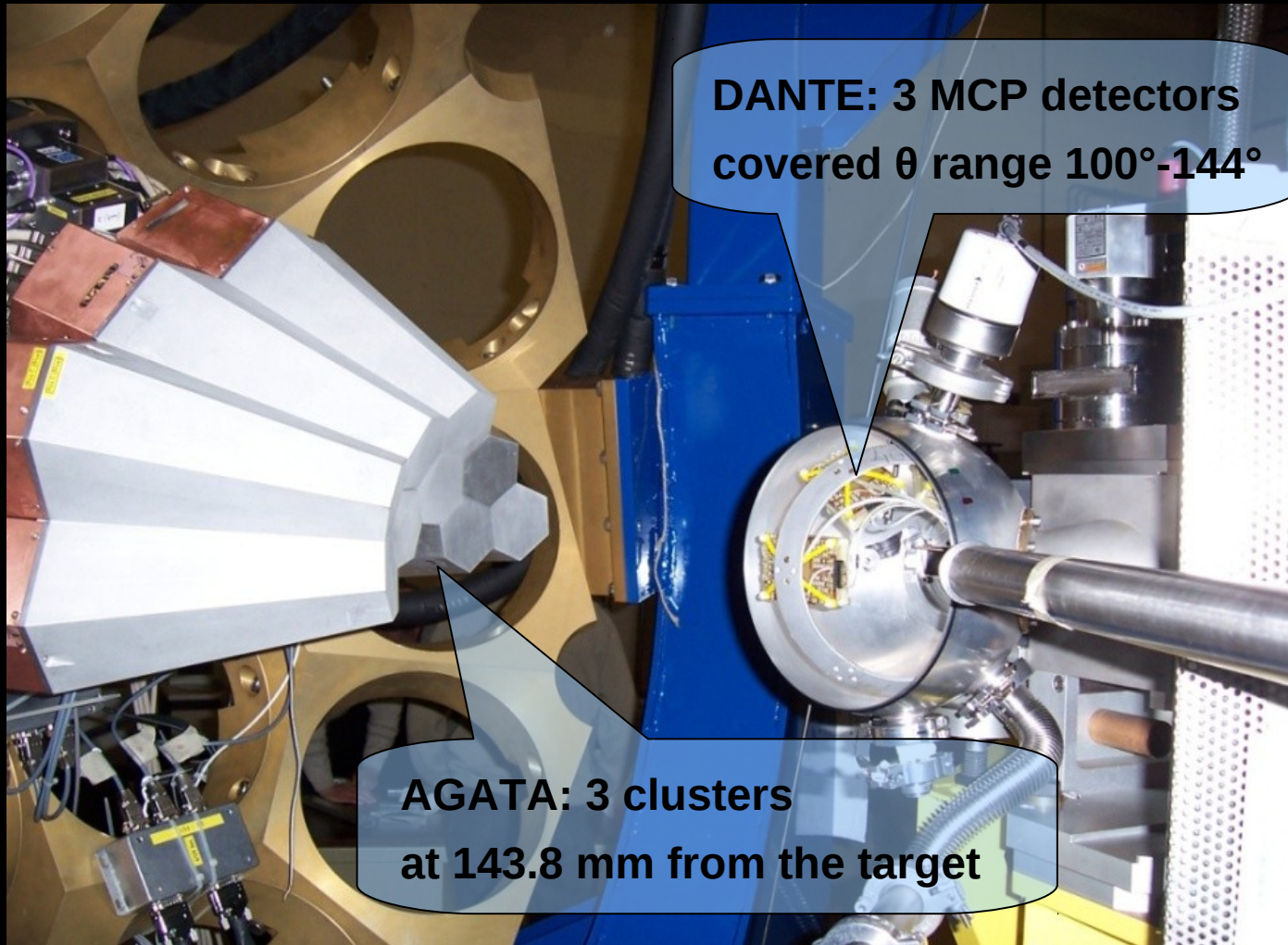
Few words about the experiment

Results...

Data replay...

Kasia Hadyńska-Klęk

^{42}Ca COULEX @ LNL Legnaro



DANTE: 3 MCP detectors
covered θ range 100° - 144°

AGATA: 3 clusters
at 143.8 mm from the target

beamtime: Feb.2010

beam: ^{42}Ca , 170 MeV

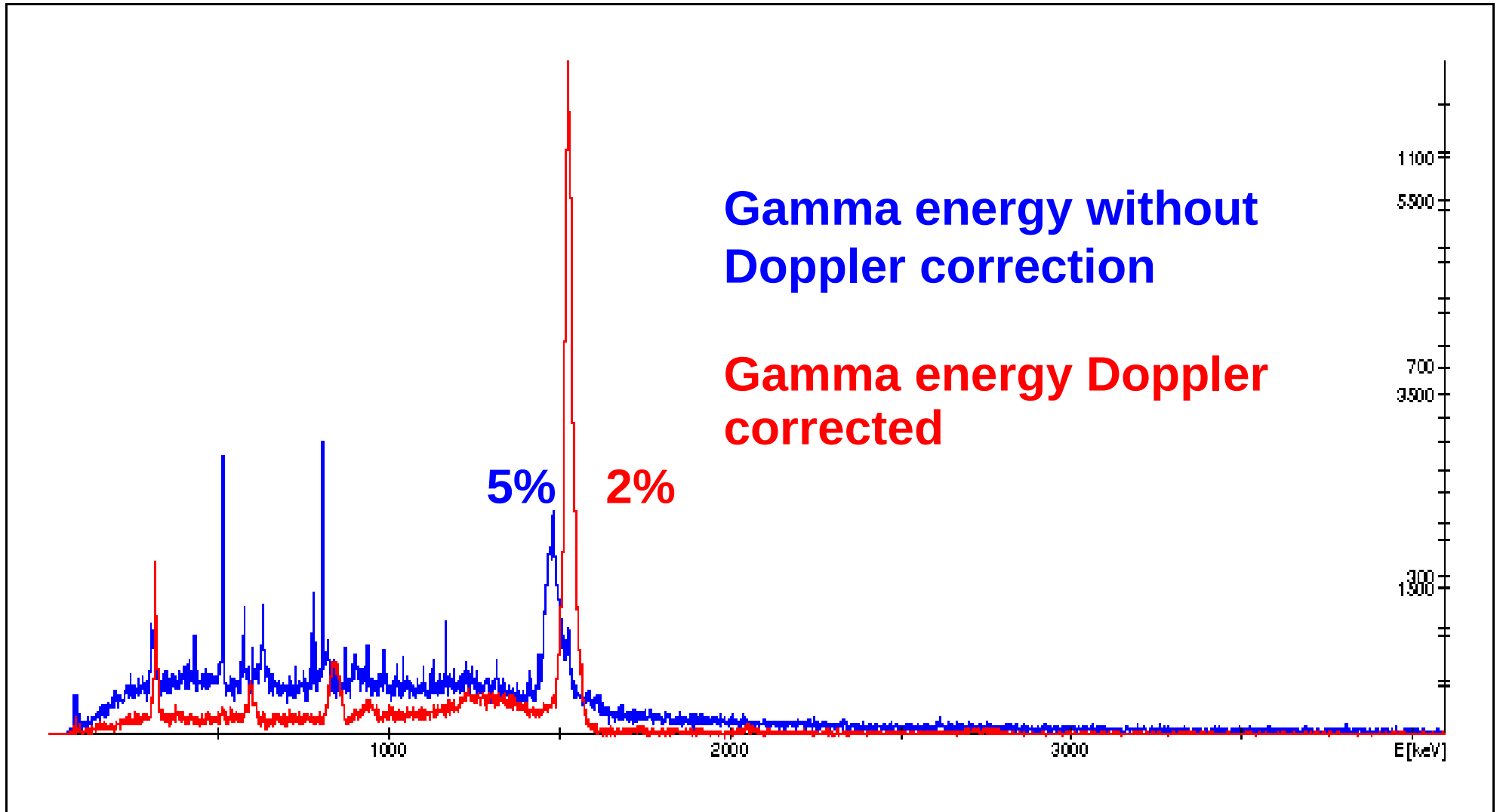
targets:

^{208}Pb , 1 mg/cm²

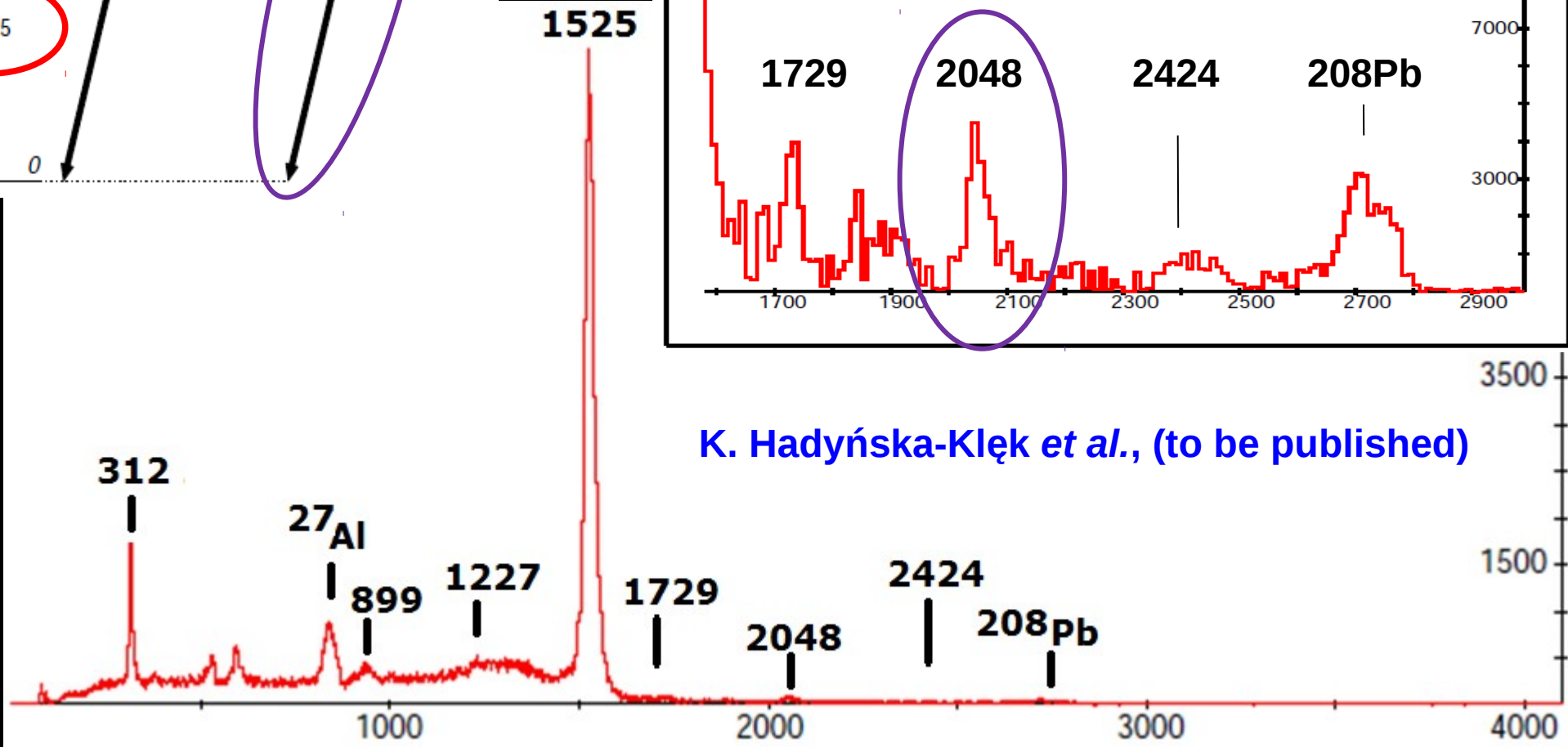
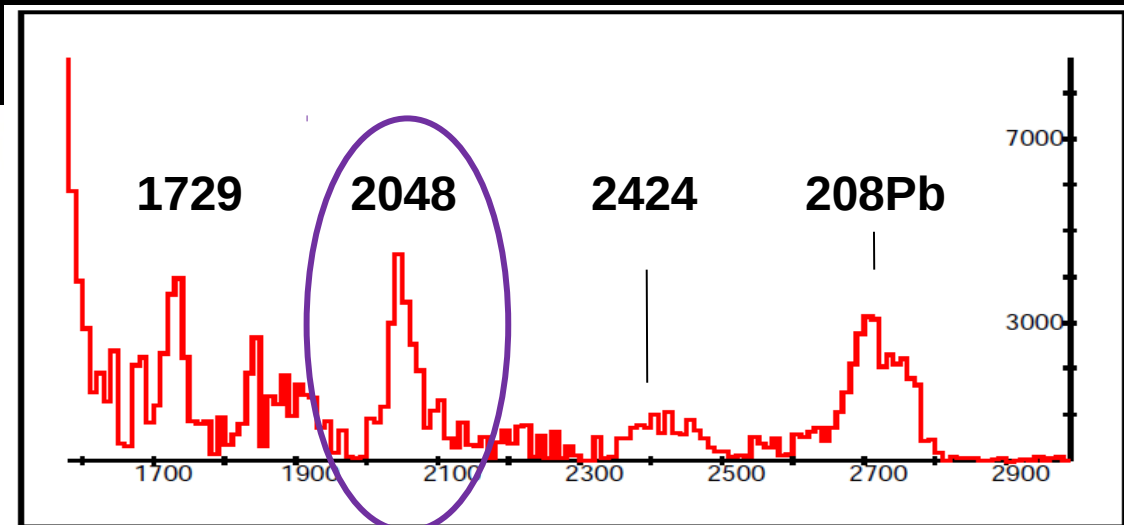
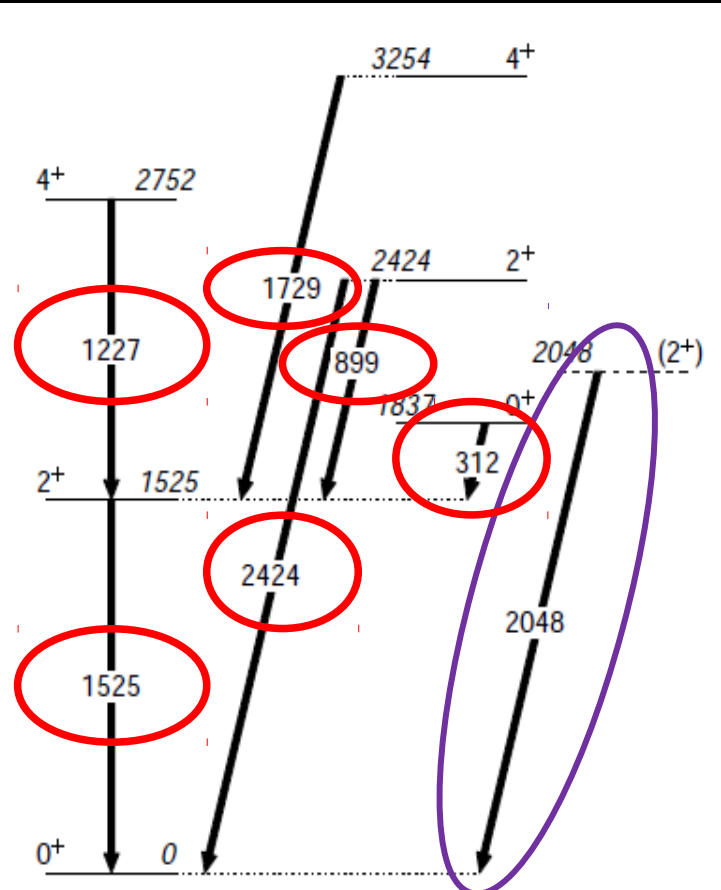
^{197}Au , 1 mg/cm²

particle – γ coincidence mode: trigger rate 150÷250 Hz

Doppler correction



Tentative level scheme of ^{42}Ca



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DATA REPLAY

Replay done not on the grid – workstation @HIL,
Warsaw

4-core AMD Phenom(tm) II X4 965 Processor,
3.4 kHz / core, 512 KB cache / core, 8 GB ram,
10 TB hard disc

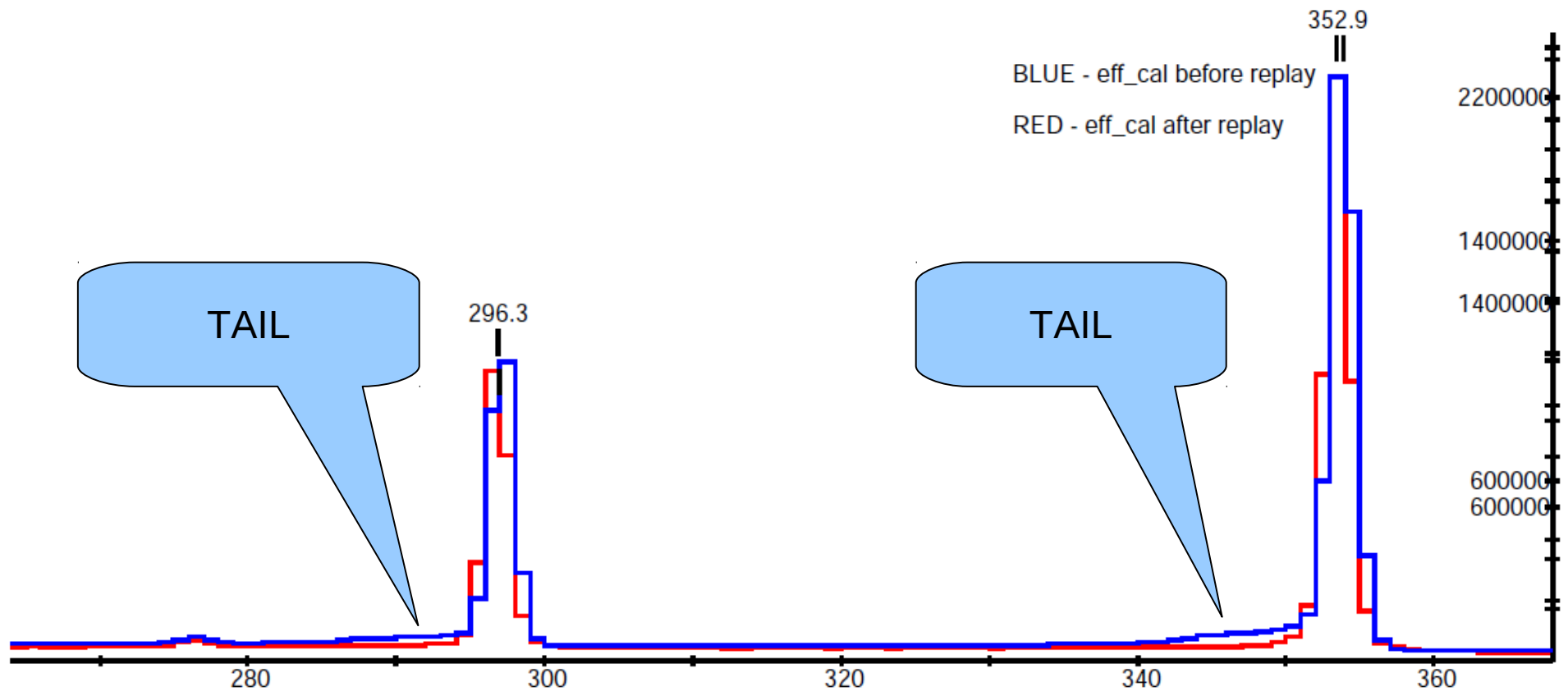
New PSA bases (downloaded from IKS Cologne
in October)

Narval emulator (downloaded from Legnaro
18.10.2010)

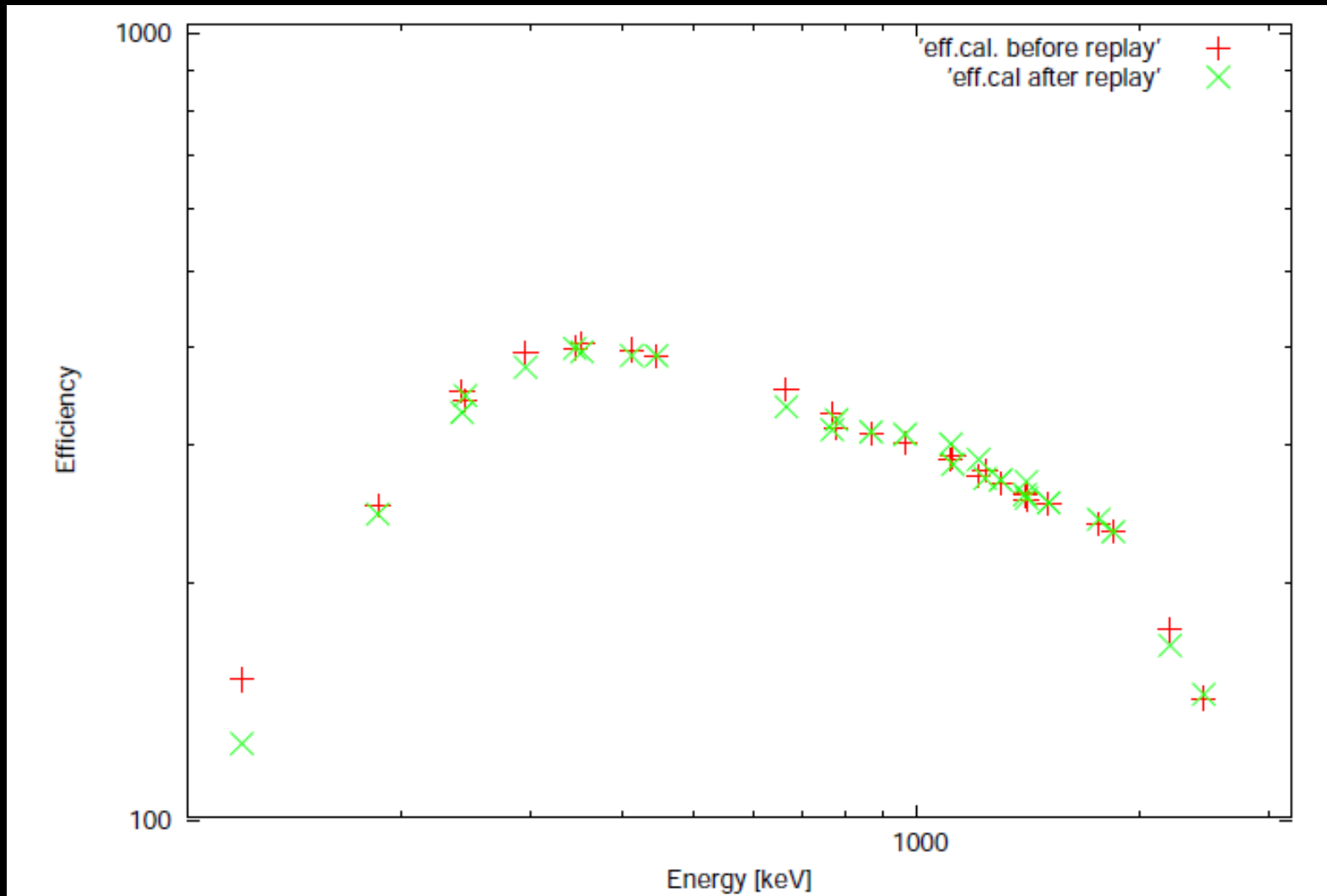
3.5 TB of data – ~2 weeks of data replay

Special thanks goes to Dino Bazzacco

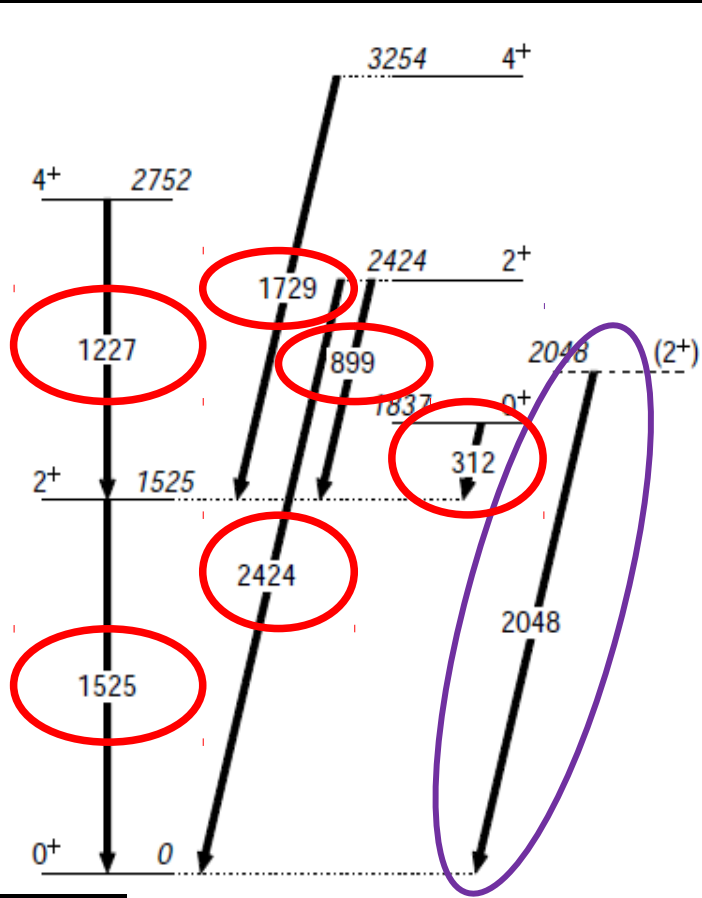
Data replay - peak shape improvement



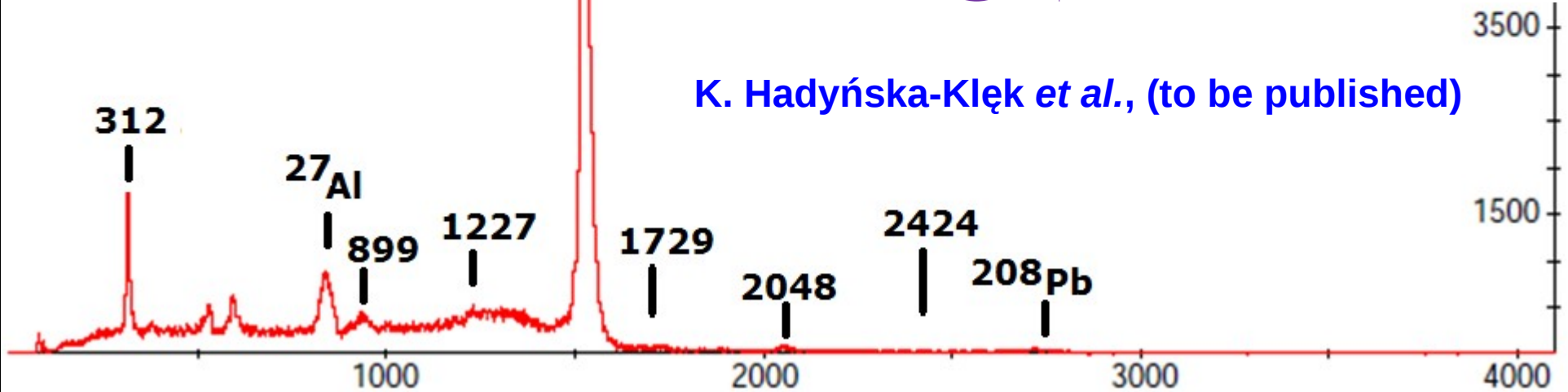
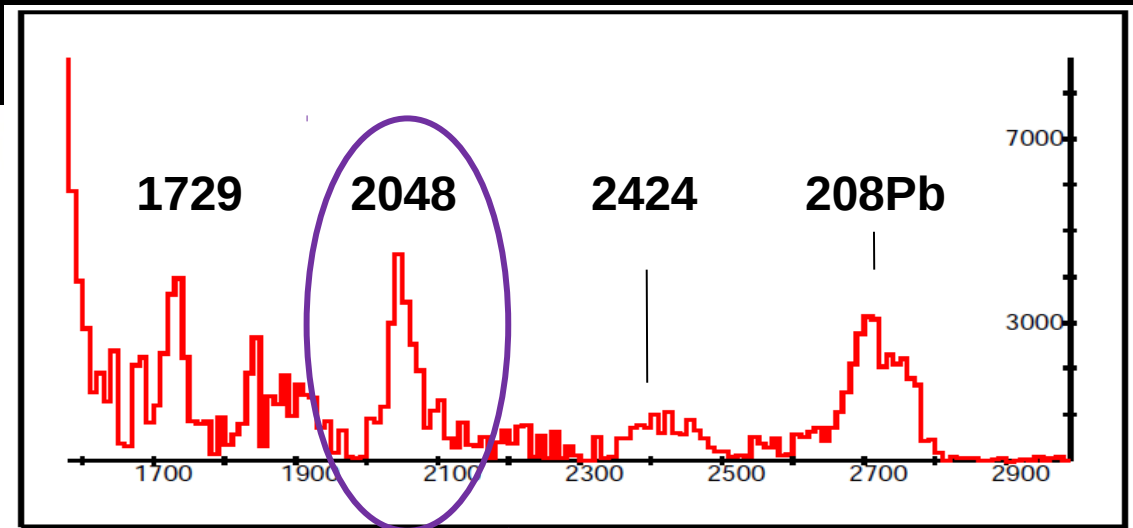
EFFICIENCY CALIBRATION – comparison before and after data replay



Tentative level scheme of ^{42}Ca and preliminary result

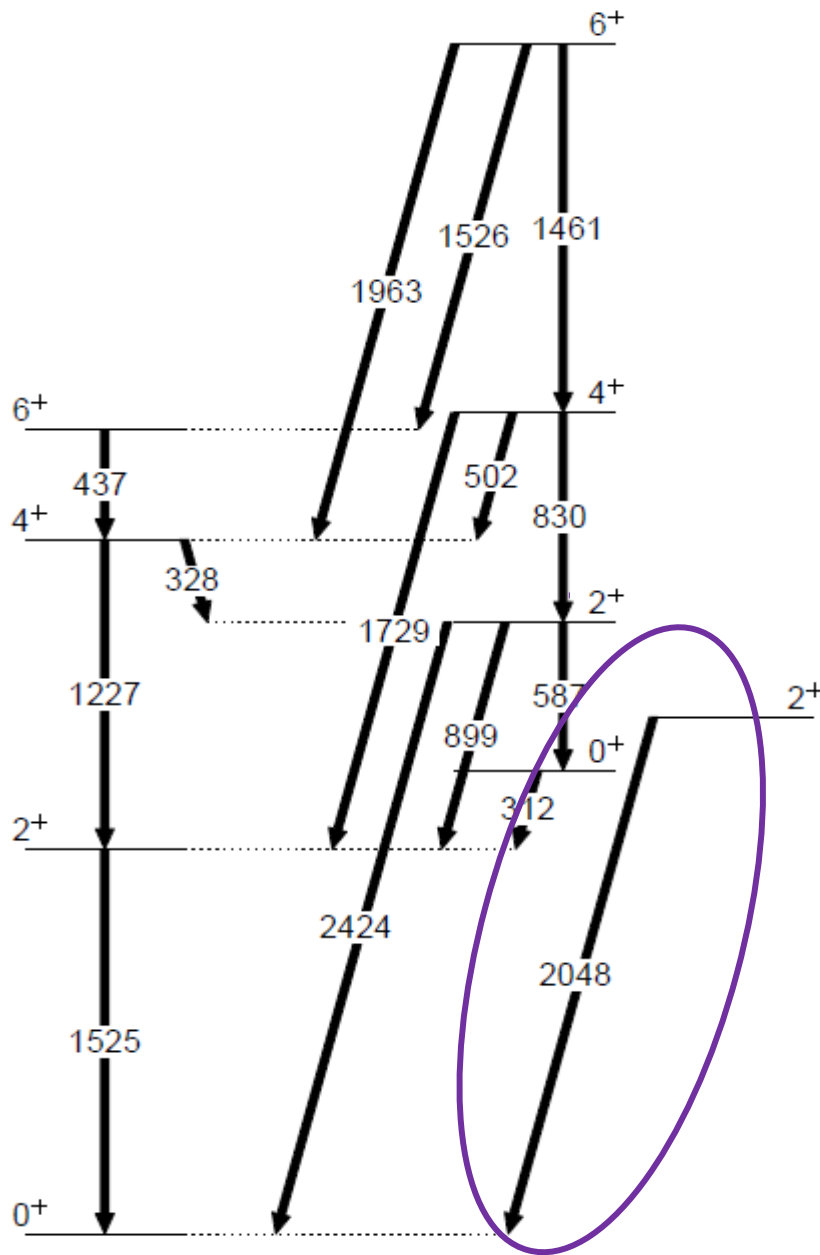


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Postulated interpretation



We assume that the observed gamma line comes from a 2⁺ level placed at 2048 keV.

The 2₂⁺ state can be populated directly via E2(0₁⁺ → 2₂⁺)

Deexcitation – through E2(2₂⁺ → 0₁⁺)
2048 keV

It was enough to reproduce the intensity of the 2048 keV gamma ray with B(E2; 2₂⁺ → 0₁⁺) ~ 1 W.u only