VMM and the SRS - update

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Outline

- Summary from last presentation at Aveiro
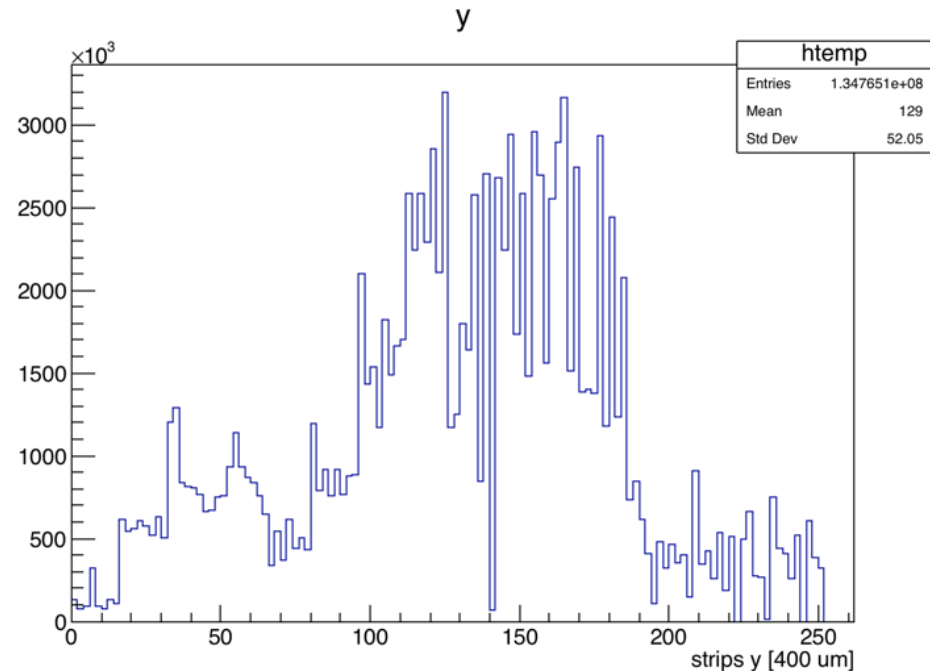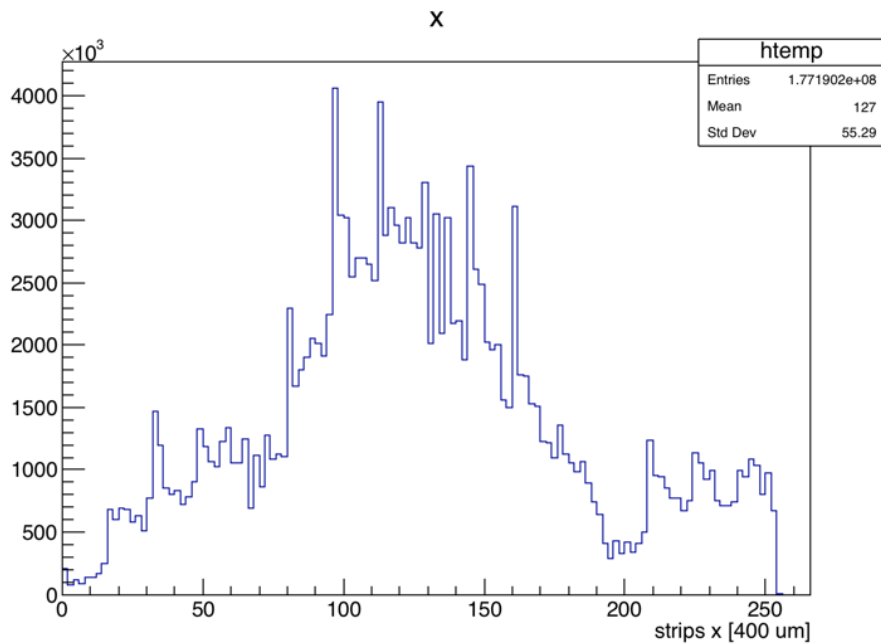
- Progress

- 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:

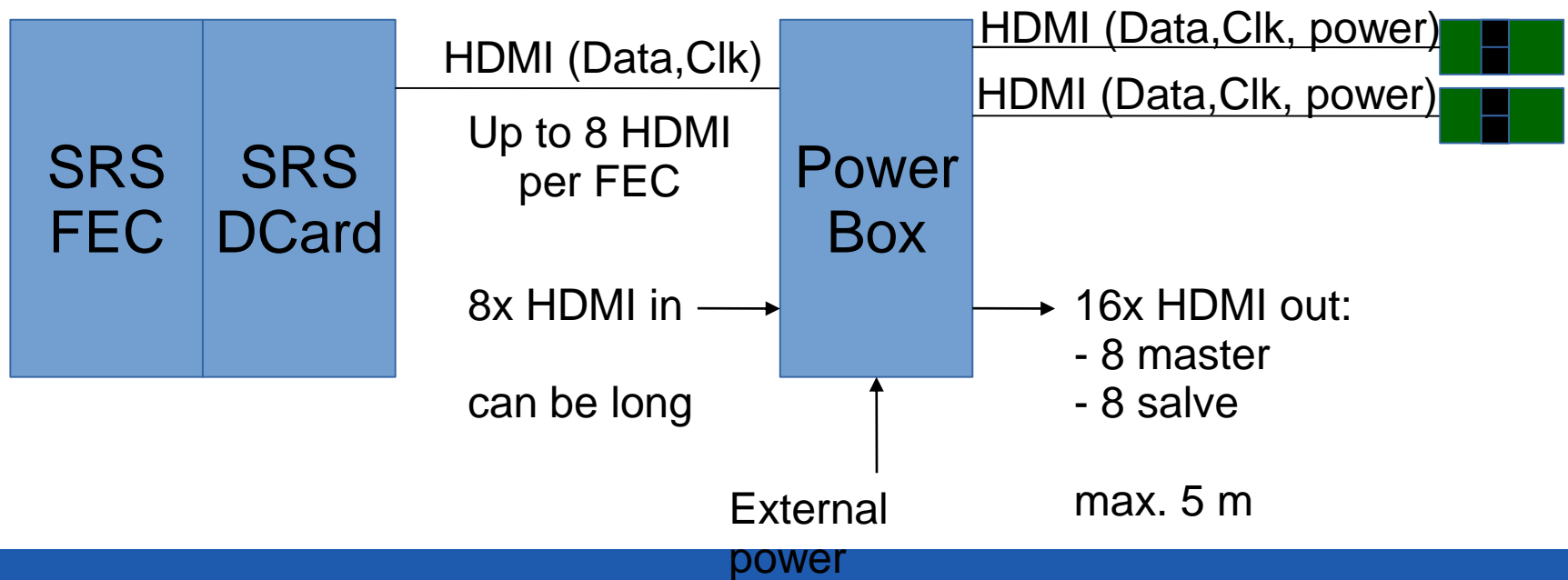- Get ready to read out an ESS prototype detector with VMM at test beam in October

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:

SRS FEC	SRS DCard		Power Box	

HDMI (Data,Clk)

Up to 8 HDMI per FEC

8x HDMI in →

can be long

External power

HDMI (Data,Clk, power)

HDMI (Data,Clk, power)

→ 16x HDMI out:
- 8 master
- 8 salve

max. 5 m

Progress: Powering

- Powering through SRS DCard is challenging

→ can only be done with short (<5m) HDMI cables

→ old powering scheme still possible:

SRS
FEC

SRS
DCard

HDMI (Data,Clk, power)

Up to 8 HDMI
per FEC

max. 5 m
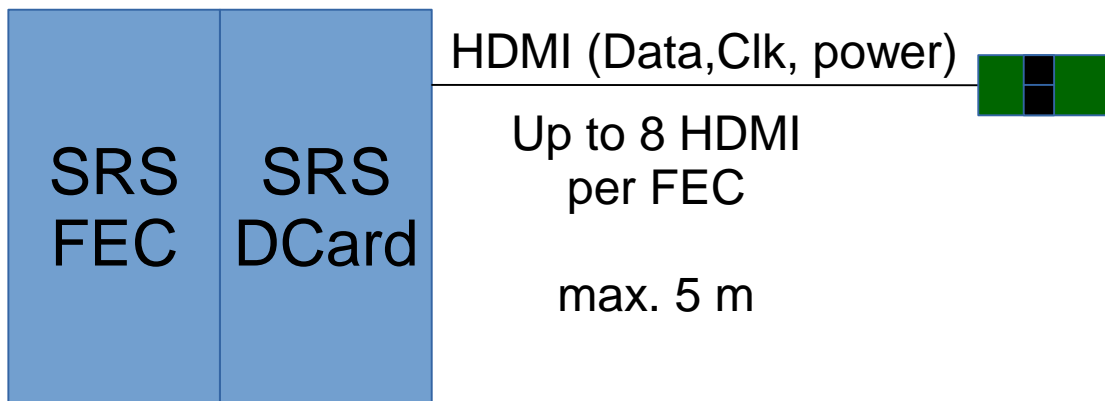
Progress: Wire bonded VMM2 hybrid

- 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.
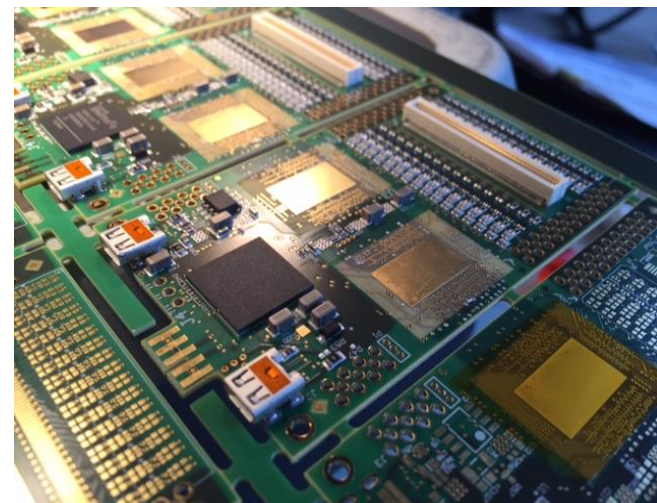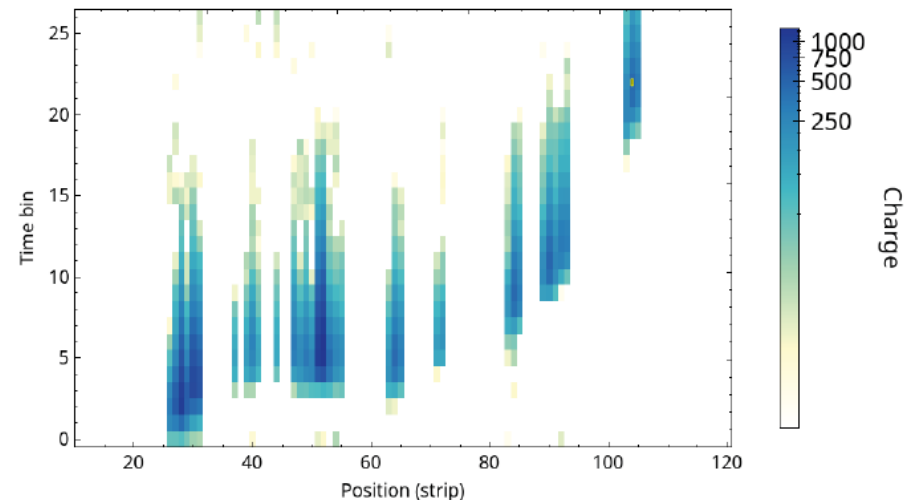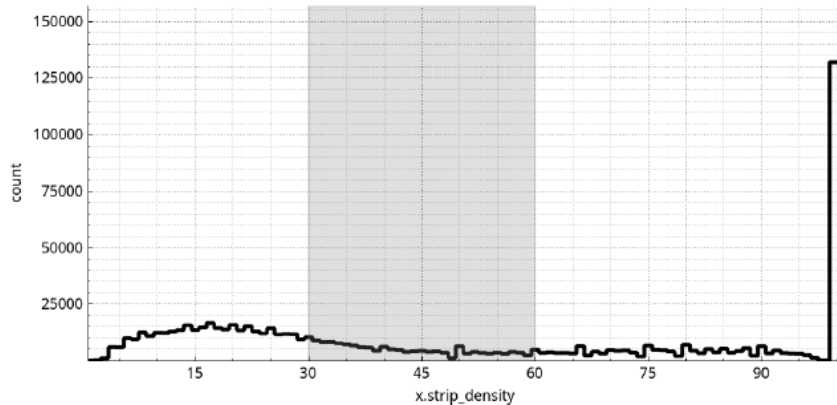
Ongoing:

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

$\rightarrow$ 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

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)