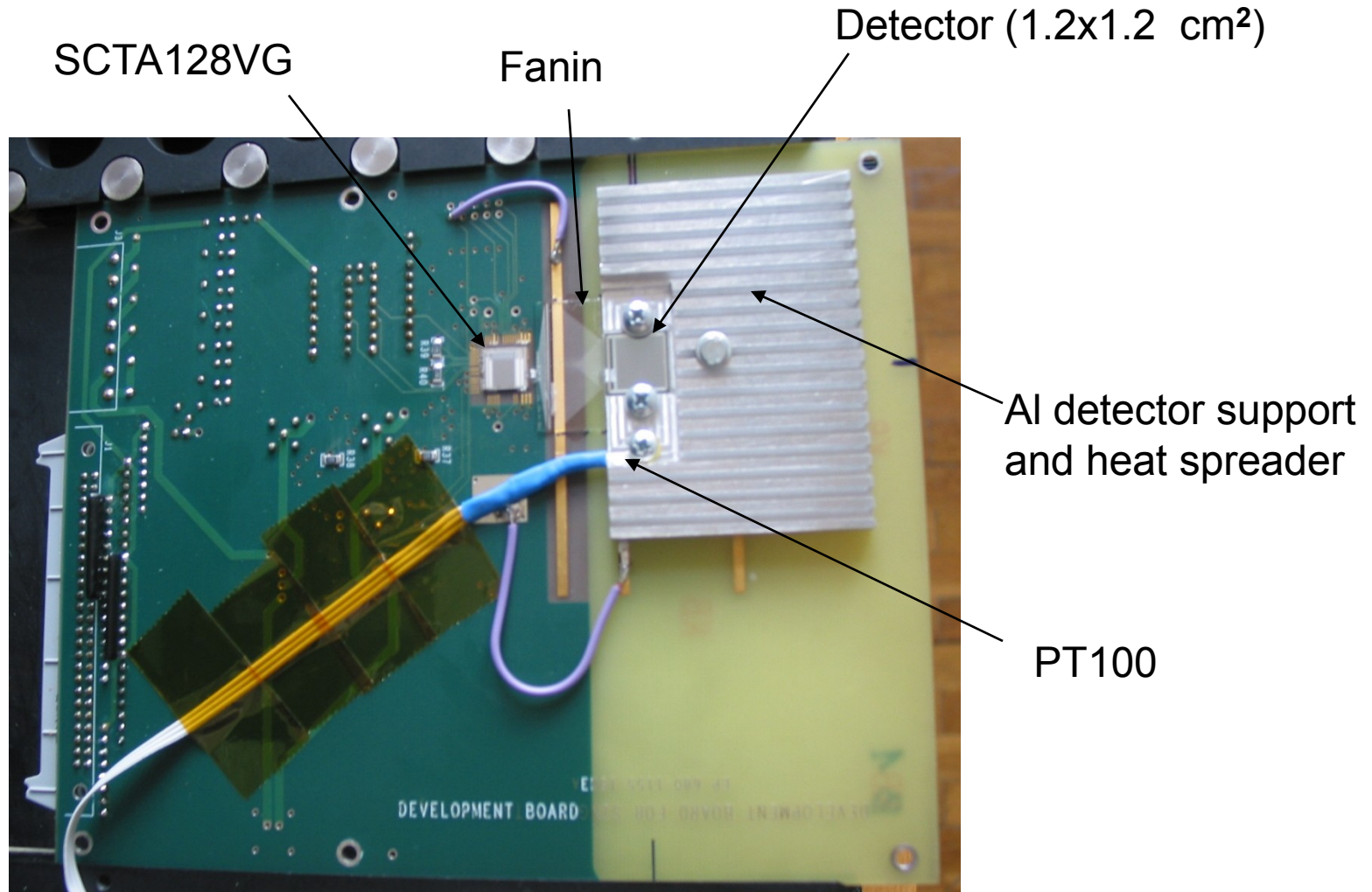


## Setup for measurements with SCT128 in Ljubljana:

- SCTA128VG chip
- drawings of test pcb from CERN (thanks to [Jan Kaplon](#))
- VME module SEQSI (for clock, commands...)
- Tektronix digital scope for data acquisition
- Cambridge LabView software for chip control (thanks to [Dave Robinson](#))
- data acquisition software (thanks to [G. Kramberger](#))
- pitch adapters from Freiburg (thanks to [Uli Parzefal](#))
- coincidence circuit made by [Erik Margan](#)
- $^{90}\text{Sr}$  source, photomultiplier, scintillator, power supplies....



# Test PCB



## Aluminium support structure

- dimensions: ~ 25 cm x 20 cm x 6 cm

$^{90}\text{Sr}$  source is inserted into the upper collimator

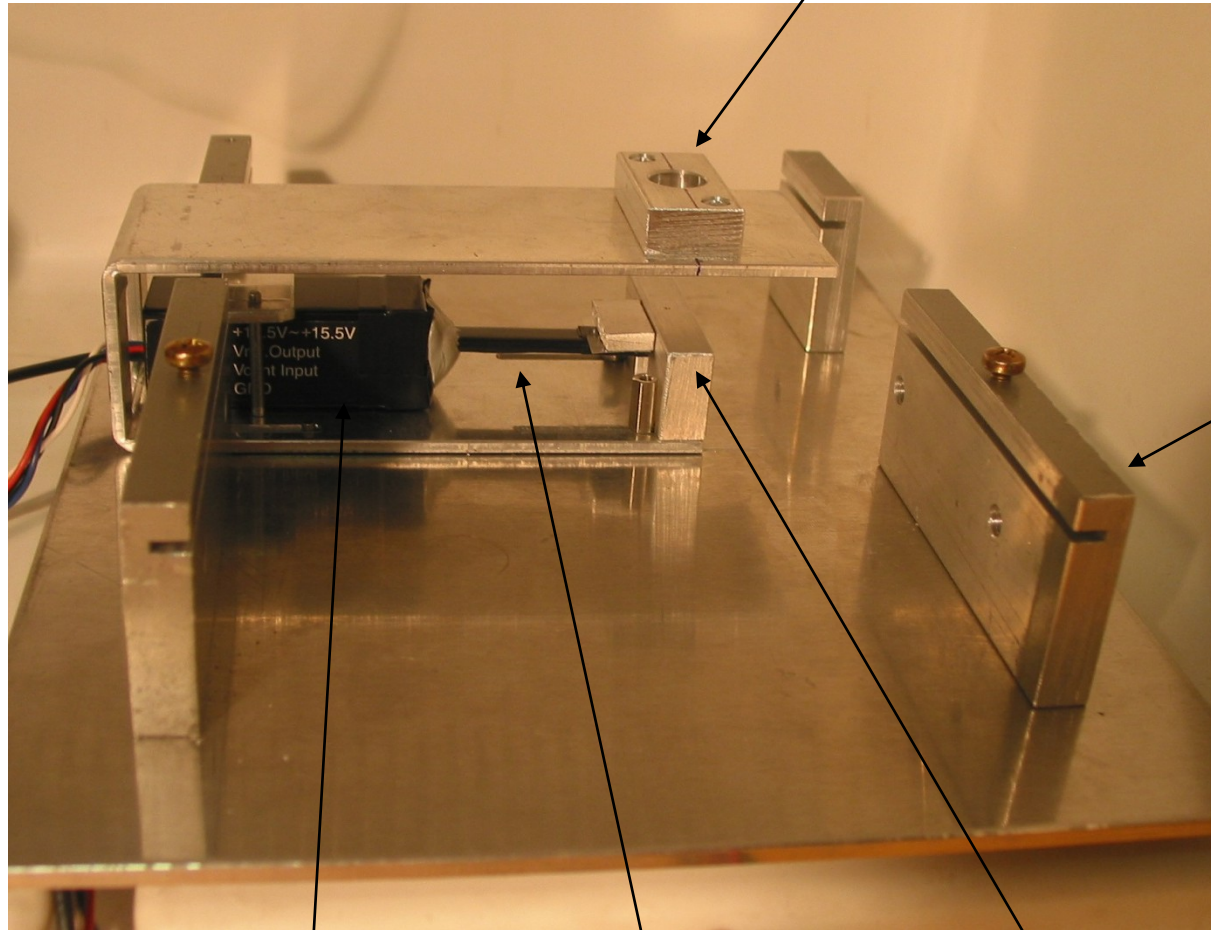


Photo Multiplier

Light guide

Scintillator is under the lower collimator

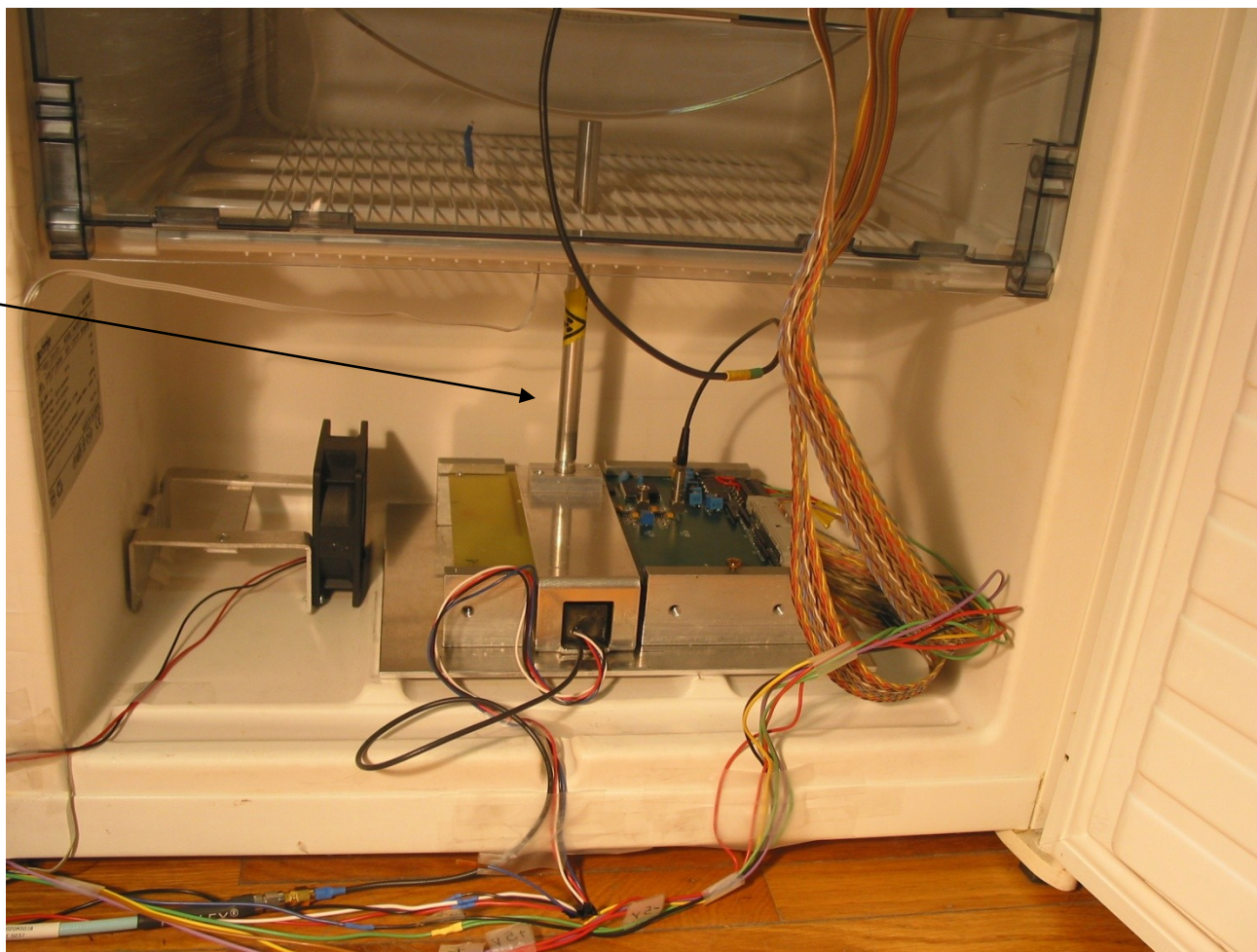
Test board holder





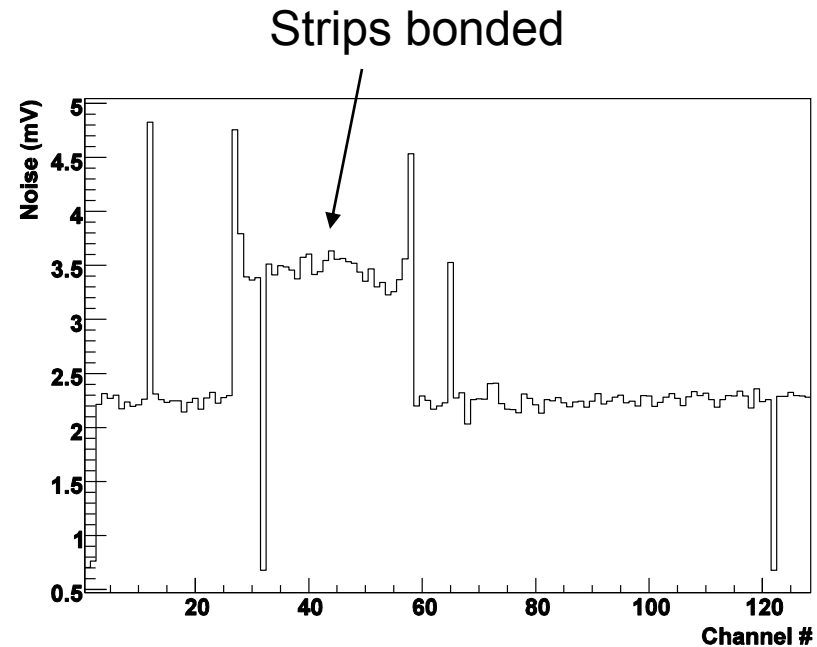
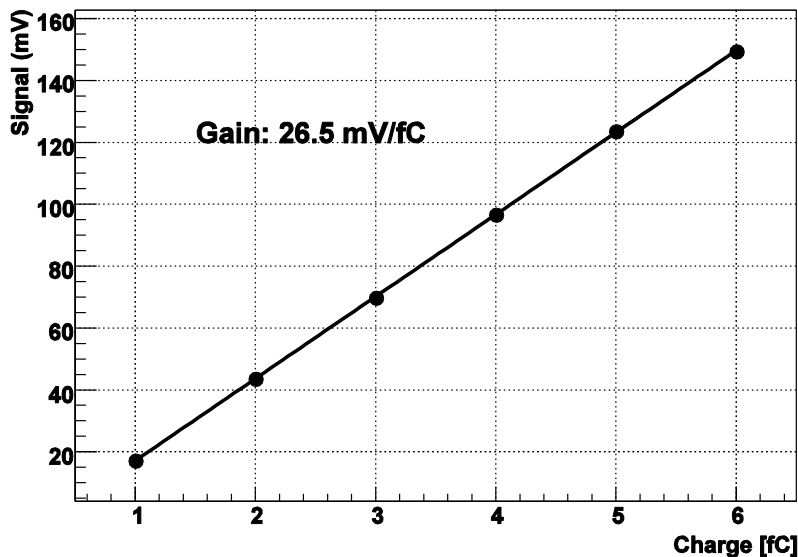
Setup in the freezer, temperature about - 20° C

$^{90}\text{Sr}$  source holder



# SCTA128VG chip

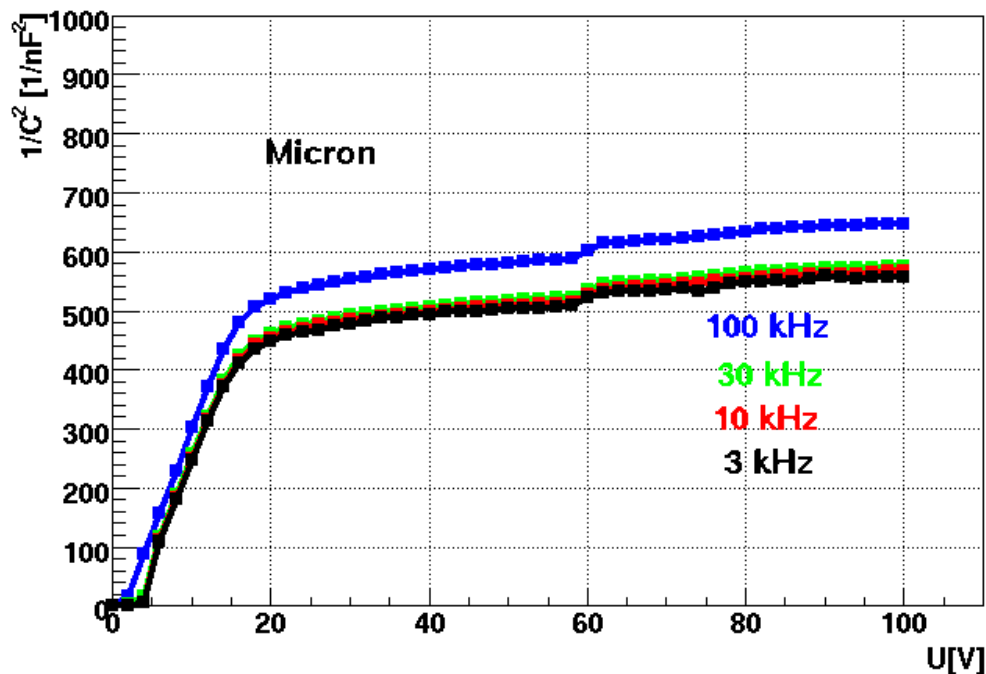
- 128 channels
- charge sensitive front-end amplifier with about 20 ns peaking time
- sampled every 25 ns (40 MHz sampling clock)
- Gain = 26.5 mV/fC = 4.2  $\mu$ V/el measured with calibration signals from on-chip capacitors ( $\sim 10$  % accuracy)
- noise with detector connected  $\sim 800$  el



## Detectors

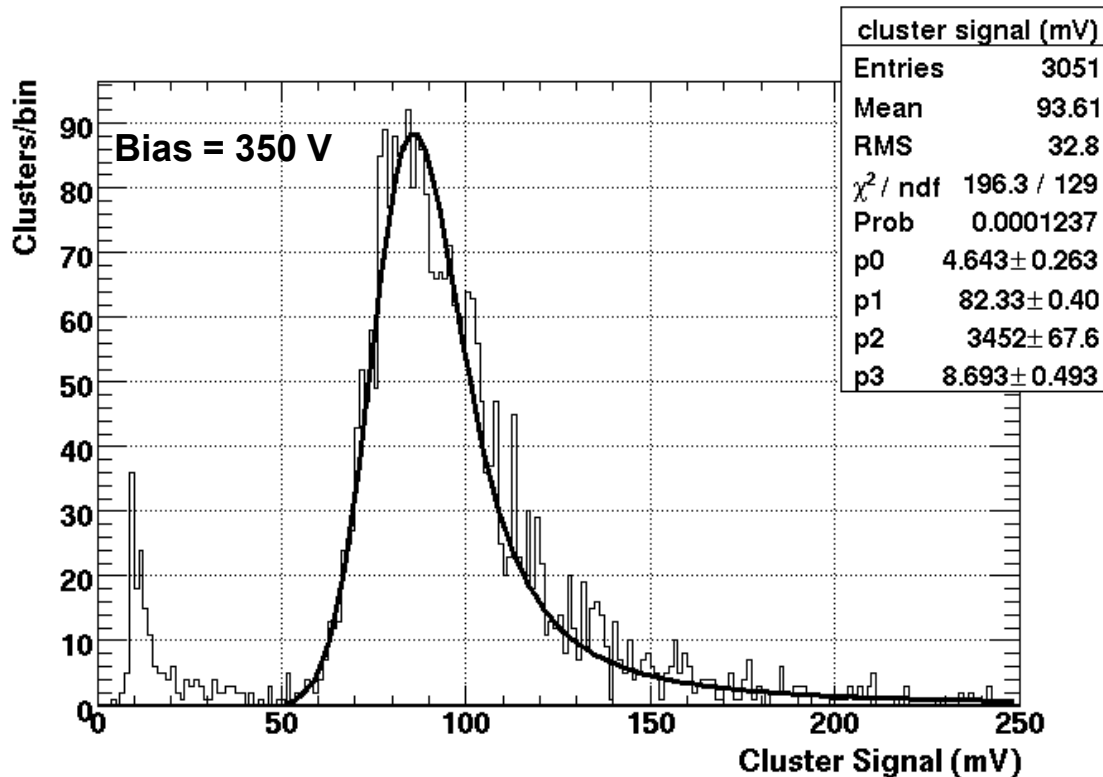
- p-type, FZ material, 300  $\mu\text{m}$  thick miniature ( $\sim 1 \text{ cm}^2$ ) strip detectors
- strip pitch 80  $\mu\text{m}$
- n-in-p capacitively coupled
- polysilicon biased, p-sprayed
- designed by Liverpool produced by Micron

CV measurement, contact through bias ring



## Measurements

- trigger: signals caused by electrons from  $^{90}\text{Sr}$  source in scintillator in coincidence with 40 MHz clock edge
  - spectrum of signals from strips (pedestals and common mode variations subtracted) fitted with convolution of Landau and Gauss functions
- “Most Probable Value” of the Landau function (parameter p1 in the plot below) returned by the fit is the measure of collected charge



## Pulse shape

- signal mean vs. trigger delay, before irradiation
- Bias = 200 V

