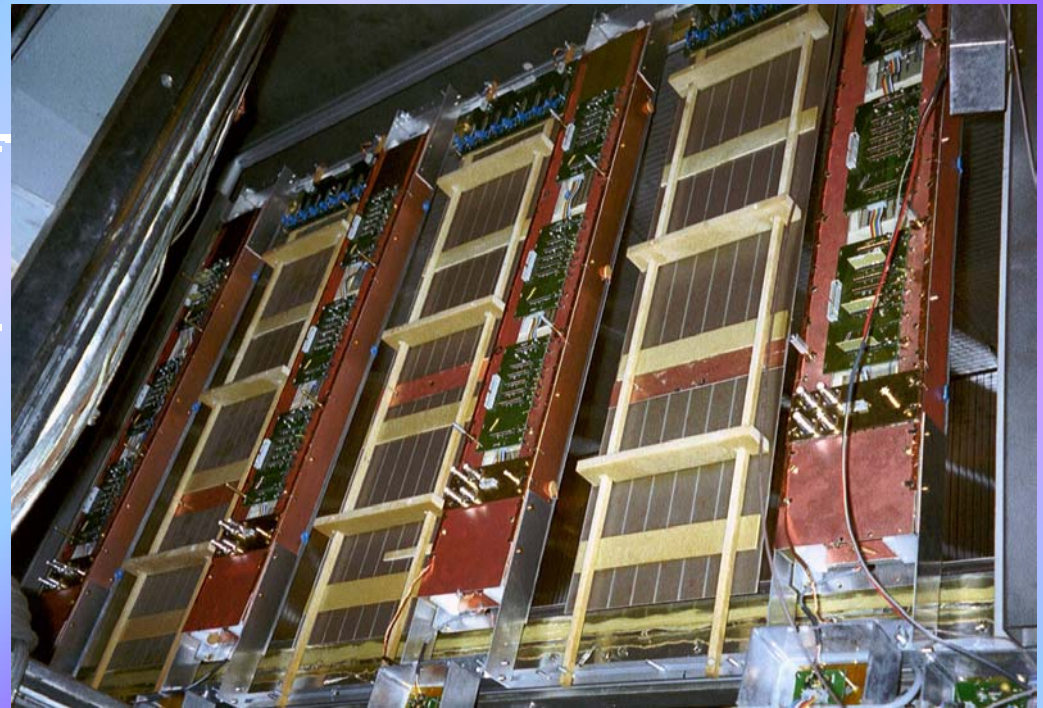
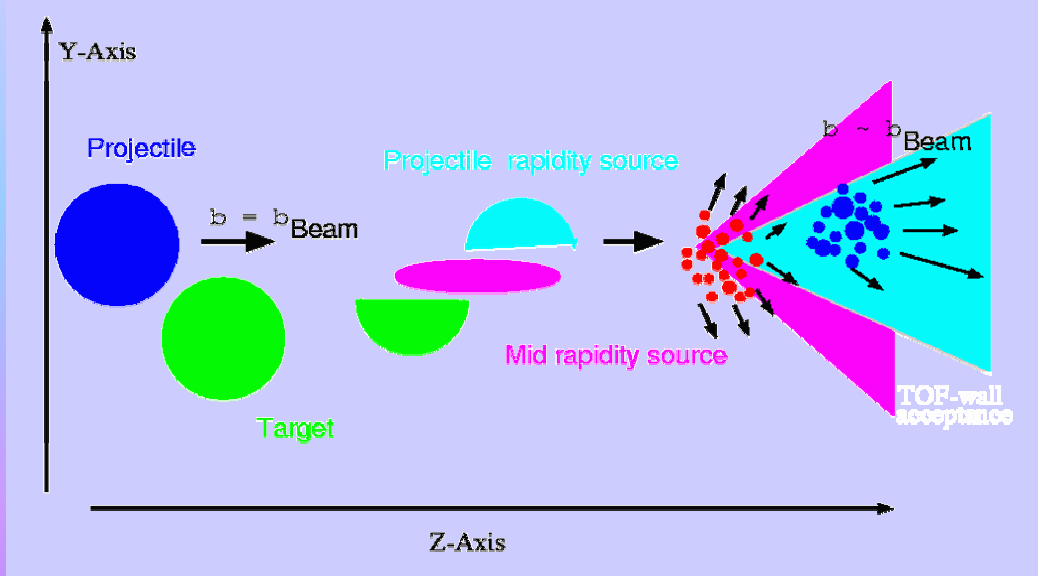


The TP-MUSIC III Upgrade @ the ALADiN Spectrometer

C.Sfienti, U.Lynen, J. Lühning, W.F.J.Müller, A.Mykulyak
and the ALADiN Collaboration

- ④ Physics Motivation
- ④ The TP-MUSIC
- ④ In Beam Test Results
- ④ Conclusions

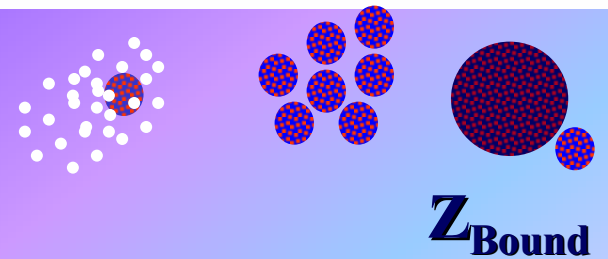
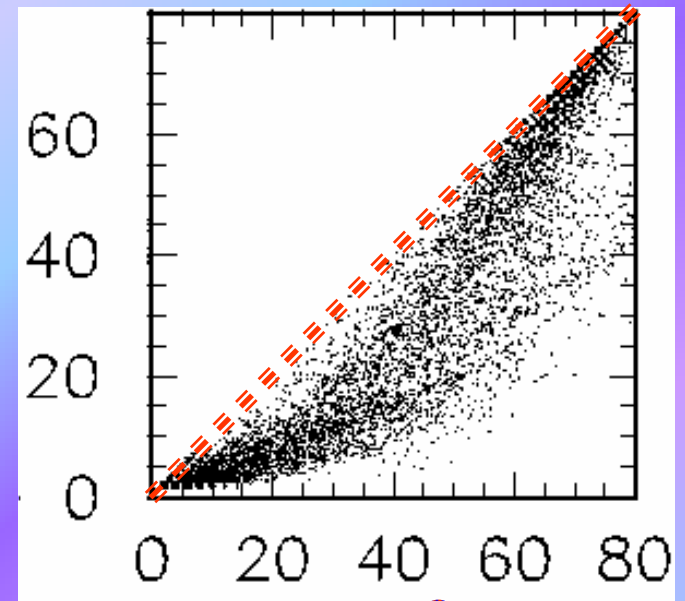
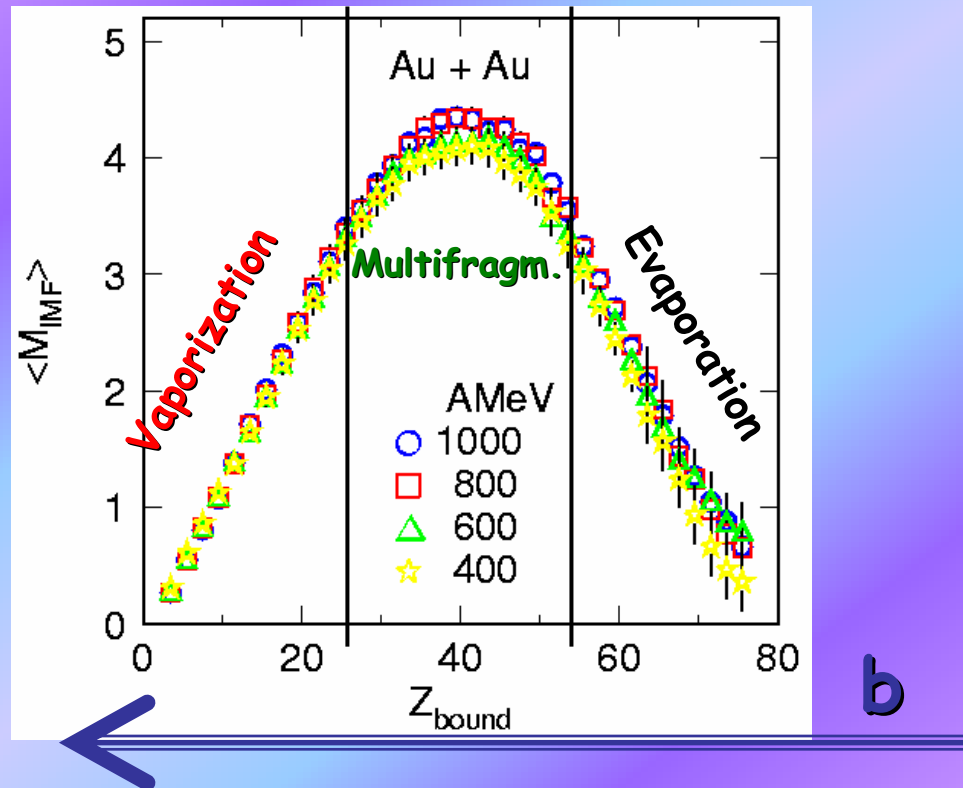




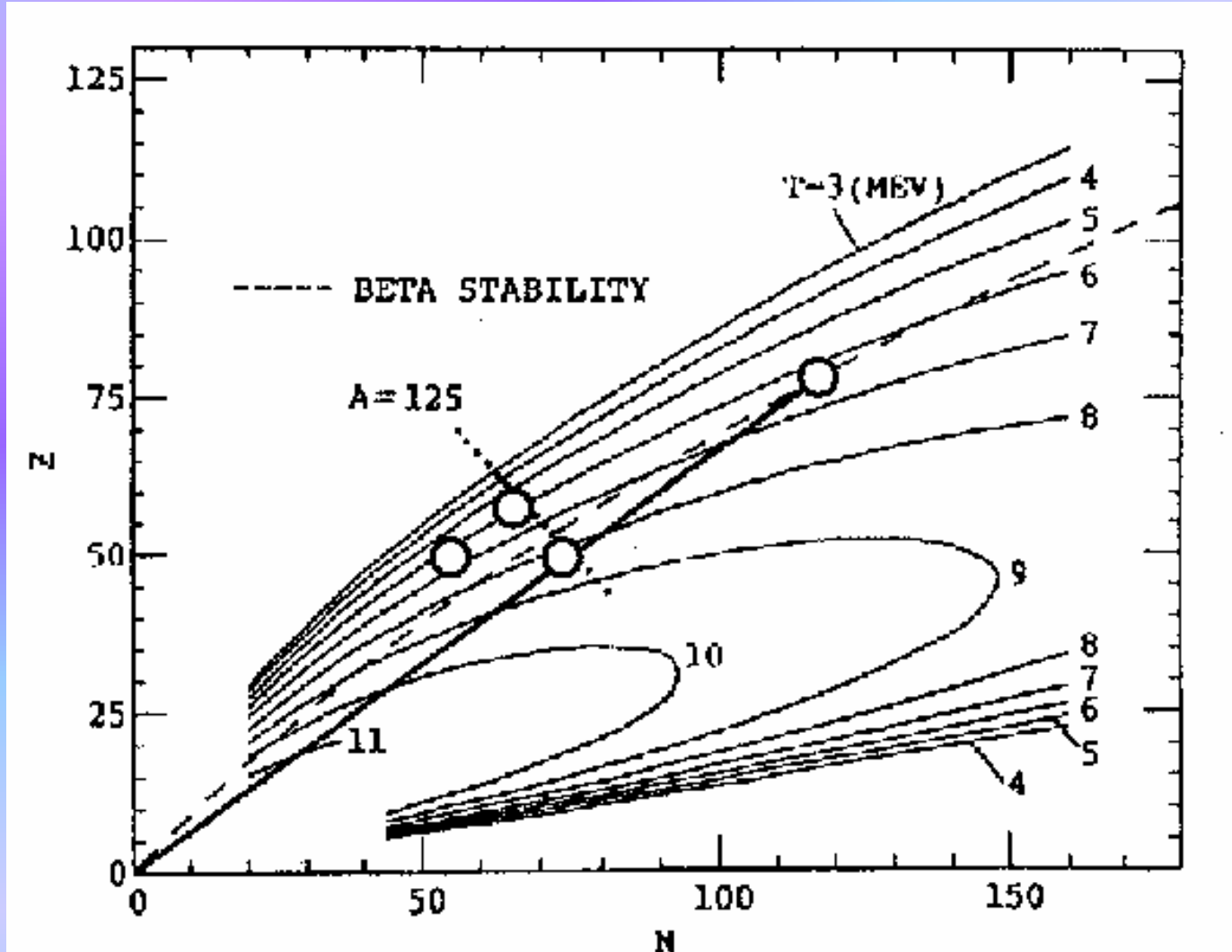
☺ ALL Fragments ($Z \geq 4$)

☺ Isotope Resolution

☹ Protons and Neutrons



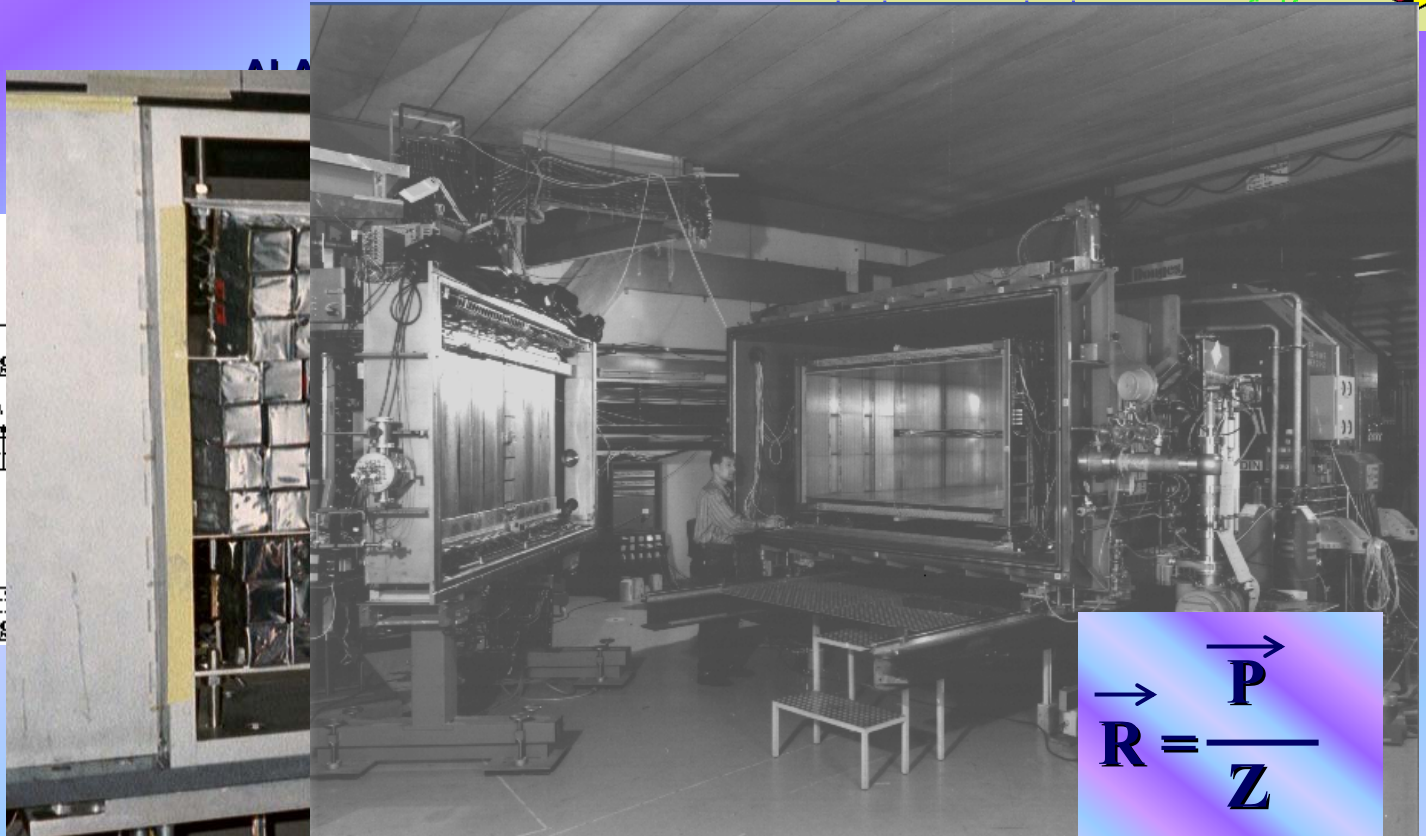
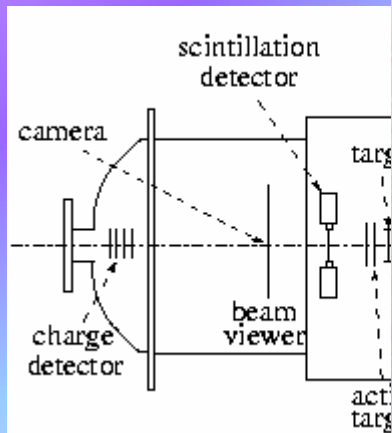
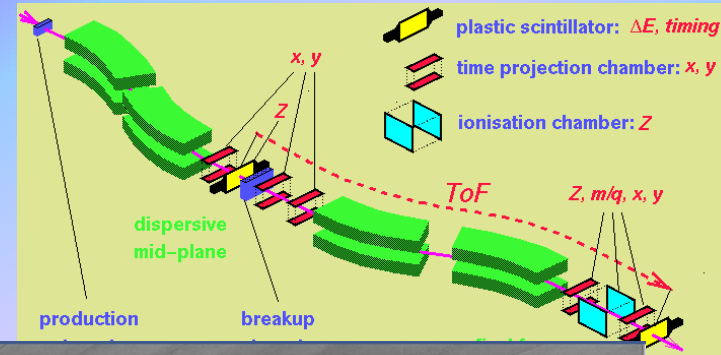
The Quest for Isospin Dependence



The Planned Experiment

^{124}Sn , ^{197}Au , ^{124}La , ^{106}Sn
 $N/Z = 1.48$ 1.49 1.18 1.12

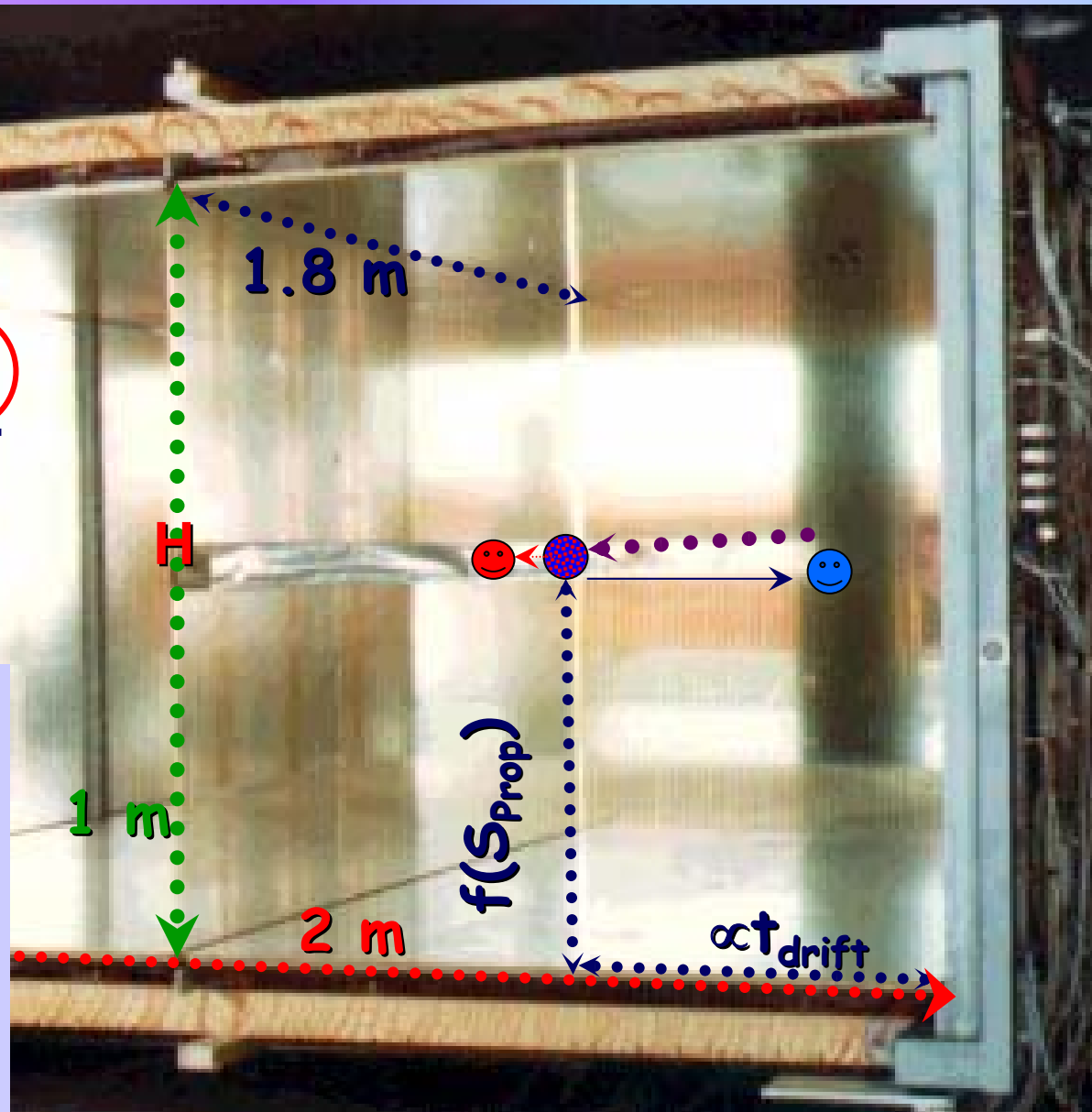
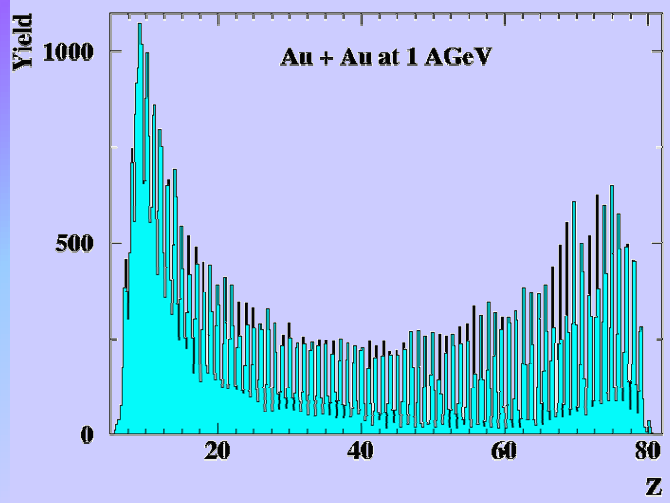
$E_{\text{inc}} = 600 \text{ A MeV} (\approx 1000)$



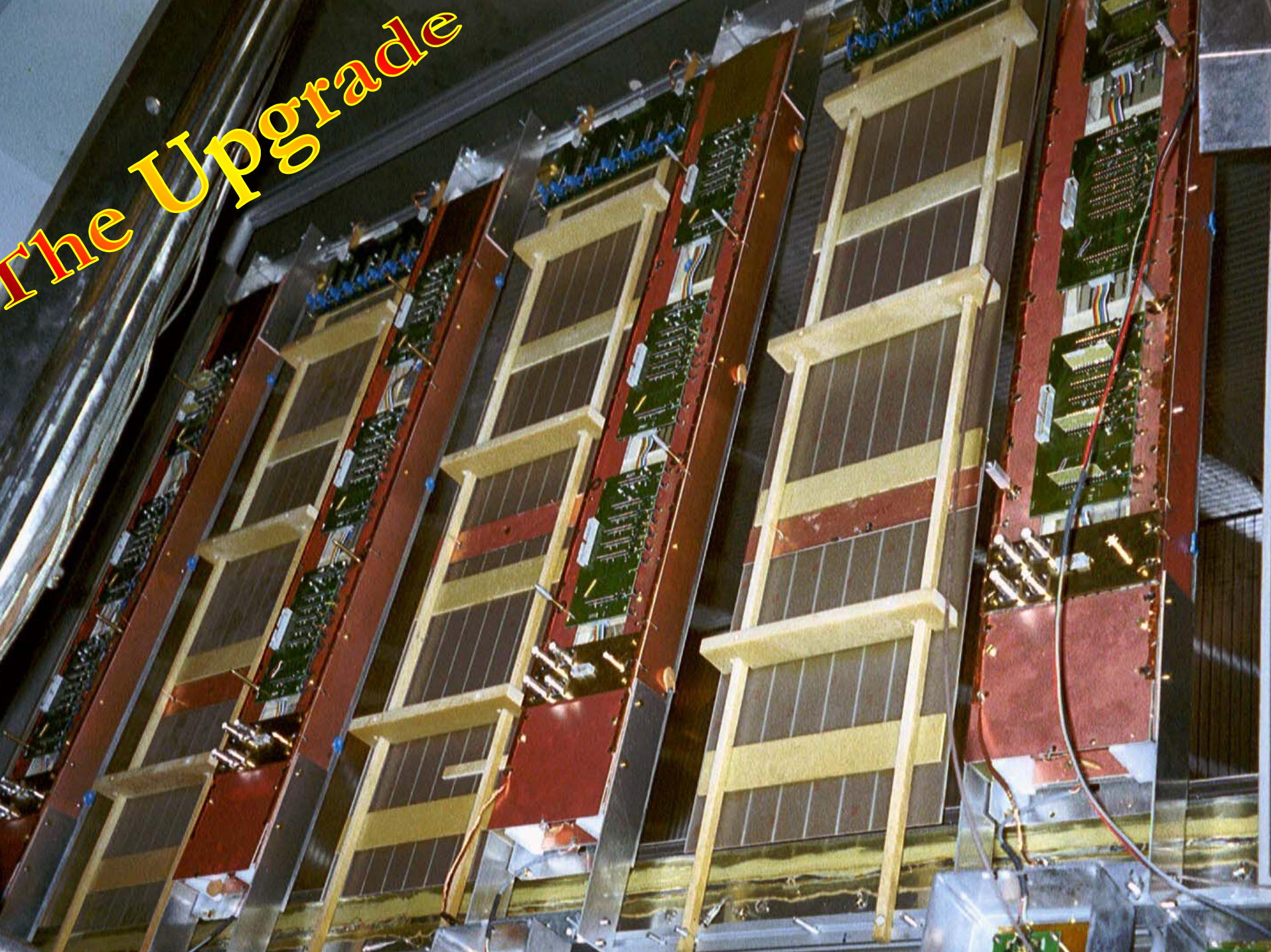
$$\vec{R} = \frac{\vec{P}}{Z}$$

The TP-MUSIC

$$\frac{dE}{dx} \propto \frac{Z^2}{\beta^2}$$



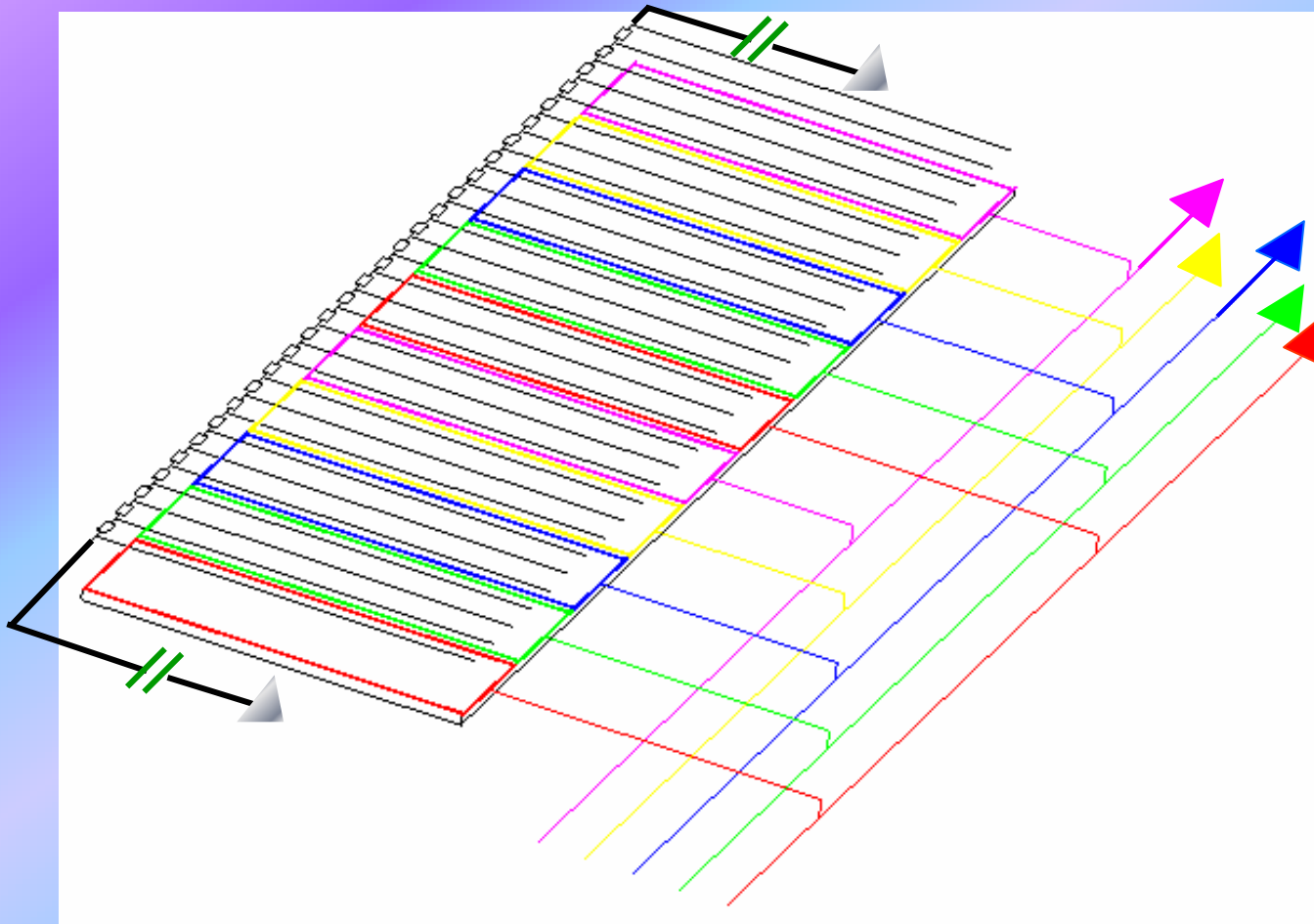
The Upgrade



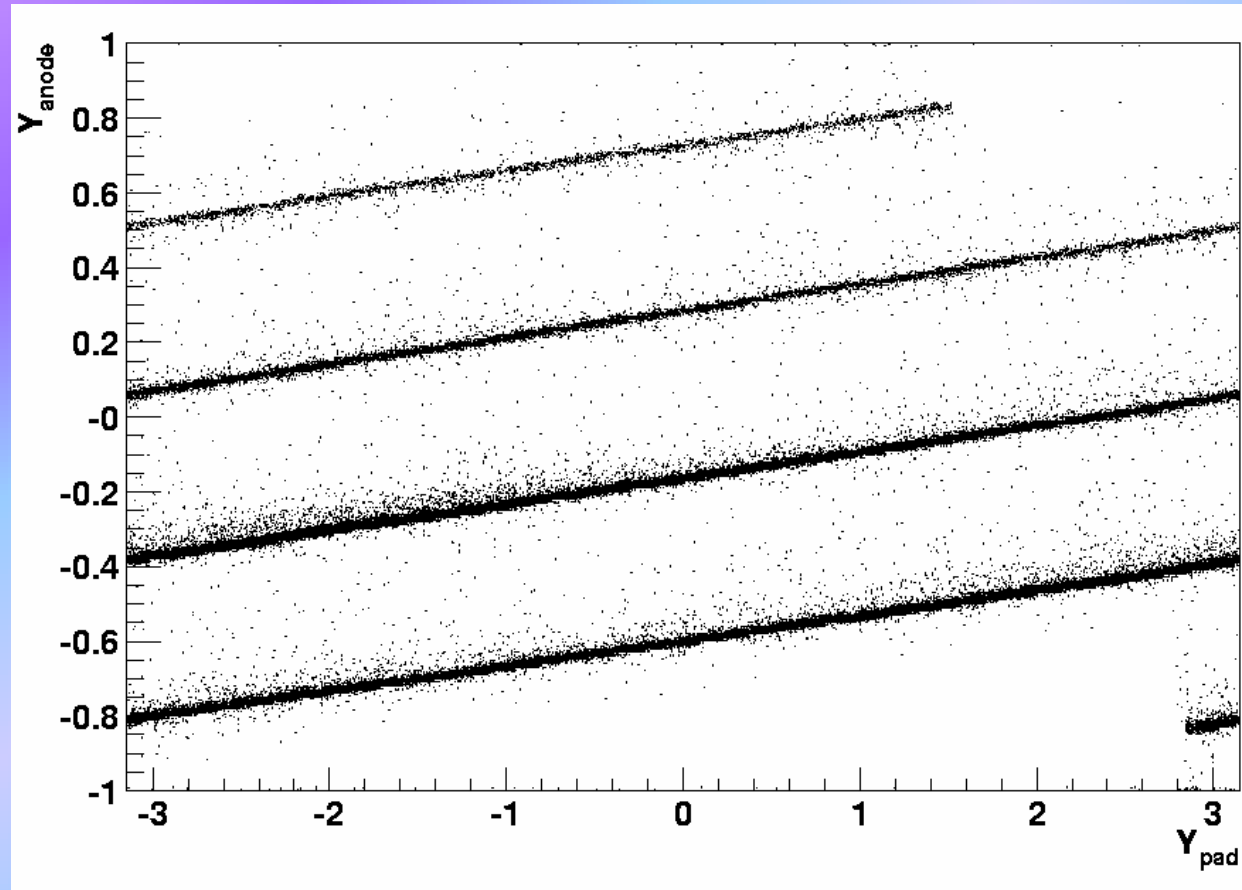
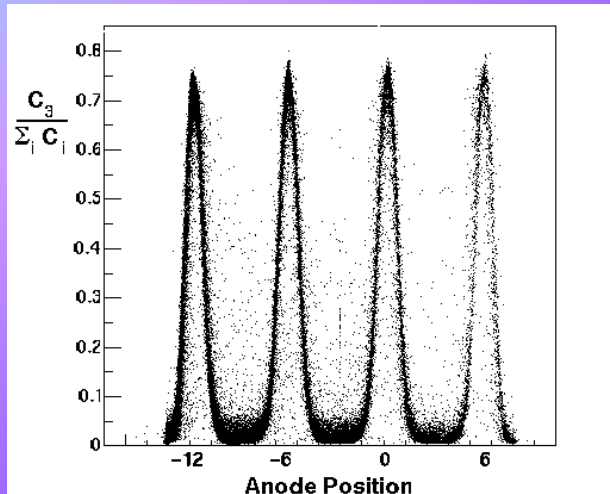
Proportional Counters

- 12 mm pad modulo-five connected

☞ Reduces the number of readout ch. from 80 to 17



Position Determination



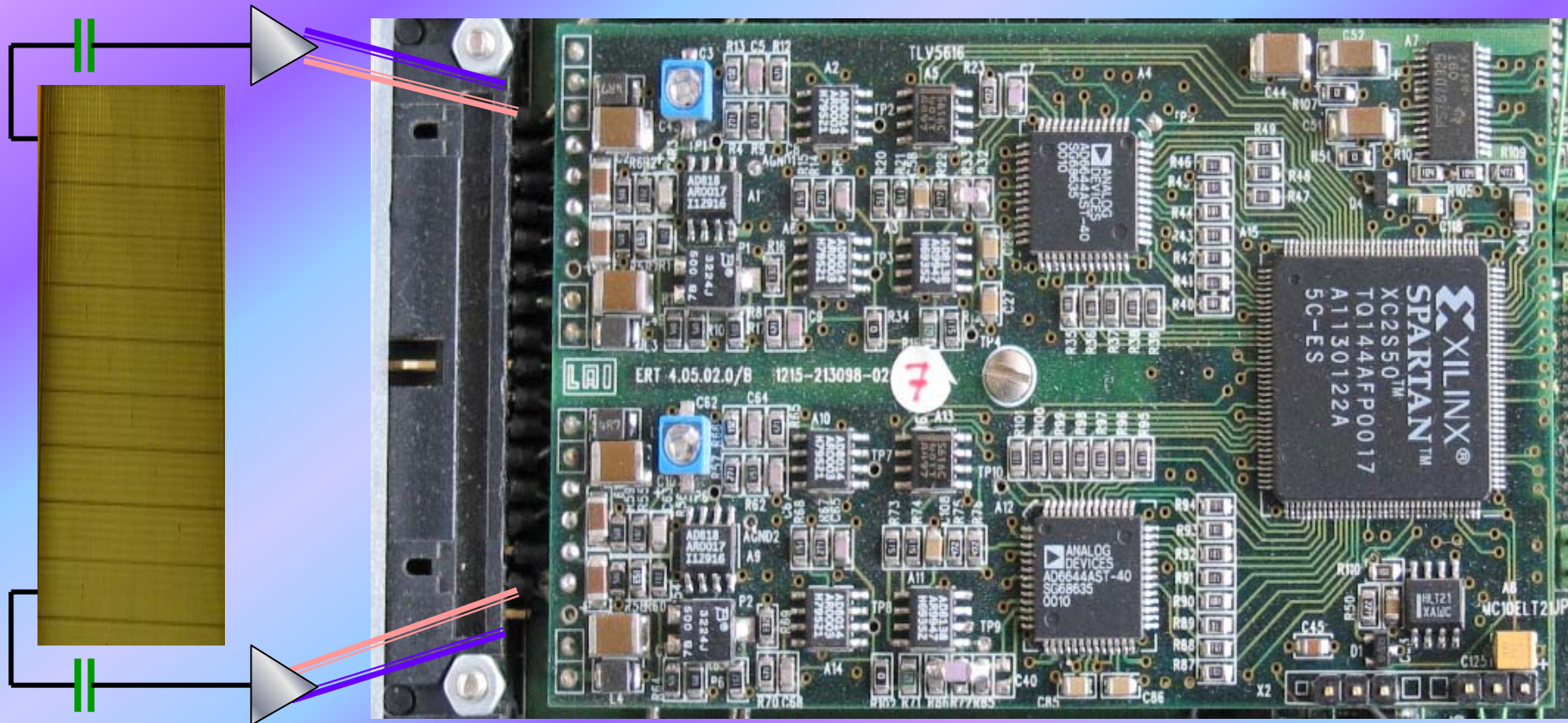
 **Excellent linearity in the position**

Electronics

Digital Shaping

40MhZ Flash ADC (14 bit)

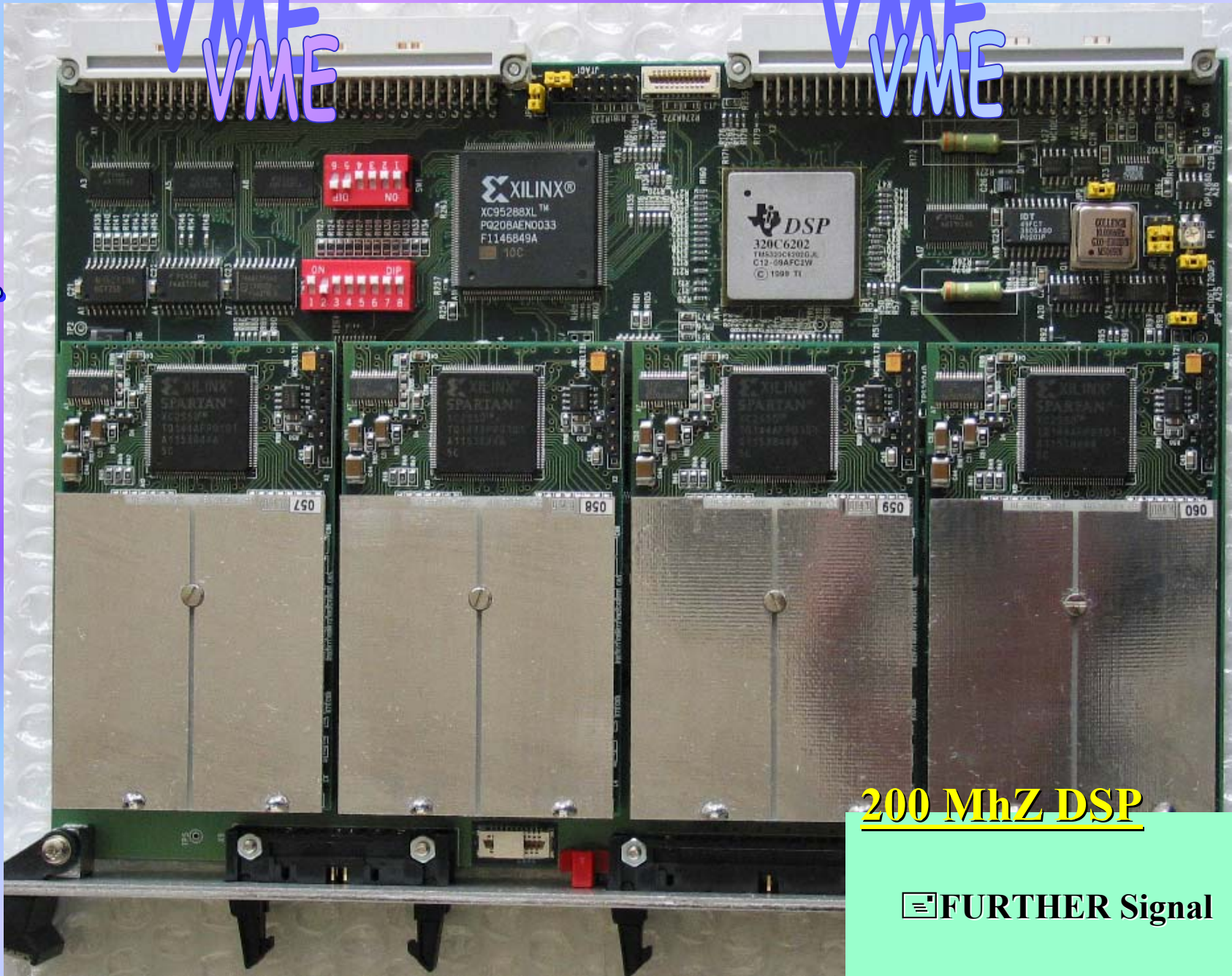
High Resolution Analog + Digital circuit on the same



Readout System

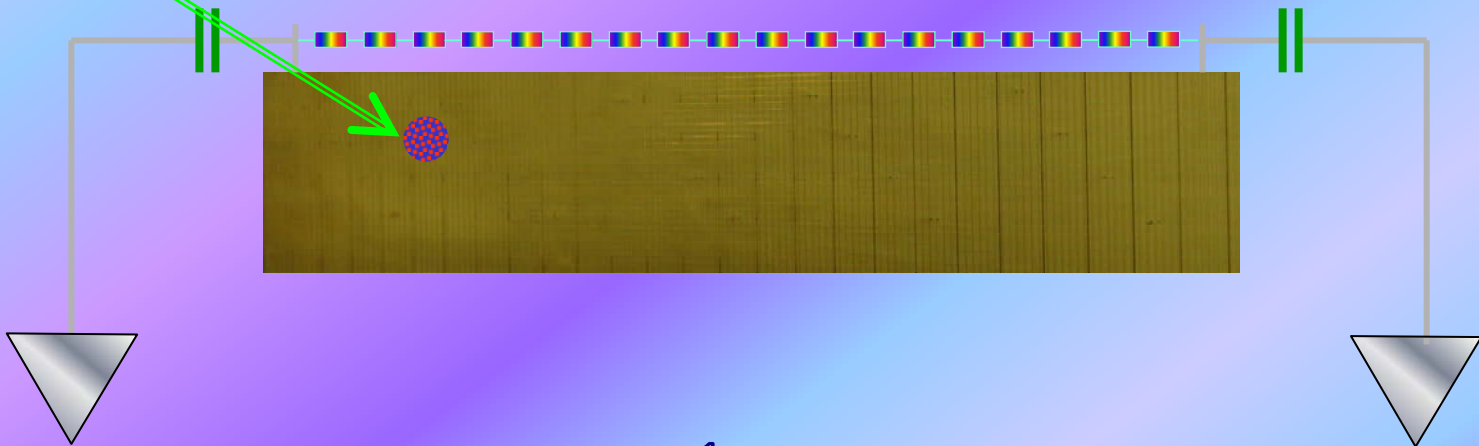
VME
VME

VME
VME

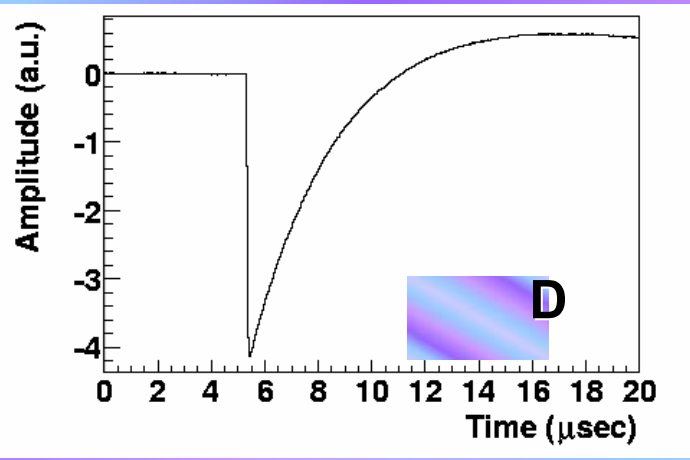
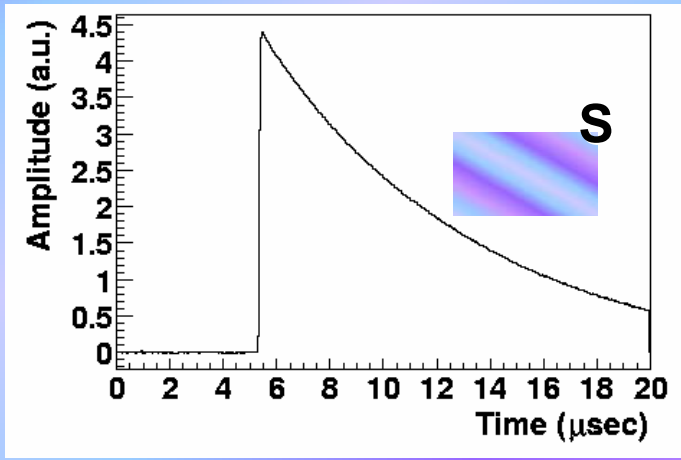
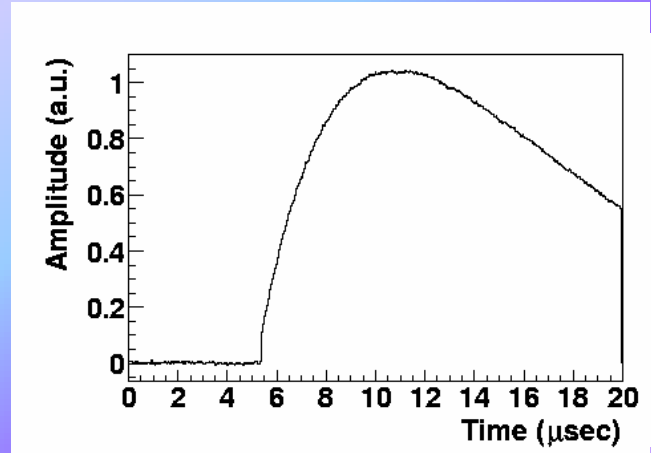
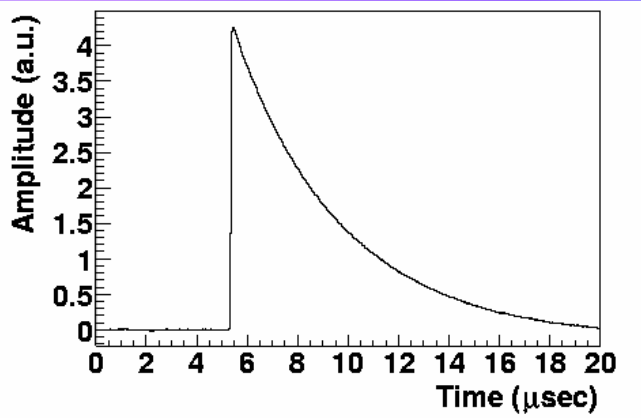


200 Mhz DSP

FURTHER Signal



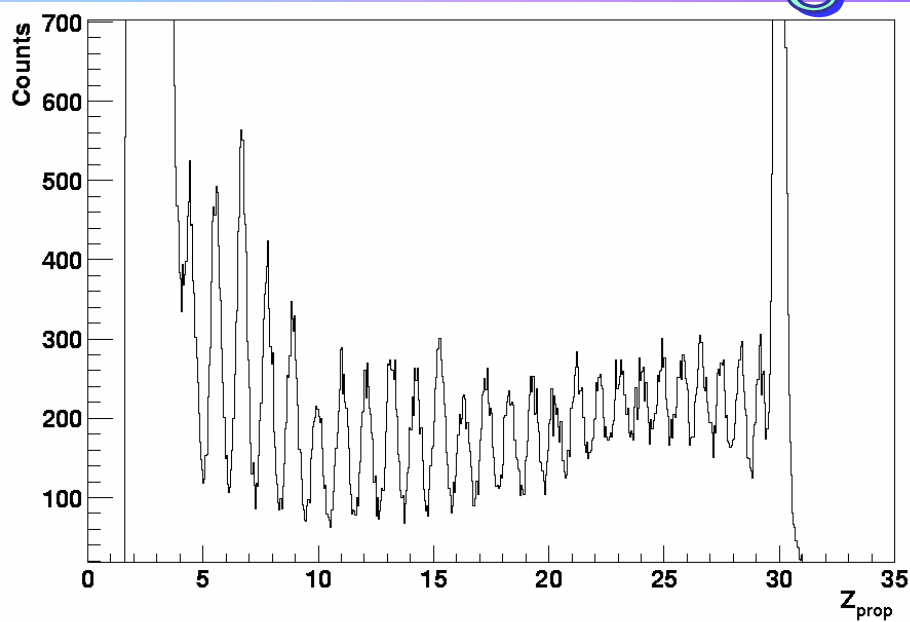
Exchange Current



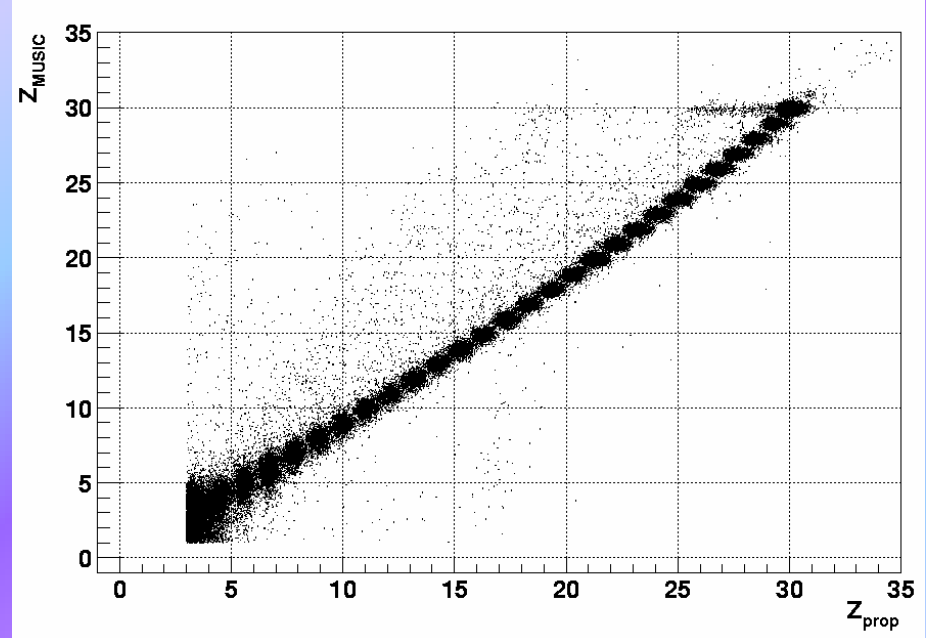
Charge Resolution

In Beam Test:

^{65}Zn 600 A MeV



☺ Charge
Identification in the
Props. up to $Z=30$





🖱️ The next ALADiN experiment is going to investigate the dependence of the projectile fragmentation on isospin

🖱️ Radioactive ion beams with low intensities are optimal for the ALADiN setup

🖱️ An upgrade of the TP-MUSIC detector has been undertaken



📄 It represents a versatile instrument also for other experiments

👍 The obtained results indicate that the required performances will be achieved