1.Размеры и вес-не более100кг

2. Сегментирование- 3 основные секции(баррель-8 частей, 2ендкапа-по 4 части

3. Способ размещения относительно других систем –?

4. Точность размещения подсистемы относительно других элементов установки-?

5. Выделяемая мощность (+/-30%)- 0,1W на канал (примерно 1,0-1,5 кW на 10000-15000 каналов)

6. Особенности материалов-использование углепластика

7. Необходимость возможности доступа-желательно

8. Необходимость диагностики-обязательно

9. Другие особенности подсистемы, которые, по-вашему мнению, могут оказаться важными- автоматический климат- контроль (~2 град)
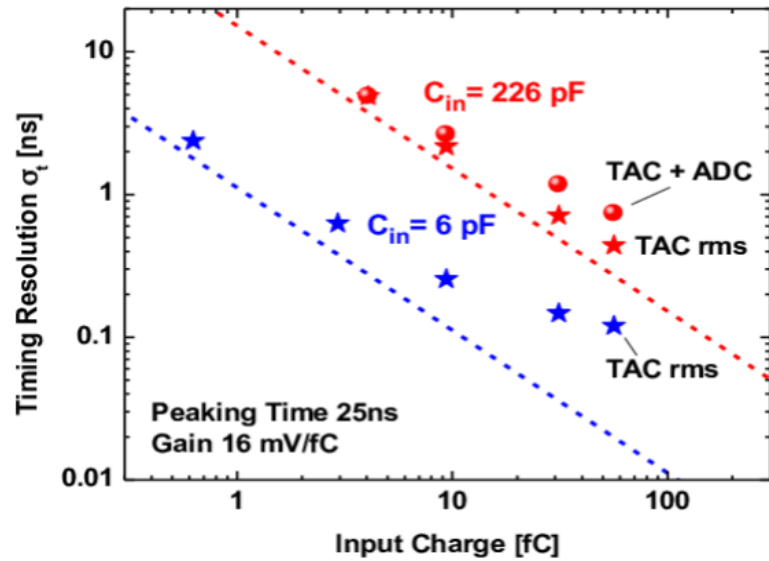
TRACKER ELECTRONICS DUNA

Figure 4: VMM3a time resolution as a function of input charge. Better than ns time resolution is obtained for suitably large deposited charge signals. [4]
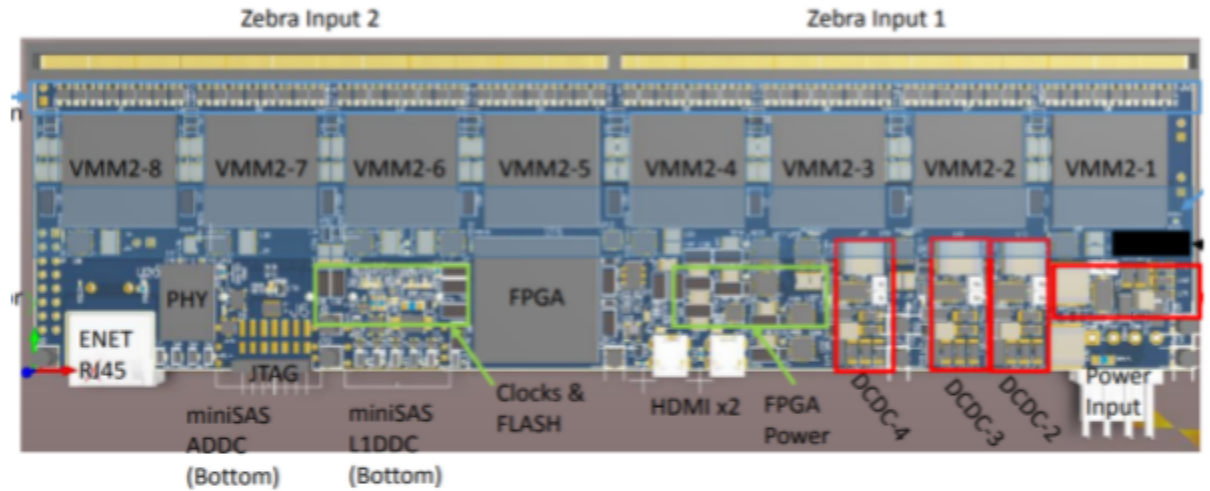

Figure 5: MMFE-8 readout board implements 8 VMM ASICs, equivalent to 512 channels, in a board with dimensions 215mm x 60mm x 2.54mm.
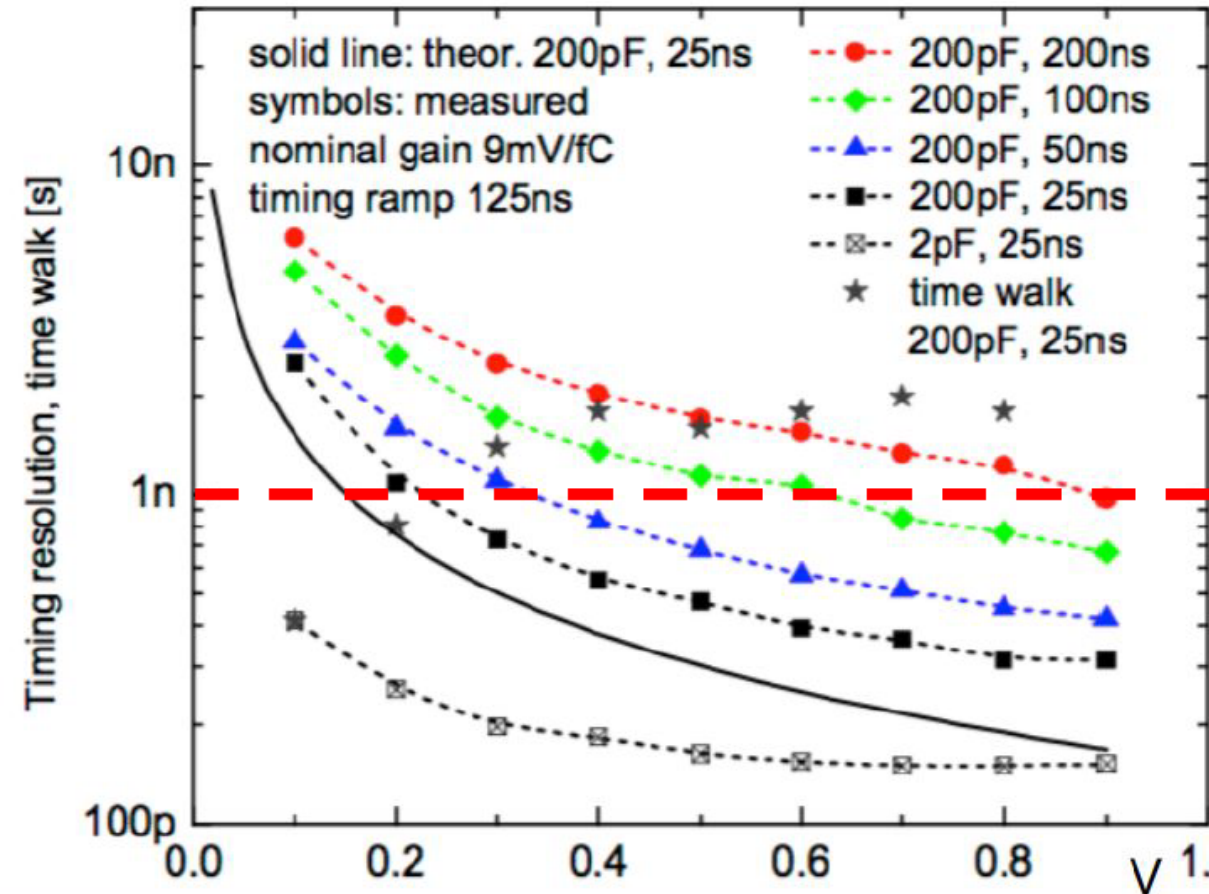
VMM3 Meets STT Readout Requirements
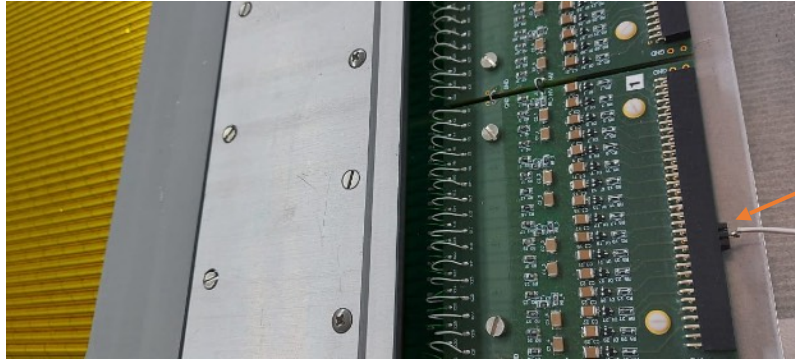
- Readout requirements:

  - Measure deposited charge & time t;
  - Timing resolution << 1ns;
  - Low threshold: charge from single ion pair;
  - Dynamic range > 1000 on charge;
  - Max width of readout board: 5cm;
  - Max length of readout board: 16 cm every 64 channels for double readout

VMM3 Time Resolution

- VMM3 satisfies required <1ns timing
- Measures Q + T for each input
- Built-in pulser for accurate electronic response calibration
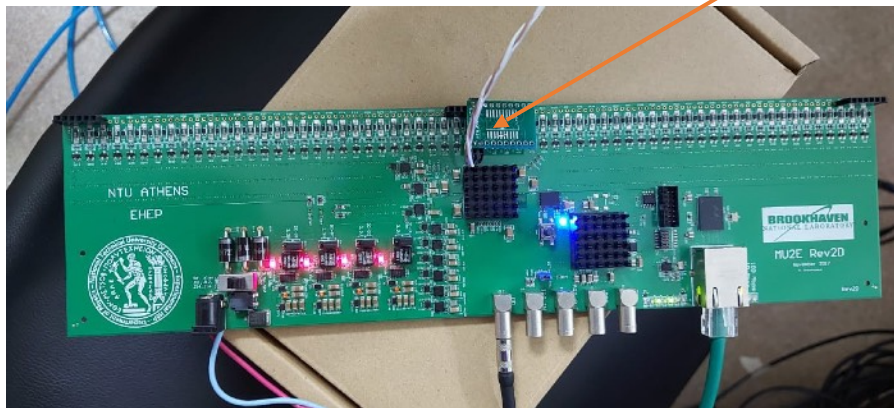- Compact 64-ch ASIC well suited to tight spatial constraints

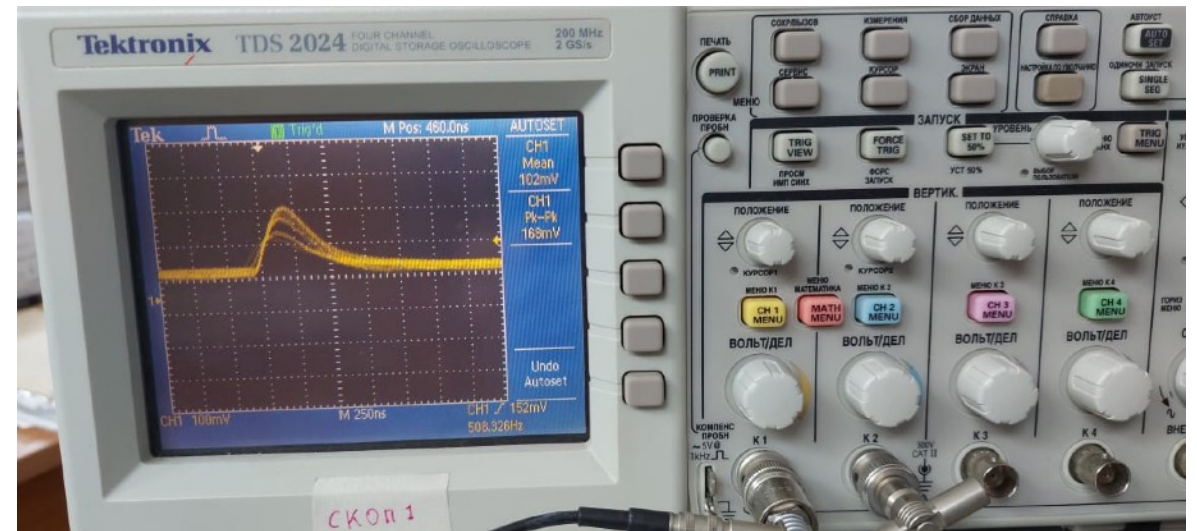# Signals from STRAW chambers with ^{55}Fe

Adapter to get the signal from STRAW chamber

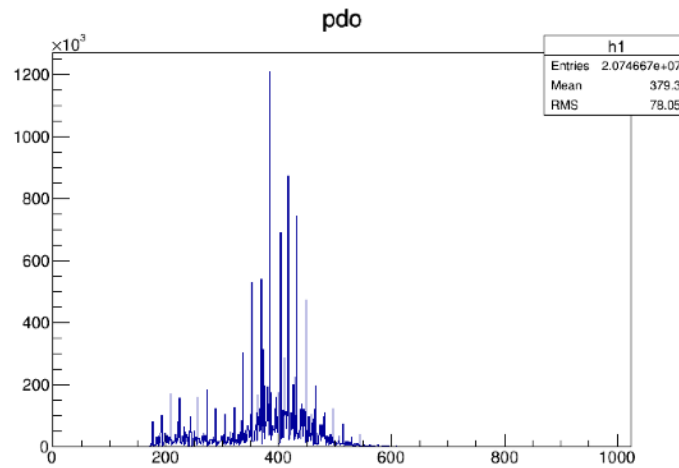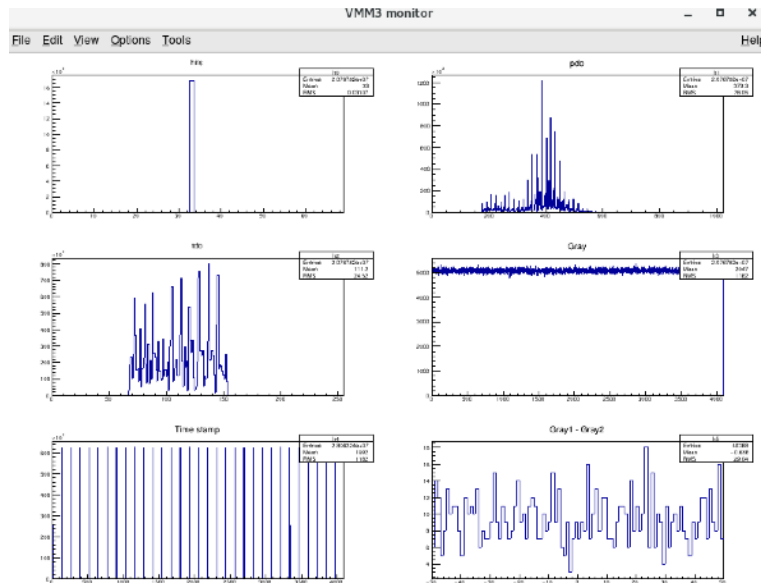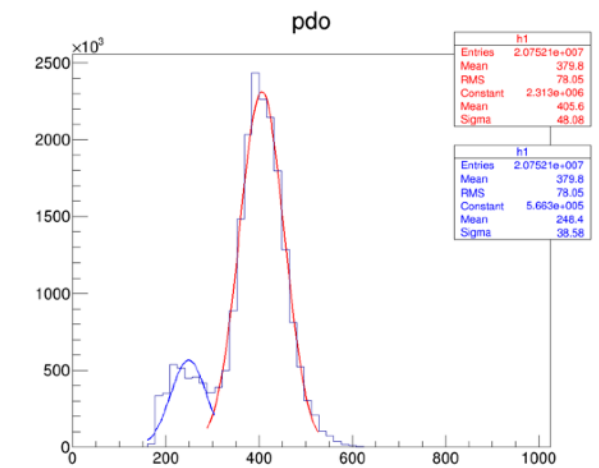Adapter to delivery signal from STRAW chamber into the VMM3 board

Monitor output

Signal from monitor output.
^{55}Fe is attached to the STRAW chamber

Test of the STRAW chamber with ^{55}Fe

Online monitor software for VMM3
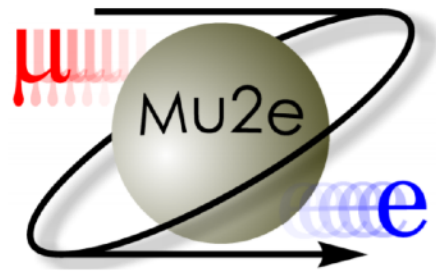

Binning case: 1 bin is 1 ADC channel

Binning case: 1 bin is 16 ADC channels

"**red**" fit by Gaussian – peak of ^{55}Fe (5.9 kEv)

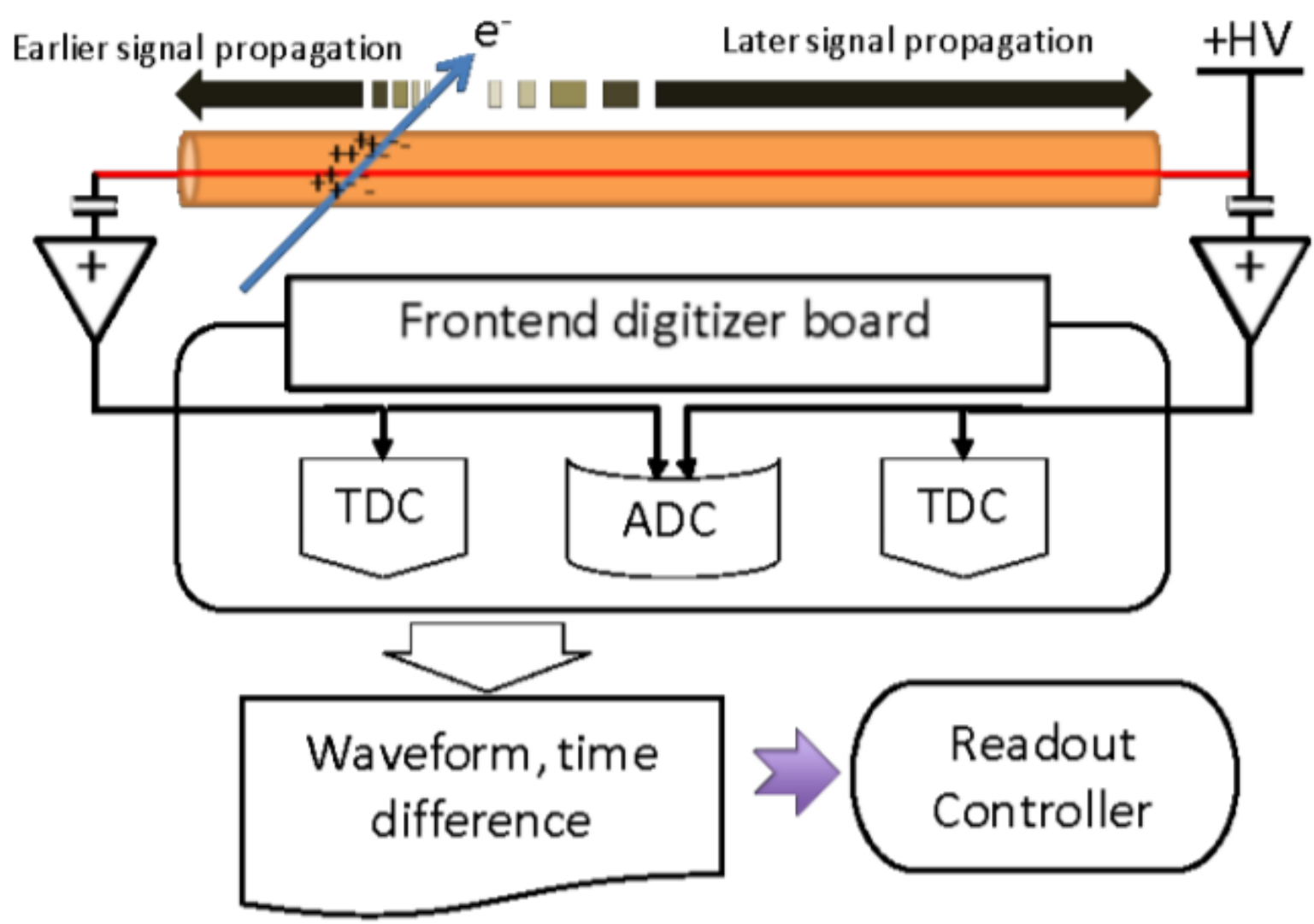"**blue**" fit by Gaussian – argon escape peak (2.7 kEv)

- The software to monitor the online data from VMM3 is created
- The known problem with built in 10-bit ADC non-linearity is appeared
- Nice distribution in case jointing/merging 16 ADC channels
- The resolution by peak of ^{55}Fe is about 15%

Mu2e Conceptual Design Report

TRACKER ELECTRONICS TIGER

In Turin the electronics based on the **TIGER** chip (Turin Integrated Gem Electronics for Readout) is developed for trigger-less readout *of the GEM detectors*.

Charge and time measurements provided.

TIGER parameters

5×5 mm^2 110nm CMOS technology

64 channels: preAmp, shapers, TDC/ADC, local controller

Digital backend inherited from TOFPET2 ASIC (SEU protected)

On-chip bias and power management

On-chip calibration circuitry

Fully digital output

4 TX SDR/DDR LVDS links, 8B/10B encoding

Nominal 160 MHz system clock

10 MHz SPI configuration link

Sustained event rate > 100 kHz/ch