AGATA-NEDA-DIAMANT Performances

AGATA week 2018

The GANIL Campaign [2015-2020]

2018 run NEDA campaign

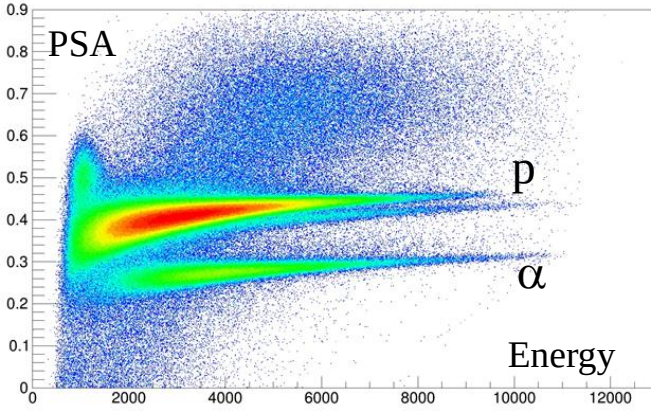
DIAMANT and NEDA in full digital system making use of the NUMEXO2 boards and coupled to AGATA with the AGATA GTS system

×20 increase in (nγ²) event rate readout compared to the NWALL-DIAMANT-EXOGAM system in VME-VXI.

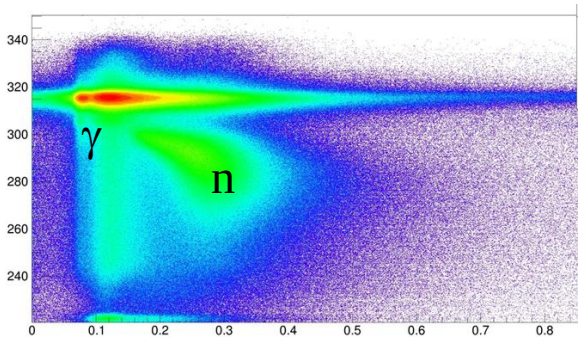
T. Huyuk et al, Eur. Phys. J. A (2016) **52**: 55 Page 5

E. Clément et al., NIMA 855, 1-12 (2017)

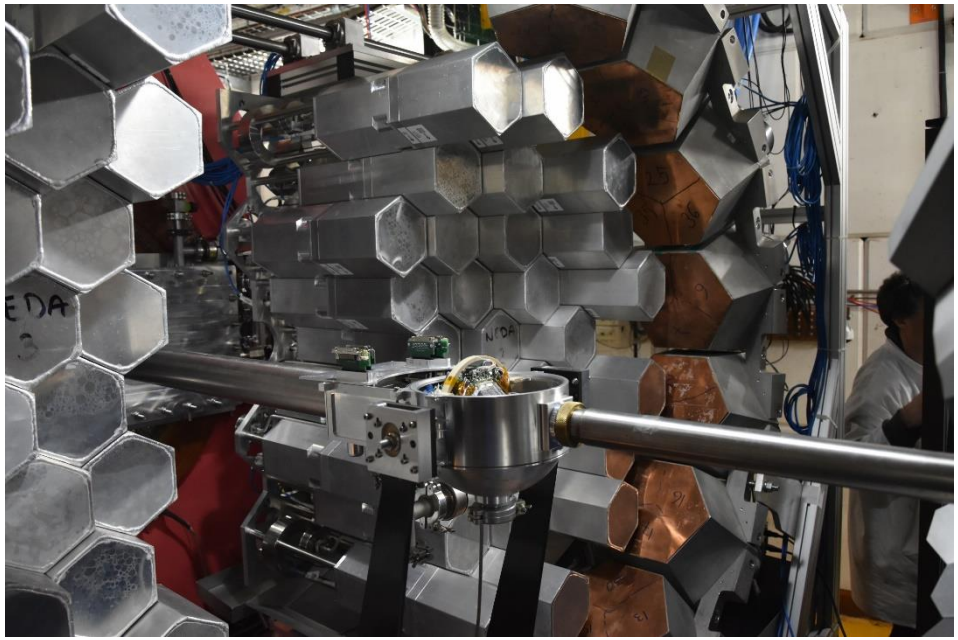
J. J. Valiente-Dobon et al, to be submitted



Time of flight



PSA – Neural network



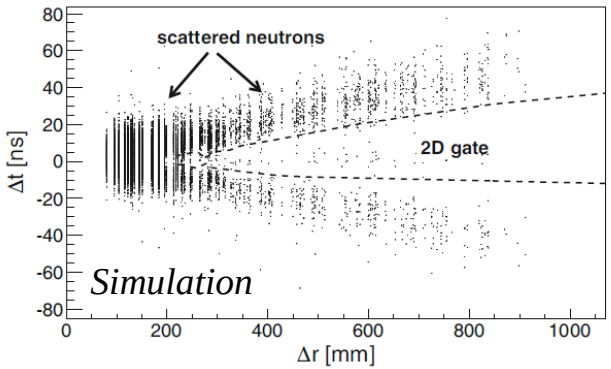
54 self produced NEDA detectors at forward angles and 14 NWALL detectors + plunger

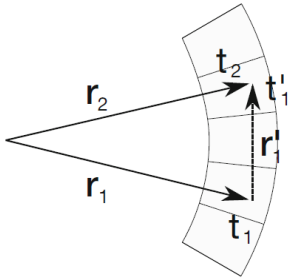
~8% γ-efficiency at 1.4 MeV after tracking

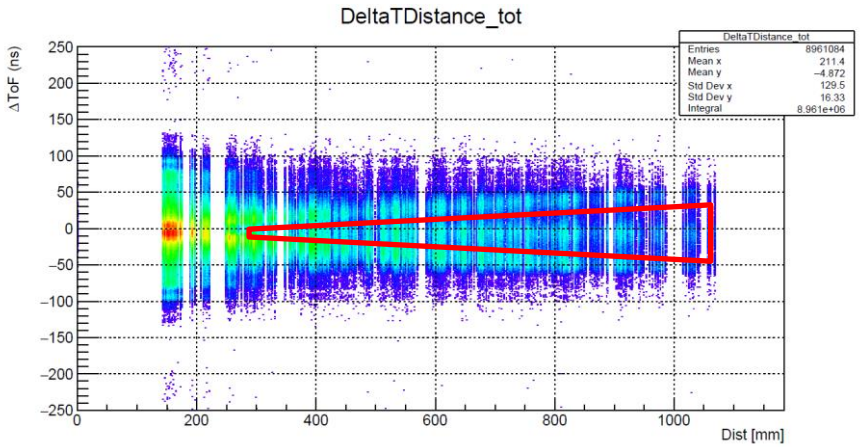
>20% efficiency for 1 neutron

>35% efficiency for 1 proton

The NEDA setup : the 2n selectivity

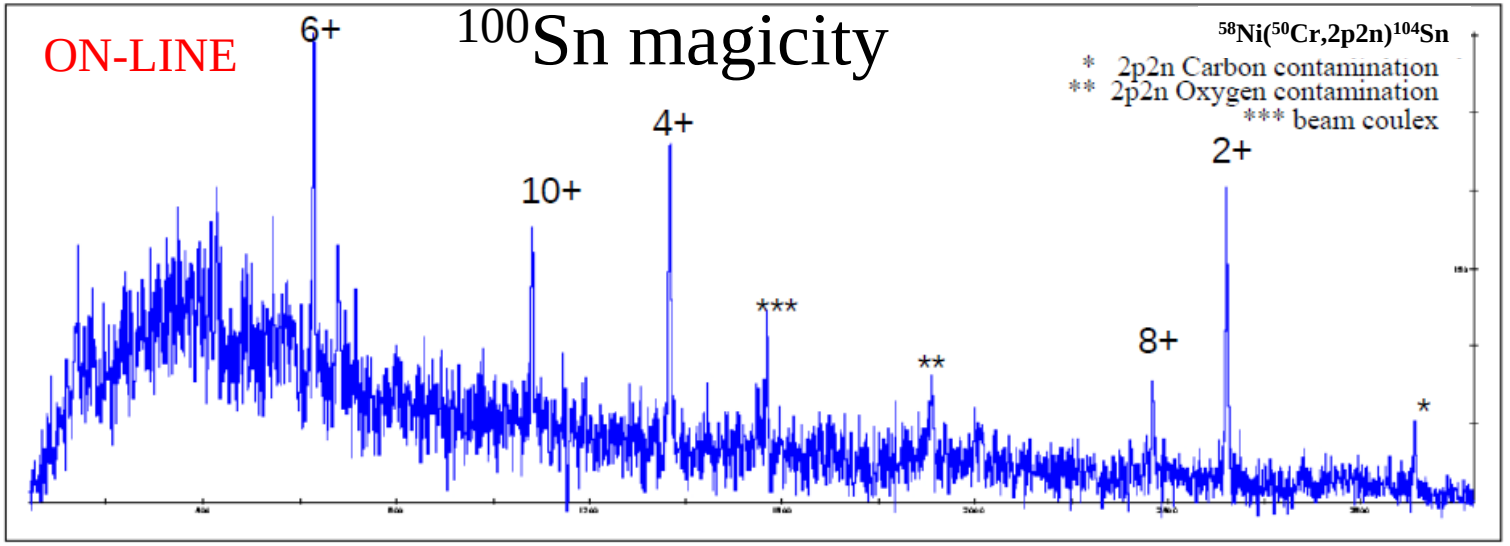






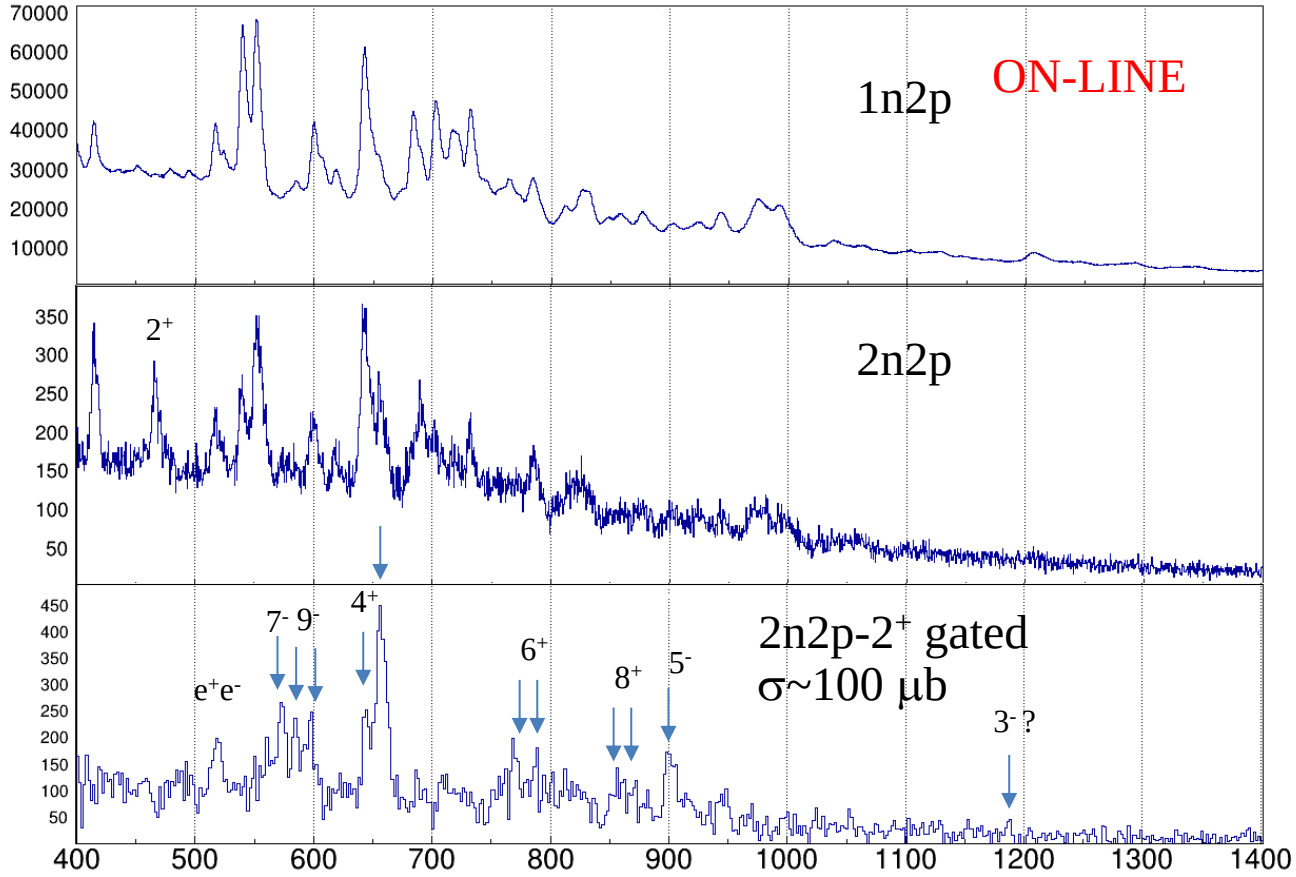
T. Huyuk and the NEDA collaboration,
Eur. Phys. J. A (2016) **52**: 55 Page 5

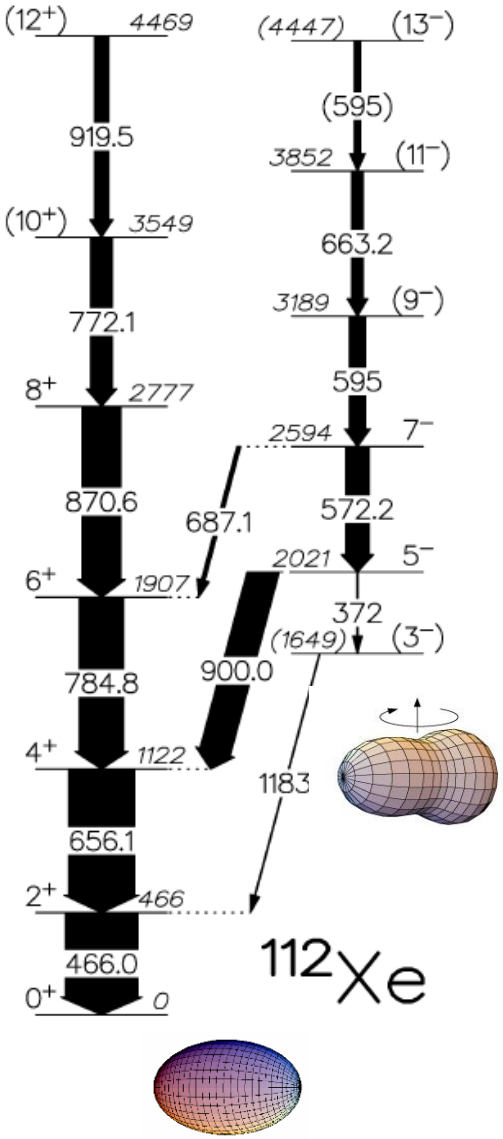
1n contamination into the 2n gate to be evaluated more carefully



The NEDA setup : the 2n selectivity

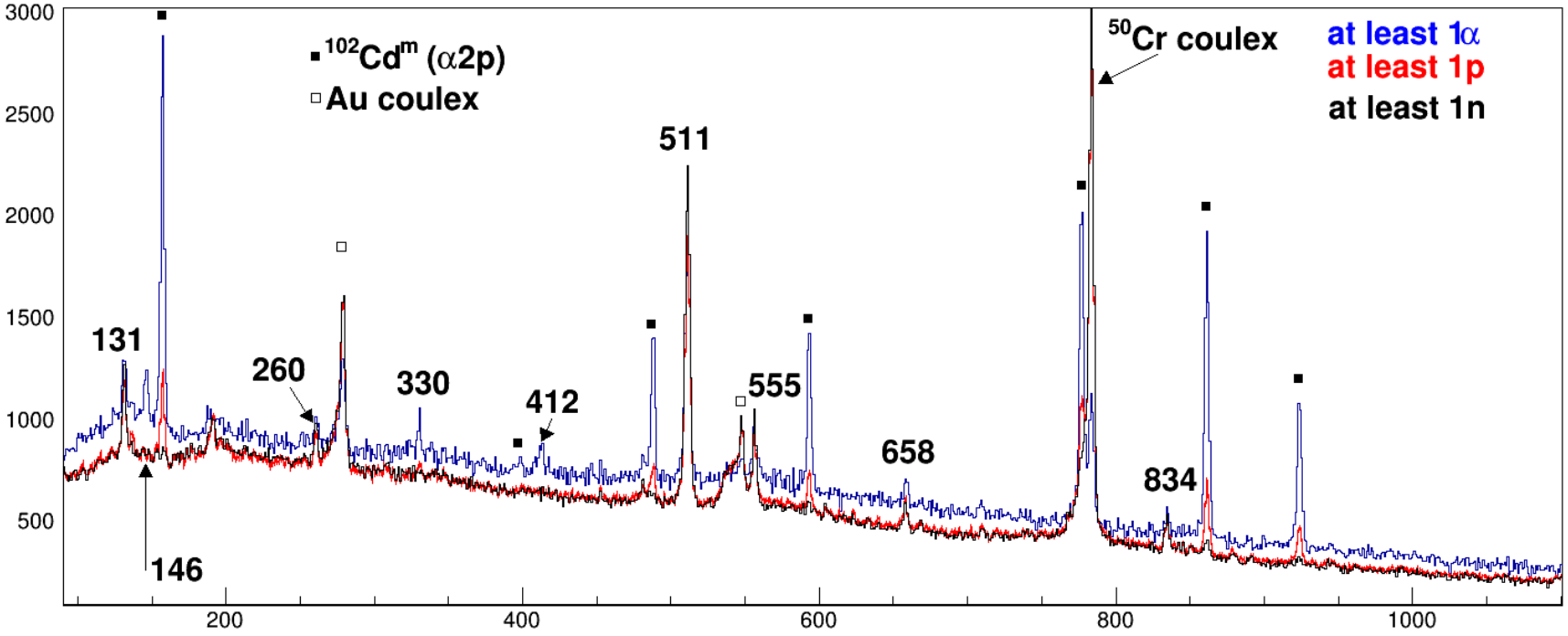
Lifetime measurement ^{58}Ni+^{58}Ni at 250 MeV

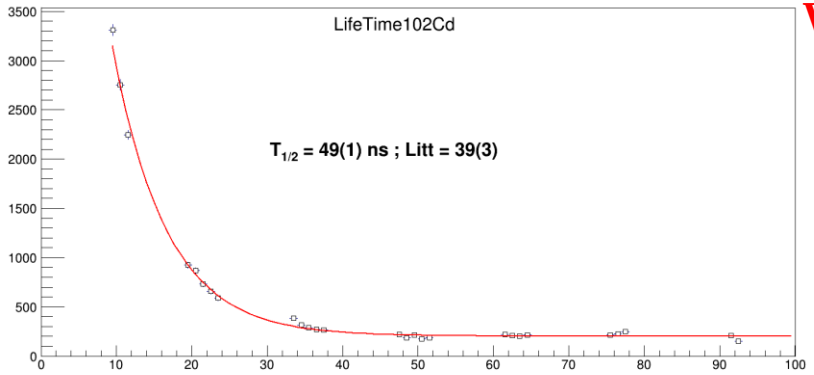




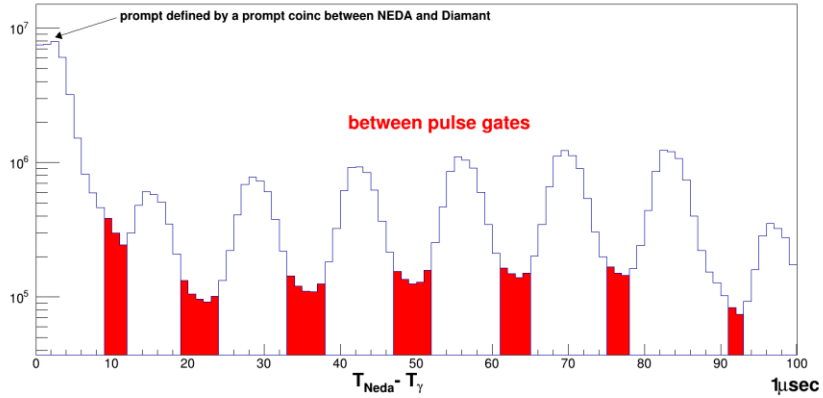
D. Ralet, M. L. Jurado, EC et al,
OUPS Plunger, J. Ljungvall et al, NIM A 679 (2012) 61-66. Degrader mode

The NEDA setup : the isomer selectivity

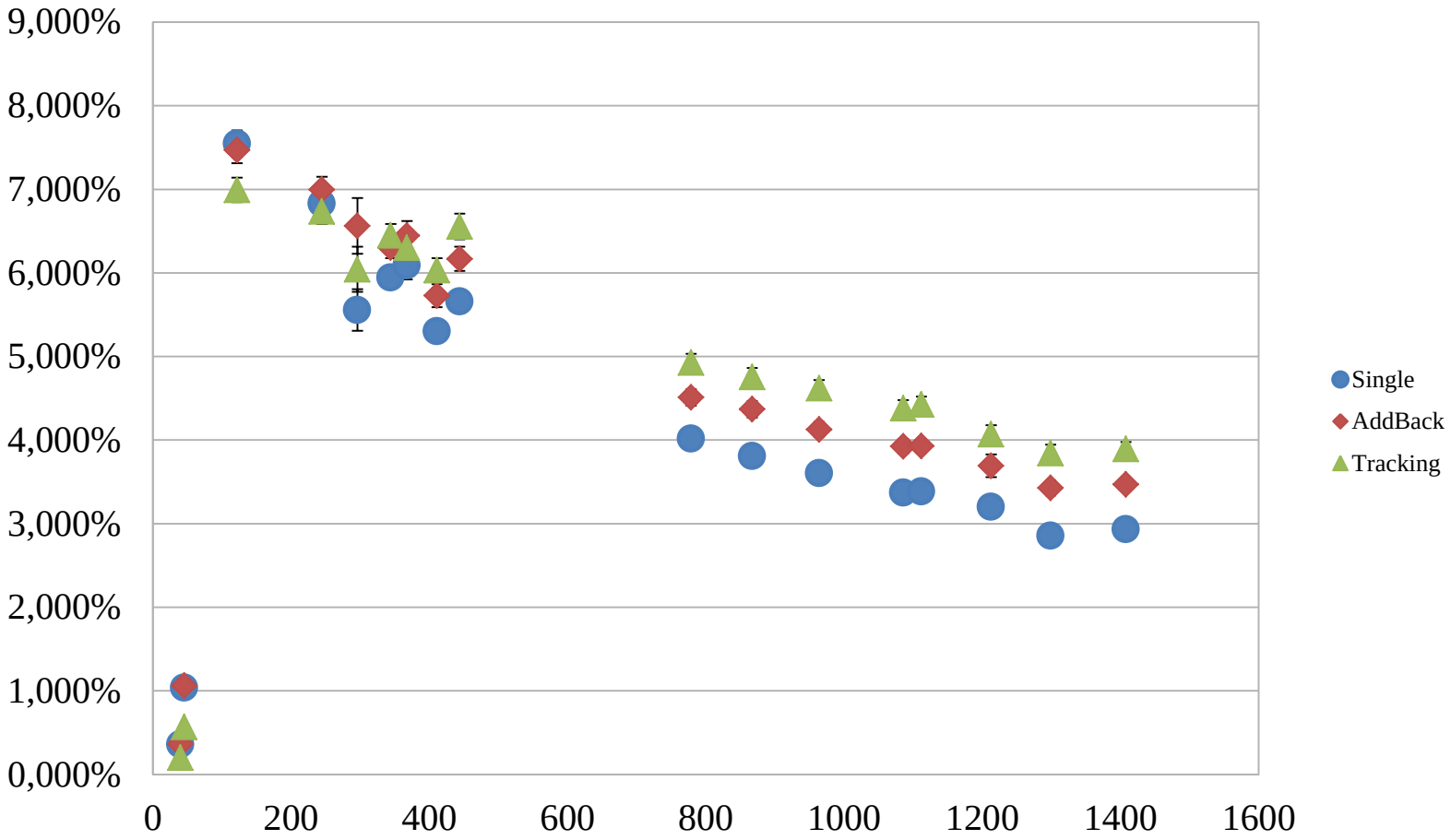




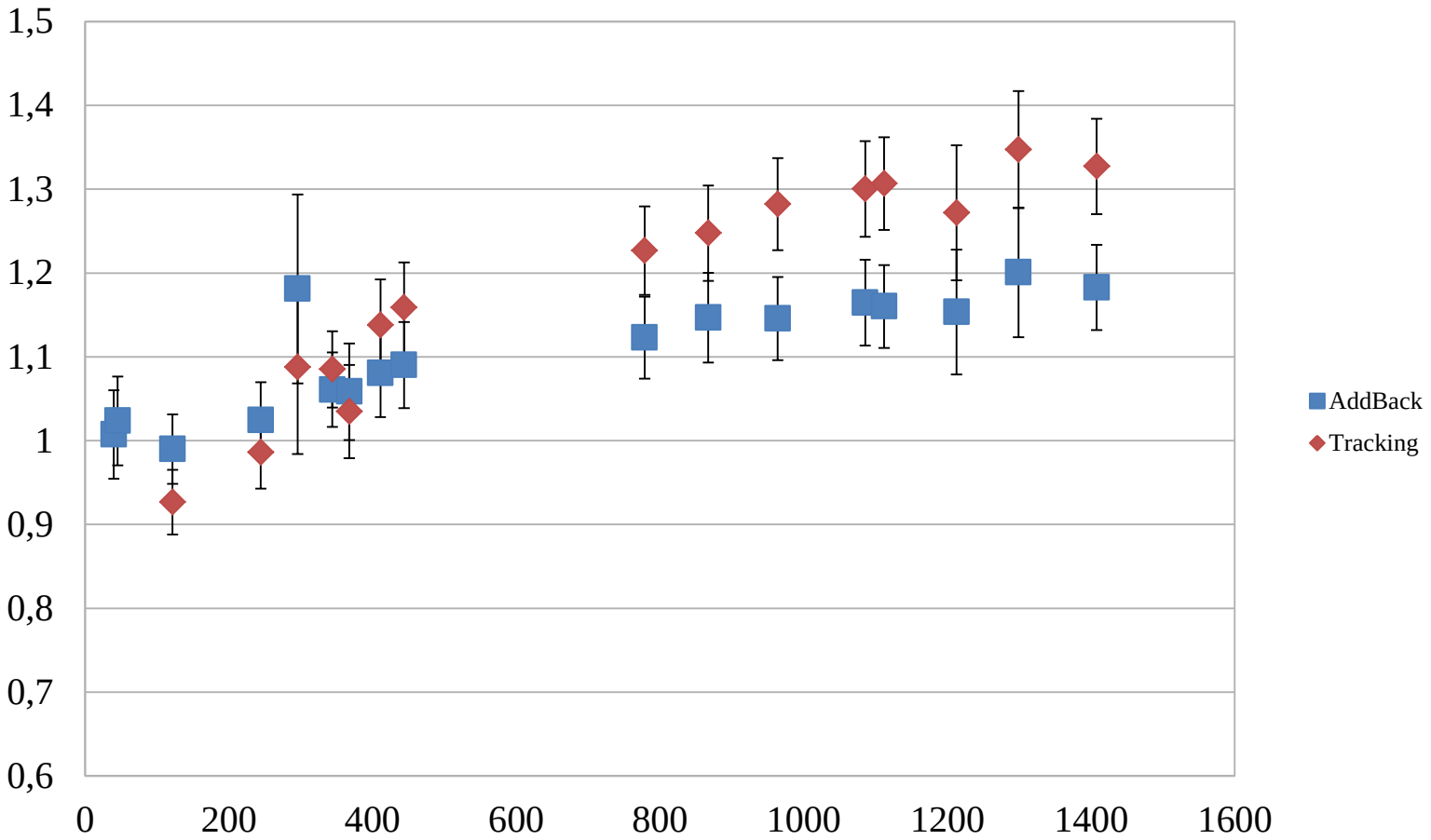
Warning – Tracking takes all hits in the the builder gate



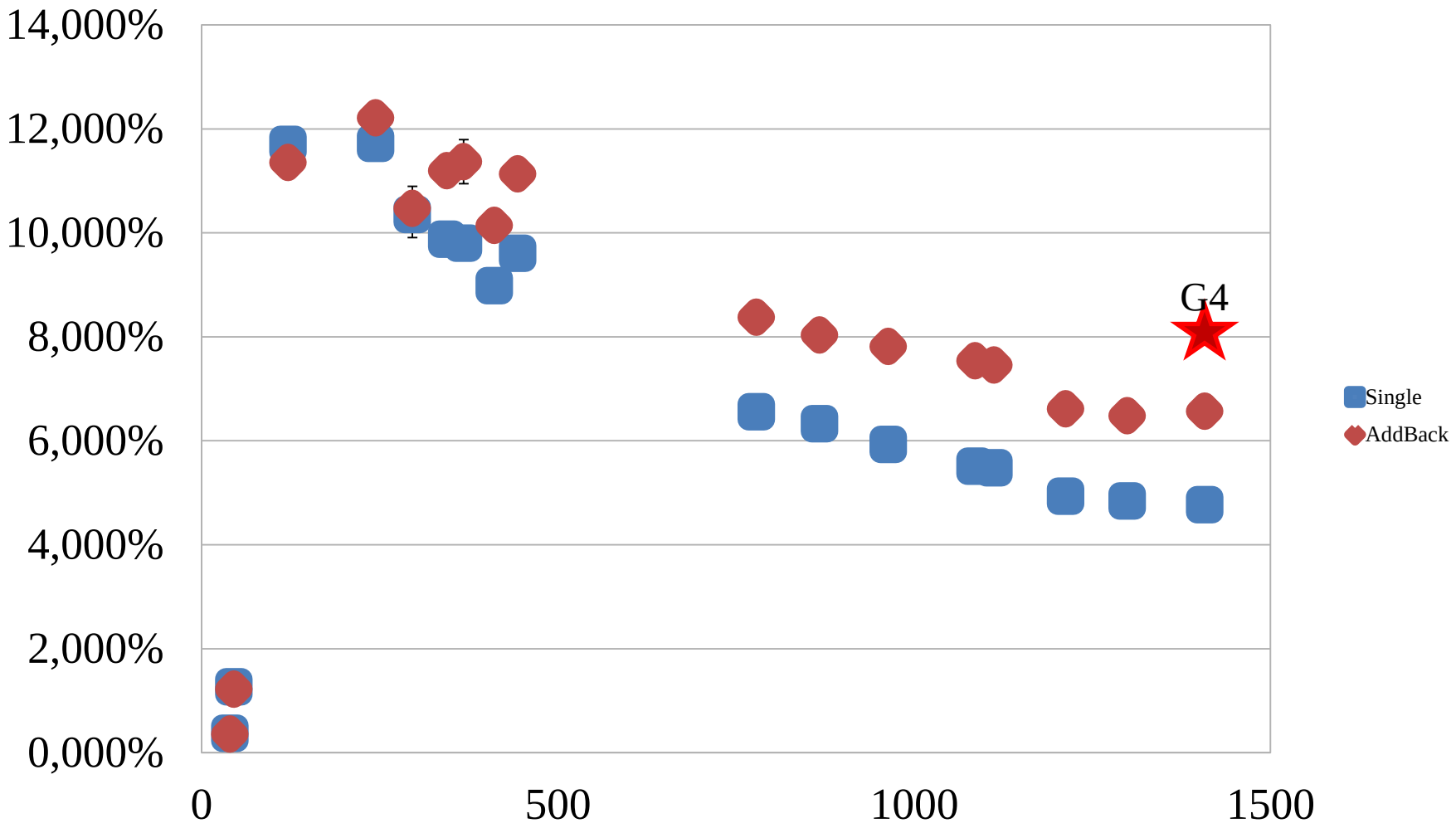
AGATA (nominal) NEDA DIAMANT (2018)
E730 – July 2018 preliminary



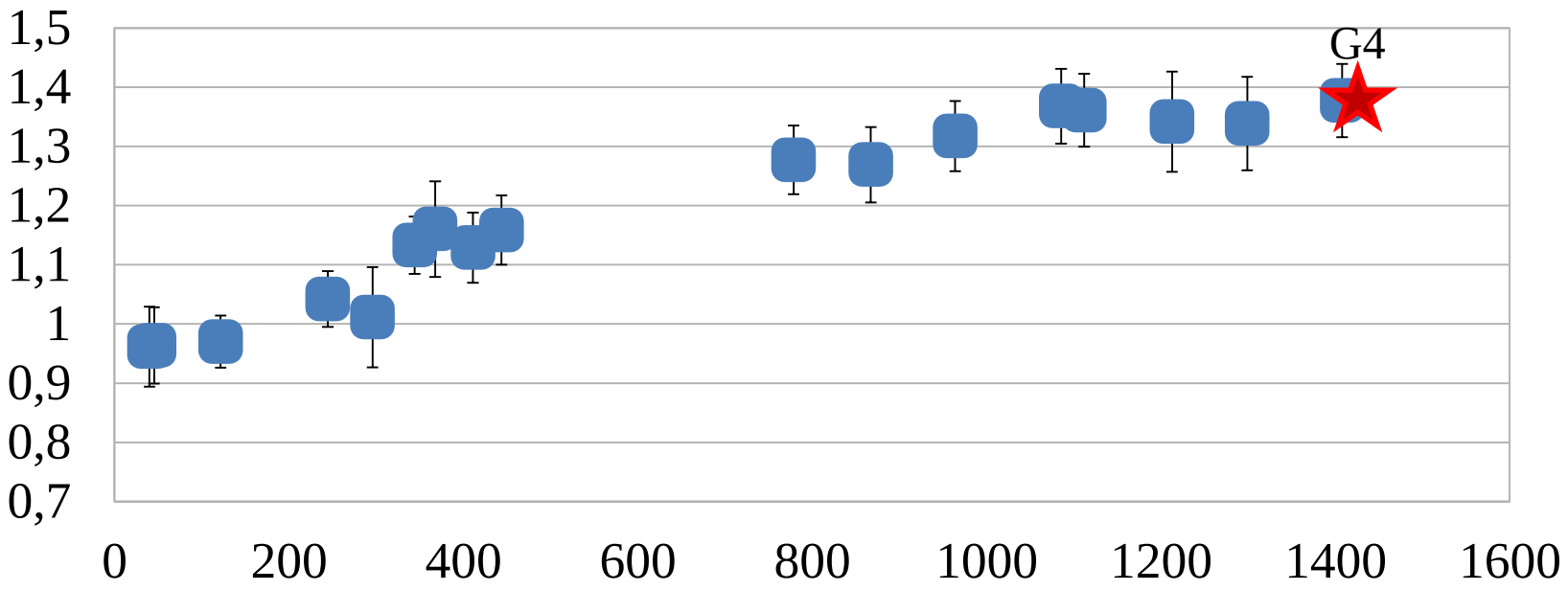
AGATA (nominal) NEDA DIAMANT (2018)

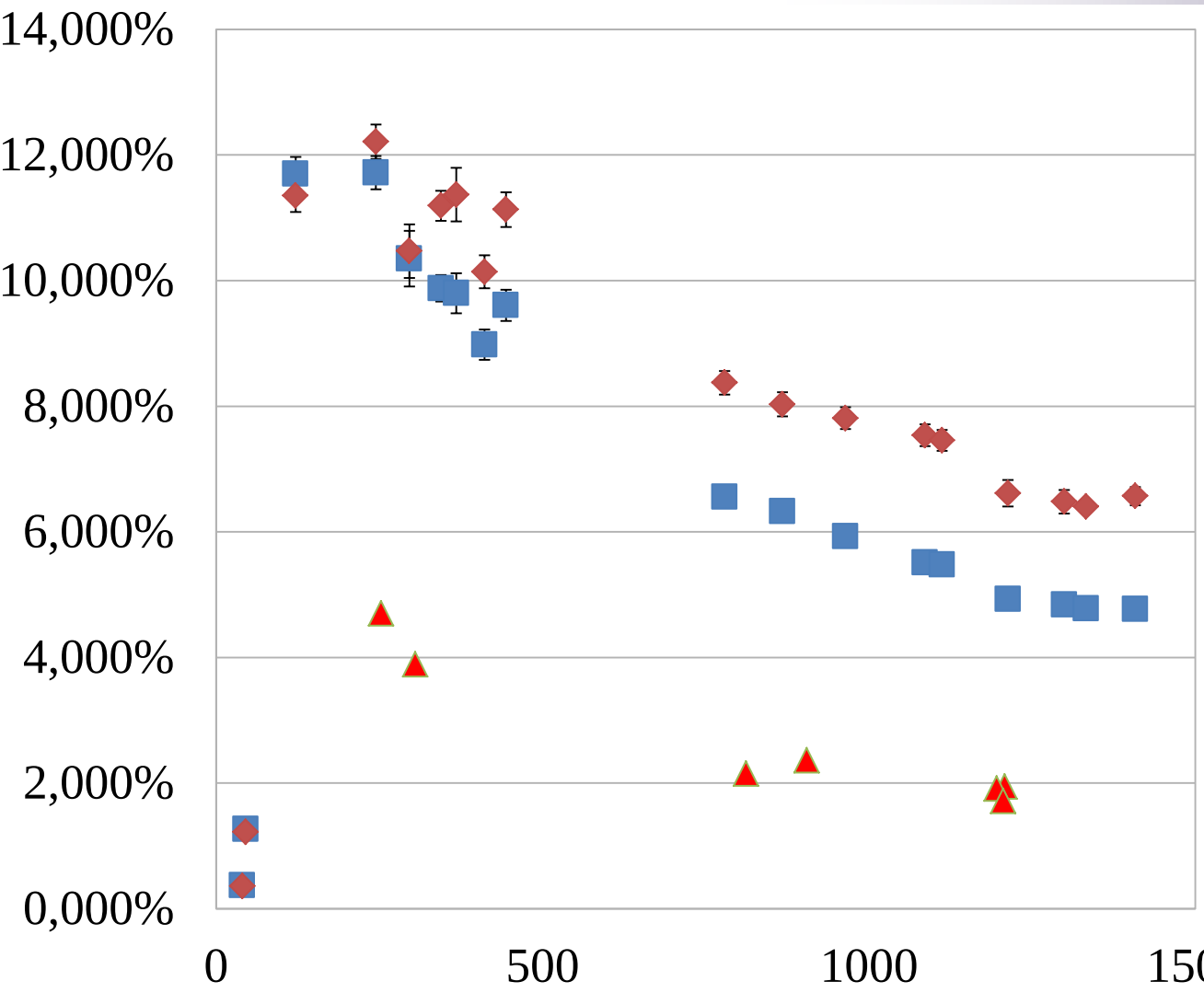


AGATA (+70mm) NEDA DIAMANT (2018)



AGATA (+70mm) NEDA DIAMANT





In-beam – γγ from ^{106,108}Sn
Very preliminary –core-core

To be studied in more details (pile-up, GTS loses, effect of the +70mm vs multiplicity, trigger processor, P/T, Add-Back Factor)

The EXOGAM2 TP will be the AGATA TP soon.

Time for characterization needed

At VAMOS, we were validating ~100 Hz/core in coincidence with a particle in the spectrometer, therefore these additional outputs have a marginal effect (but fill the disks)

Not true at NEDA, with the full digital system, we were validating at ~2000 Hz/core.
→ Triggered the release of an improoved version of the CrystalProducer for the GGP (problems appeared in the ~500Hz/core readout)

For this campaign the output of the local level processing was kept at the minimum (psa.adf)
→ 0.9To/UT (20-30To/exp).
If cdat have been recorded, each experiment would have been ~200To

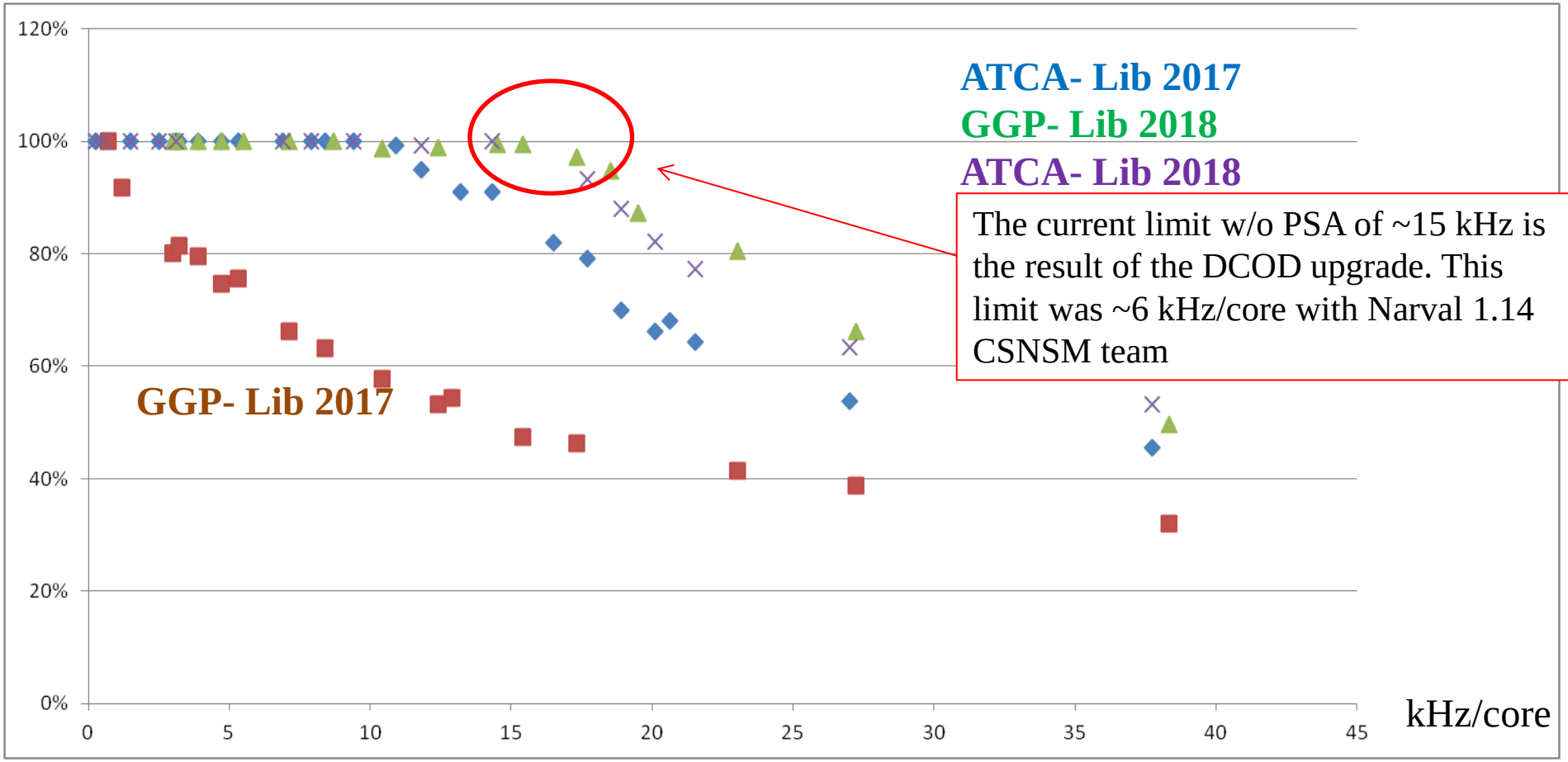
Even there, there are limitations (not yet easy to quantify) with online data at high rate

Writting each psa.adf cost backpressure to the system

The NEDA campaign with ~30To of adf files per experiment has been a real challenge for the near line analysis, disks space and backup

Major release of the CrystalProducer in 2018 (D. Bazzacco)

→ Massive use of Threads in the DMA readout



No Trace, no **PSA**, no Histo, only adf files → (We do not yet look at the limitation from the psa)

Effect of the online PSA (2018 studies)

DCOD, beta decay run from activation after beam stop. All detectors acquire data, looking at the rate of 00A

More Details in the Damian's talk