

# VMM and the SRS - update

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# Outline

- Summary from last presentation at Aveiro
- Progress
- Outlook

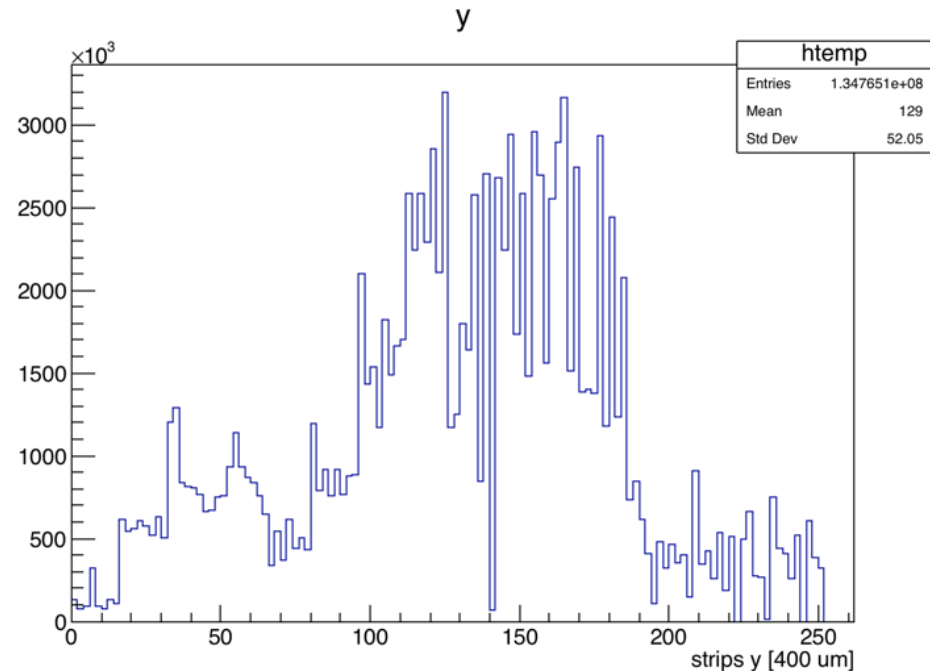
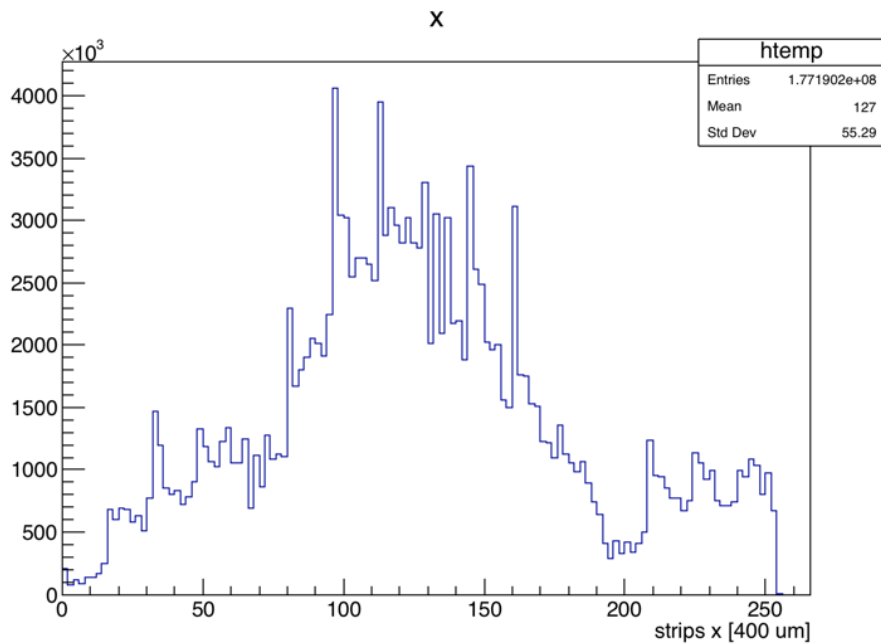
# Summary slide of presentation in Aveiro

- Permanent test setup in GDD lab
- Powering through SRS DCard is challenging
- New wire-bonded VMM2 hybrid works

## Outlook:

- Get ready to read out an ESS prototype detector with VMM at test beam in October

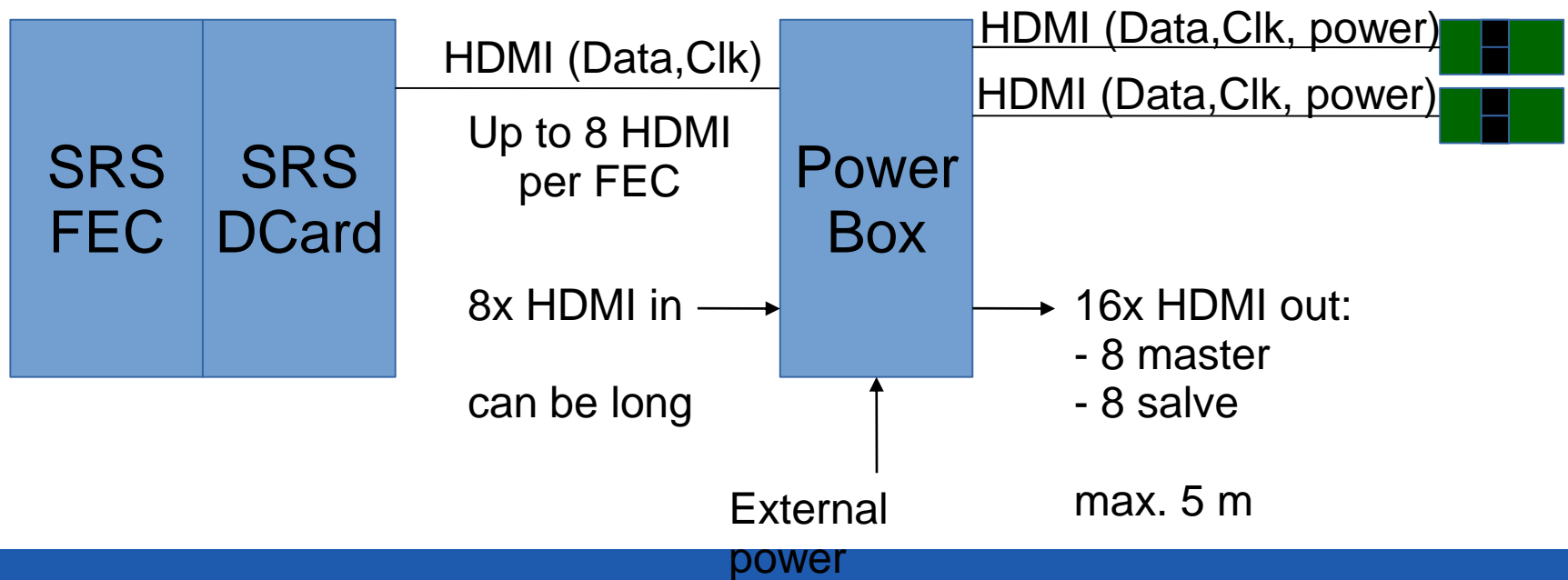
# Thermal neutron beam test at IFE/Norway Oct/Nov 2016



- Data taken with a 10 cm x 10 cm Gd-GEM with a trigger rate of 8 kHz
- Clustering has to be done based on BCID and TDC
- Trigger rate of 9.8 kHz necessary to avoid overflow of BCID with 40 MHz clock

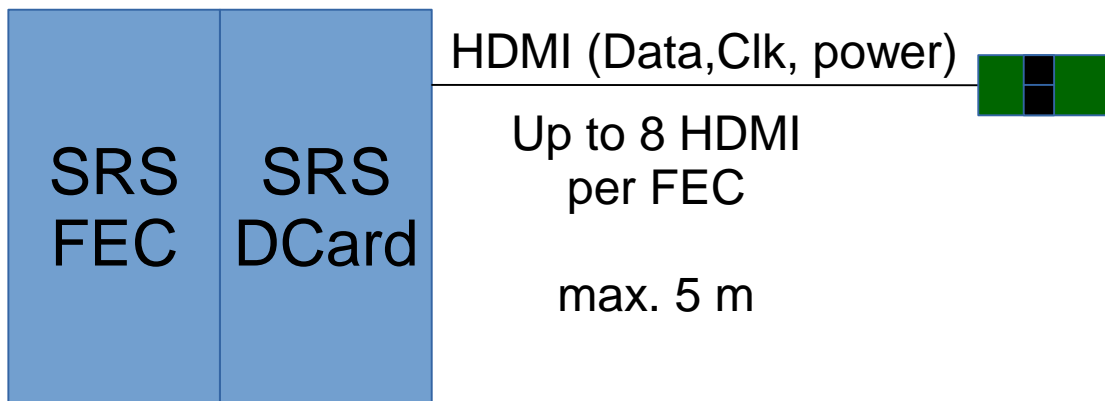
# Progress: Powering

- Powering through SRS DCard is challenging
  - can only be done with short (<5m) HDMI cables
  - new powering scheme:



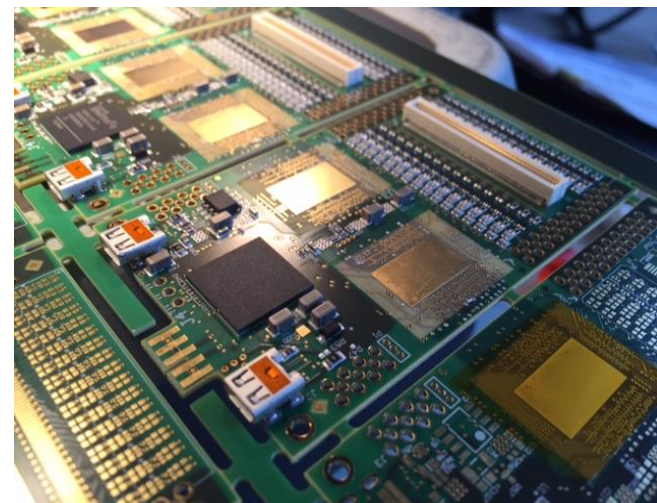
# Progress: Powering

- Powering through SRS DCard is challenging
  - can only be done with short (<5m) HDMI cables
  - old powering scheme still possible:



# Progress: Wire bonded VMM2 hybrid

- New wire-bonded VMM2 hybrid works
- Used at ESS test beam at IFE in Oslo for a short time test (limited beam time)
  - need cooling
  - need dedicated DAQ Software (thanks George, Dan for providing the “work in progress” NSW VMM software.



# Ongoing:

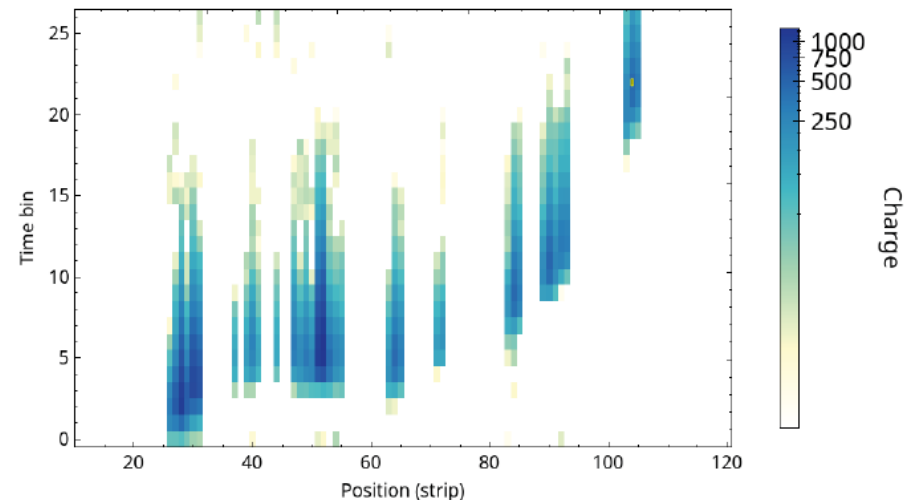
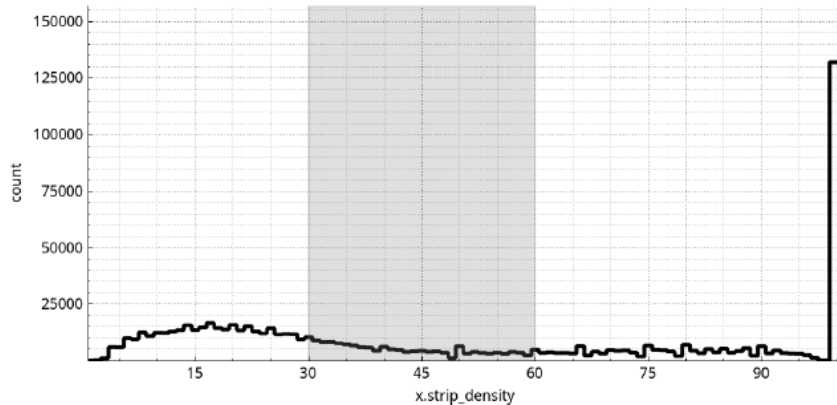
## Software development:

- Online monitoring, data acquisition, slow control

→ help from ESS/BrightnESS partners

e.g. Martin Shetty: Online Monitoring, Data analysis

## Spatial density



Spatial density is defined as percentage of valid strips out of the total strip span. Such events are either very noisy or likely indicate a high energy conversion electron.



# Ongoing:

## Software development:

- Online monitoring, data acquisition, slow control

→ help from ESS/BrightnESS partners

e.g. Morten Jagd Christensen: Fast UDP socket

# Ongoing:

## Software development:

- Online monitoring, data acquisition, slow control
- help from ESS/BrightnESS partners
- I am currently working on the slow control, George/Dans tool as starting point

The screenshot displays the VMM2 - SRS DCS control interface. It features several panels for configuration and monitoring:

- Control:** Includes IP addresses (10.0.0.2), command execution (APP/FEC), trigger acquisition parameters (TP Delay: 81, Trg Per: 61A80, ACQ Win: 4096), and reset buttons for VMM2, Warminit.FEC, and Reboot.FEC.
- Global Registers:** Shows hardware settings such as Ch. polarity (negative), Gain (3.0 mV/R), TAC Slop Adj (125 ns), and ADCs (10b, 8b, 6b).
- Channel R...:** A grid showing channel configurations for 29 channels, with columns for SPI, SC, SL, ST, SM, and SMX, and rows for channels 1 through 29.
- Calibration:** Displays timing and amplitude settings for each channel, such as 0 mV and 0 ns.
- Response:** Shows the response settings for each channel, including 0 ns and 0 ns.

# Ongoing: VMM3 hybrid

- Alex is working on it, about to be finished
- Will use wire bonded VMM3
- Reminder: VMM3 hybrid will have new connector!

FX10A-140S14-SV on Detector, FX10A-140P14-SV1 on hybrid

(there will be an adapter to the current samtec connector)