

Brief report of KEK linac exp.

2010/04/15

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main purpose of the beam time

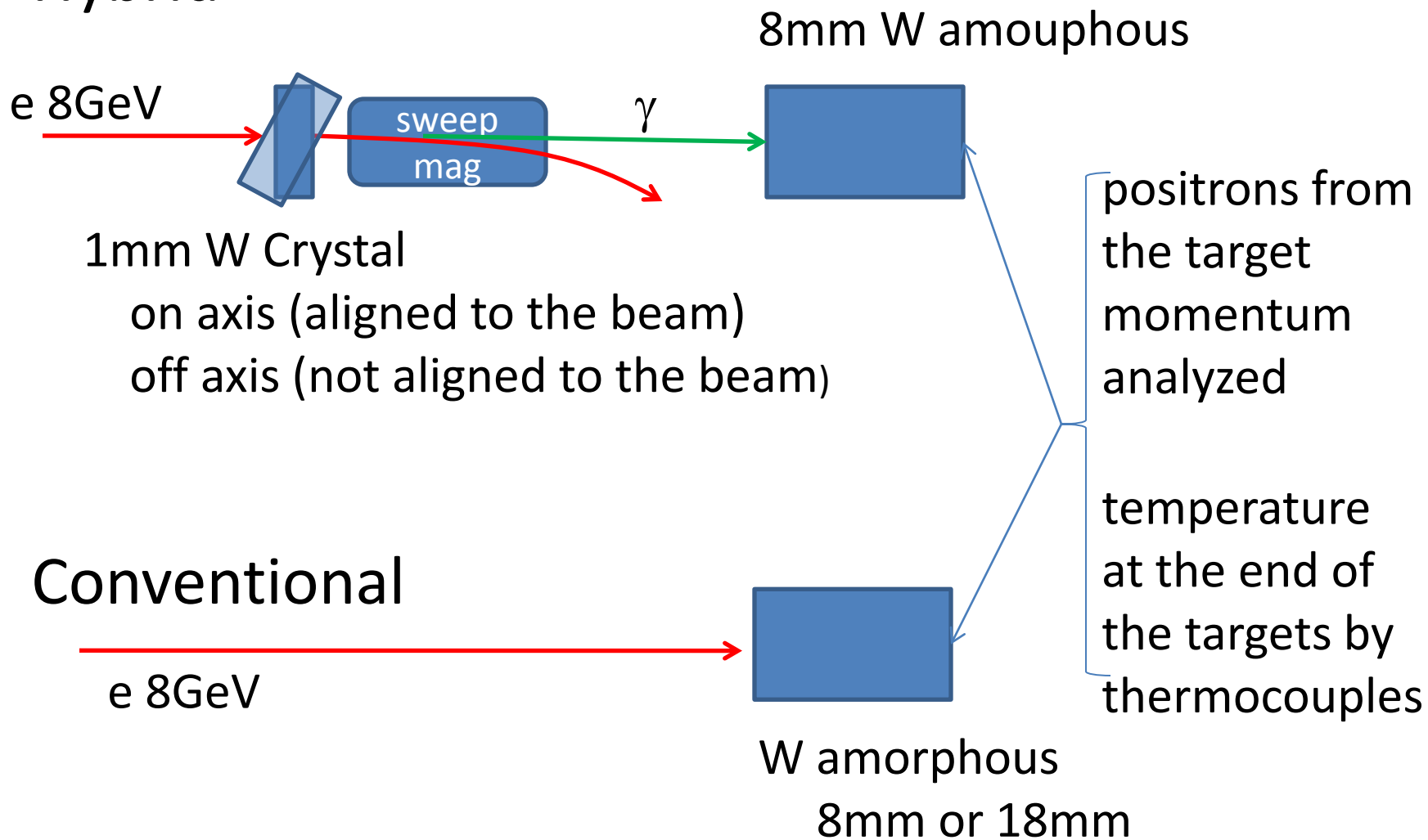
- establish methods of temperature measurements
 - by thermocouples
 - infrared thermometer
- momentum dependence
 - 20 MeV, 10MeV and 5 MeV

bunch charge was increased

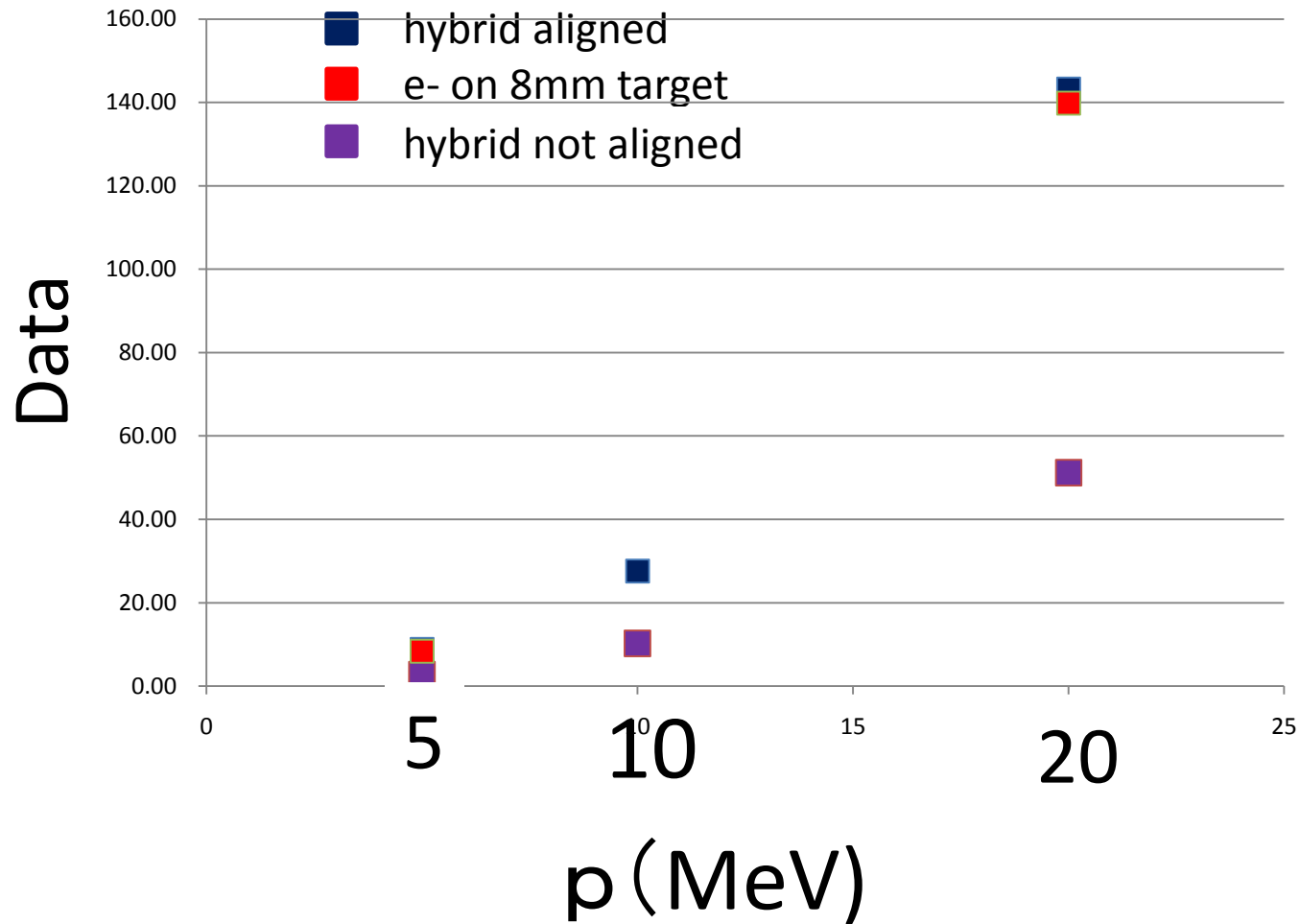
0.5nC/bunch in January → 1.5nC/bunch at monitor
about factor 2 larger on the target

data shown today

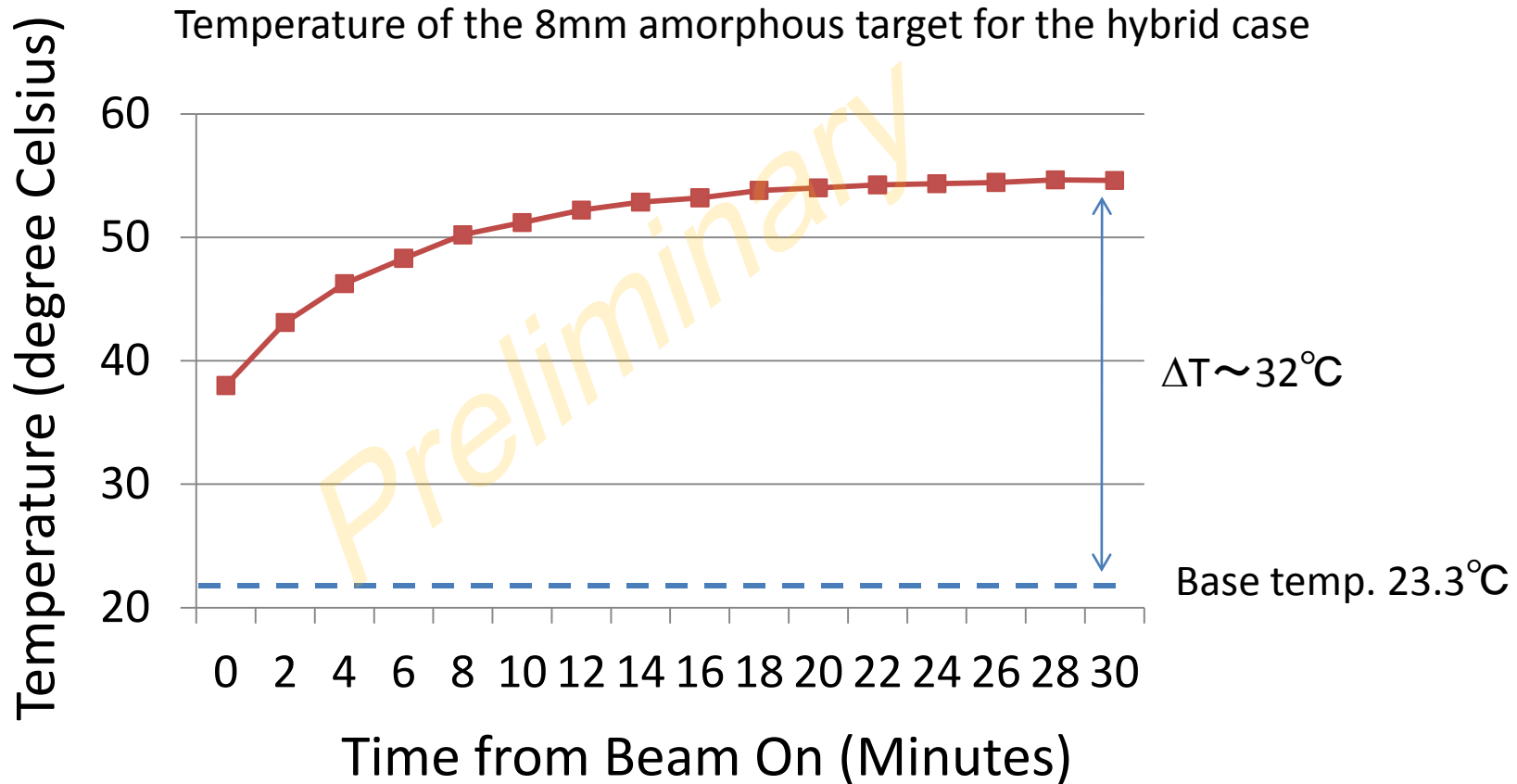
- Hybrid



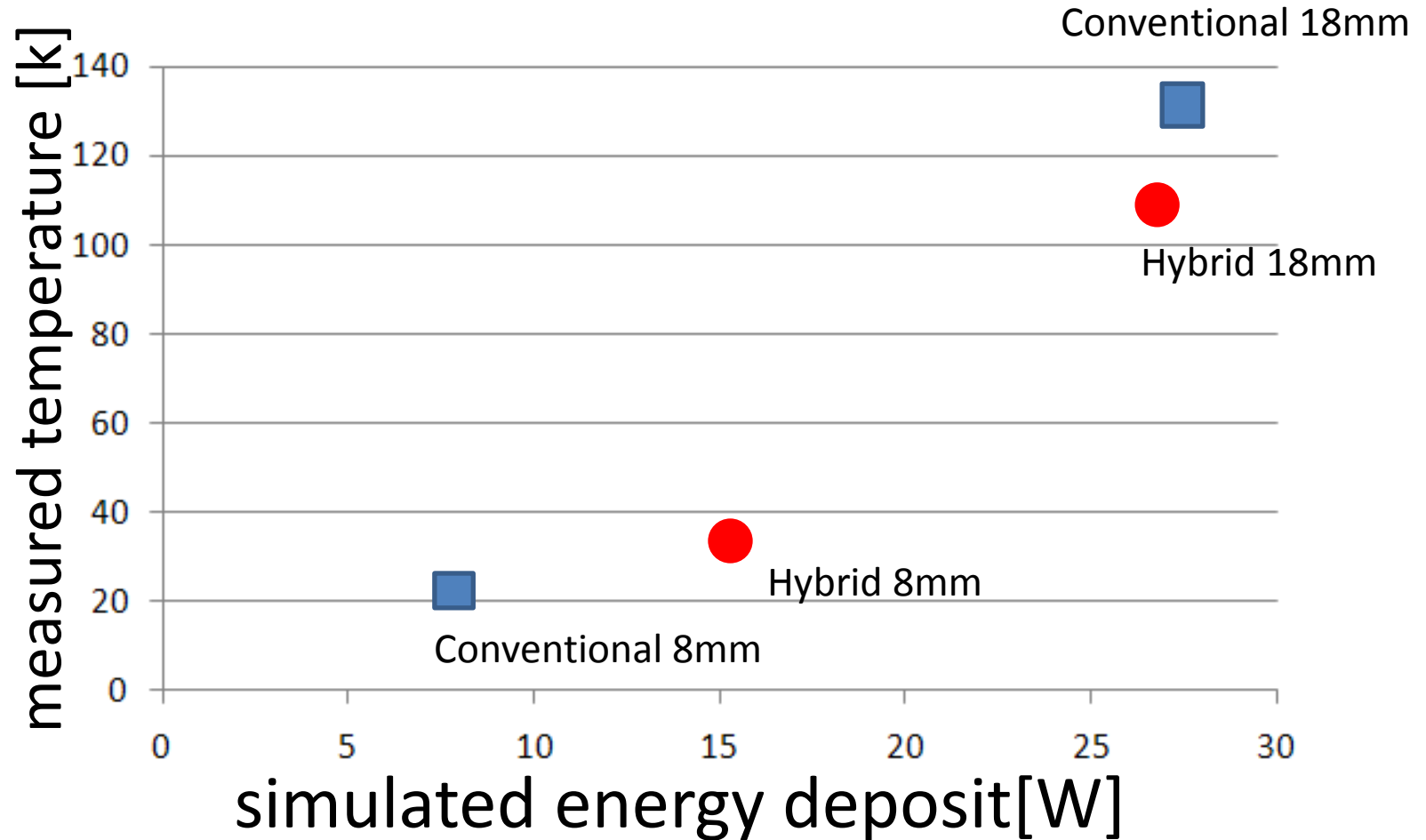
momentum dependence



Temperature Measurement



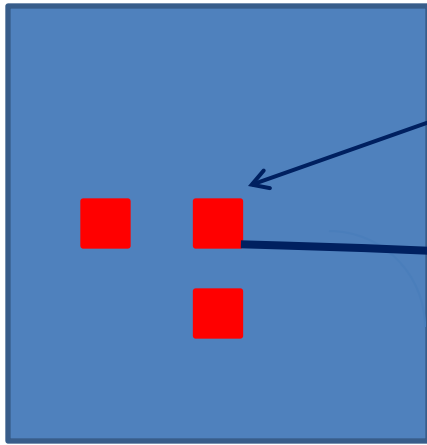
saturated temperature



Consistent with previous (January) data

Temperature measurement for each bunch

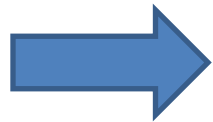
amorphous target



thermocouple
approximately 1mm x 1mm

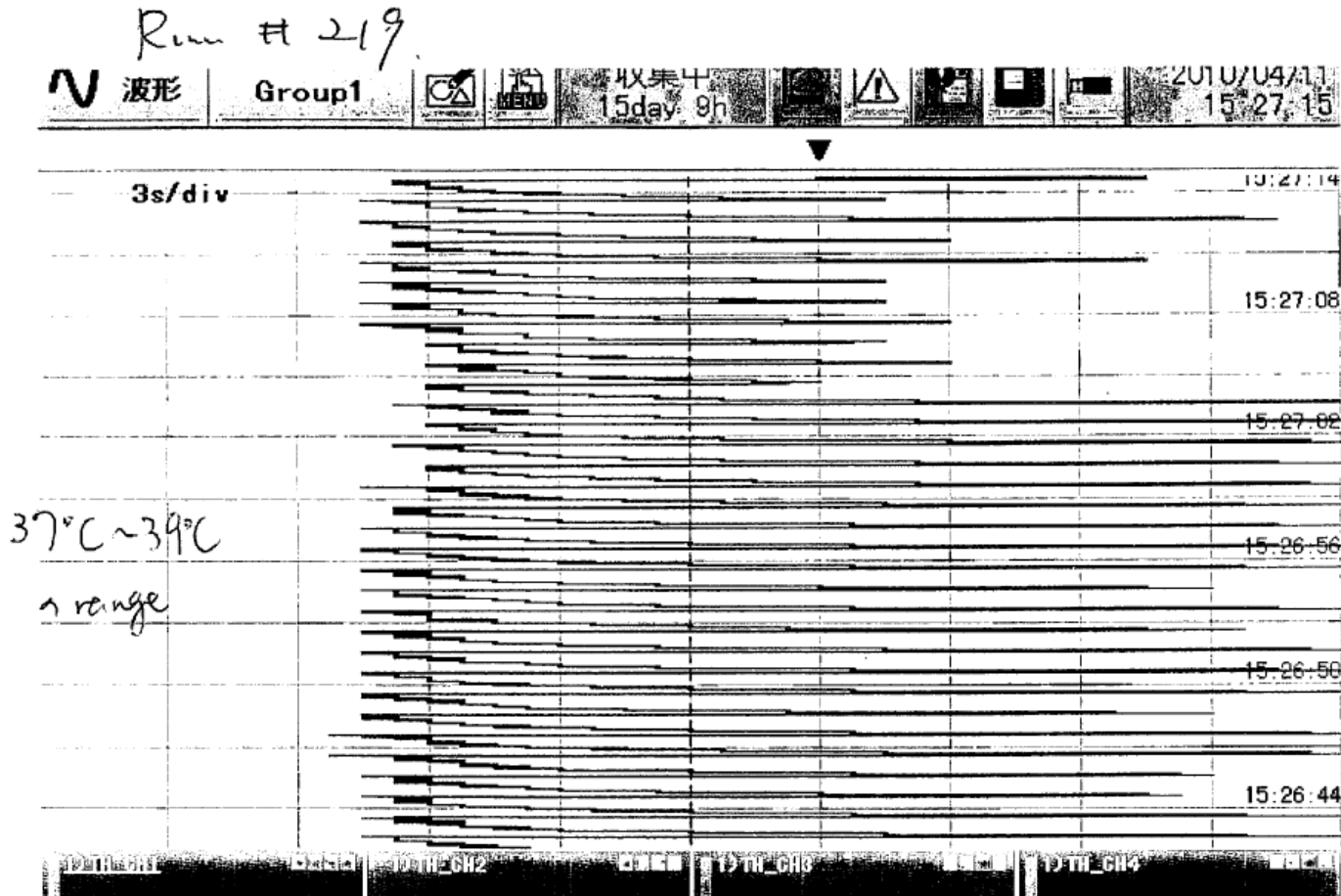
to fast data logger
read temperature
each 10ms

-> try to measure local temperature rise for each bunch



PEDD information by thermocouple

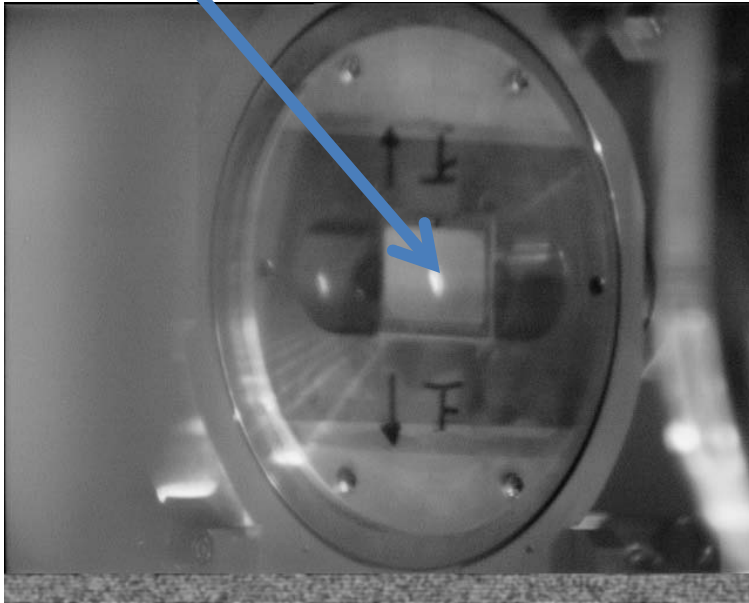
data w/ 1Hz operatoin



each spike corresponds to temperature rise by single bunch

beam profile

ON crystal



ON Amorphous



beam size on targets can be obtained from the profile data

Status and outlook

- in general, data appeared to be consistent with previous one
- temperature measurement with thermocouple seems useful
 - total energy deposit as well as PEDD
 - more to be analyzed
 - temperature data with the infrared camera was also obtained
 - yet to be analyzed
- momentum distribution was measured for
 - 20MeV, 10MeV, 5MeV

more detail for temperature expected in July