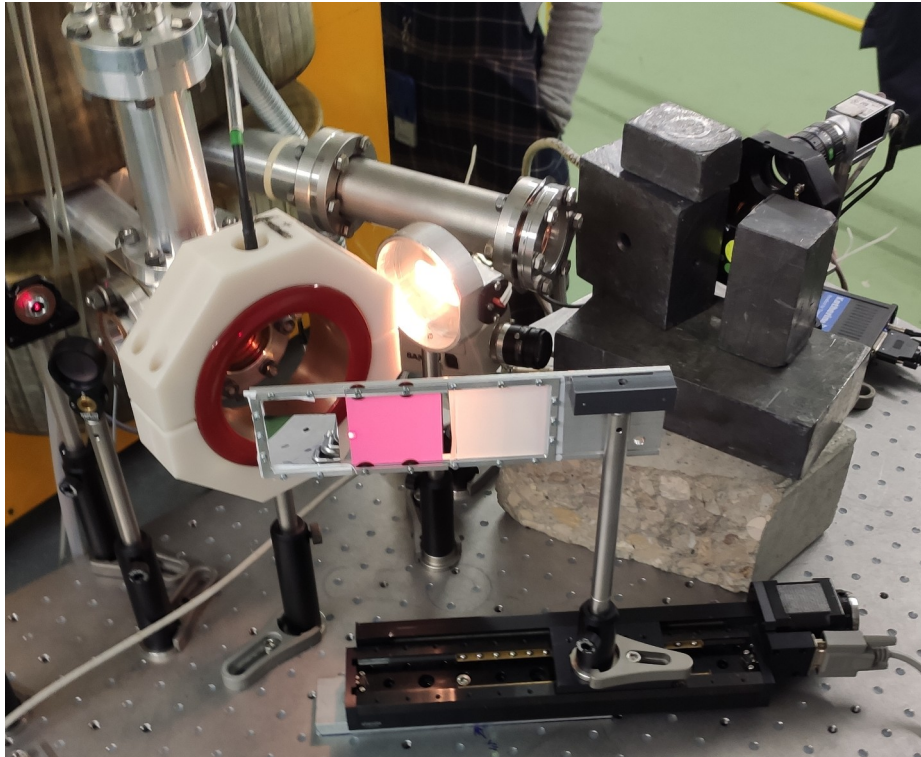


CLEAR screen test for EBTS

Scintillating screen tested:

- BNNT
- CHROMOX
- YAG



Beam at CLEAR :

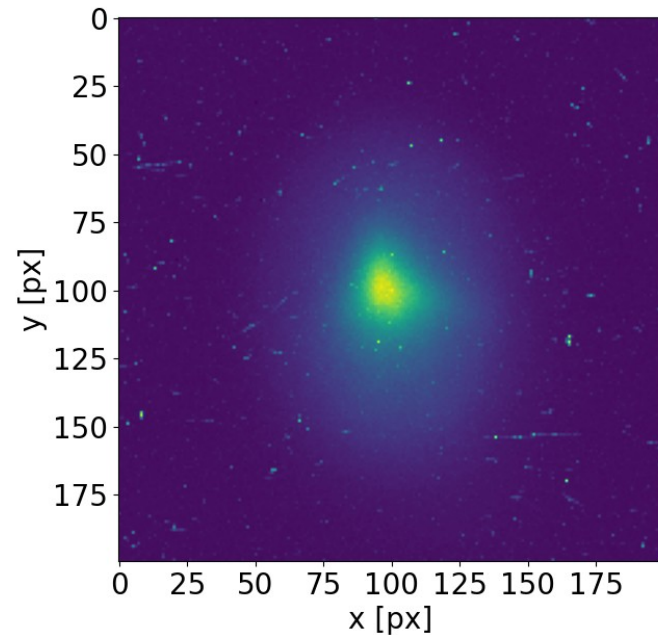
- Up to 48 nC/train
- $\sigma_{\text{transverse}}$ down to 0.5mm
- $E = 200 \text{ MeV}$
- **Charge density = 22 nC/mm²**
- **Deposit E density = 2.87 mJ/mm²**

Beam at EBTS

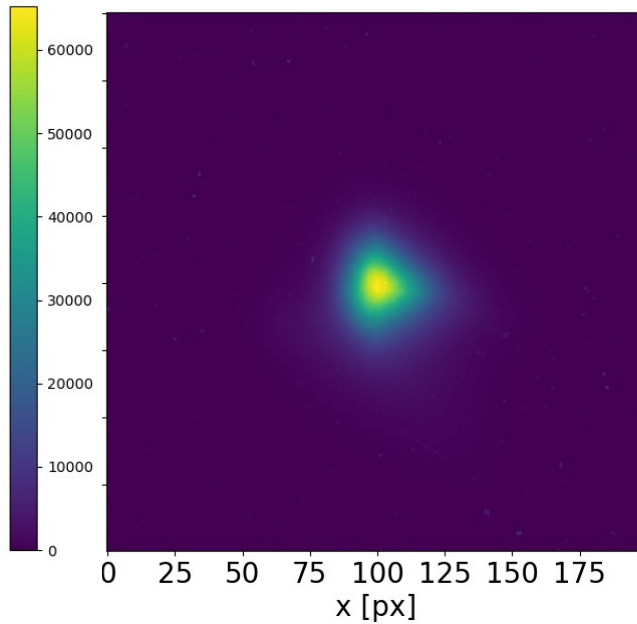
- $I = 1 - 5 \text{ A}$
- $r_{\text{out}}/r_{\text{in}} = 8/4 - 16/8 \text{ mm}$
- $E = 10 \text{ keV}$
- Pulse length = 10us
- Repetition rate = 1 Hz
- **Charge density = 17-332 nC/mm²**
- **Deposit E density = 0.17 - 3.31 mJ/mm²**

CLEAR Screen test for EBTS

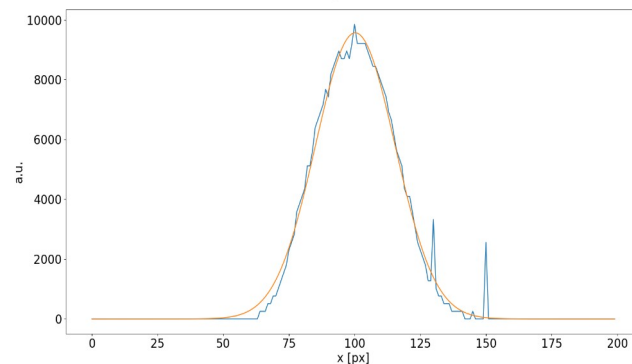
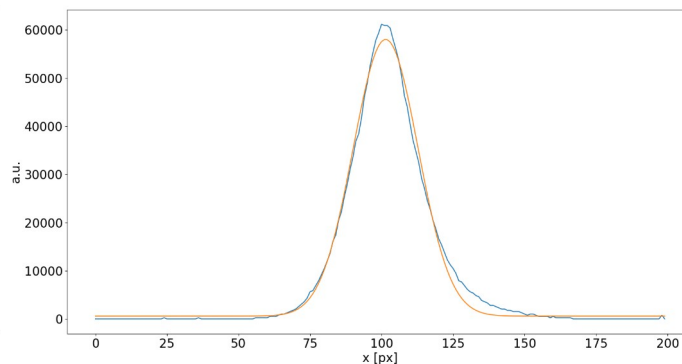
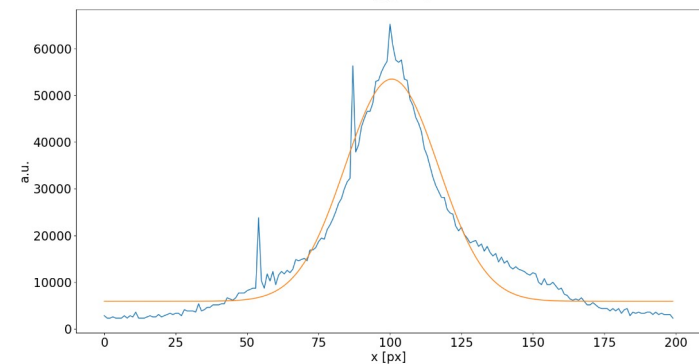
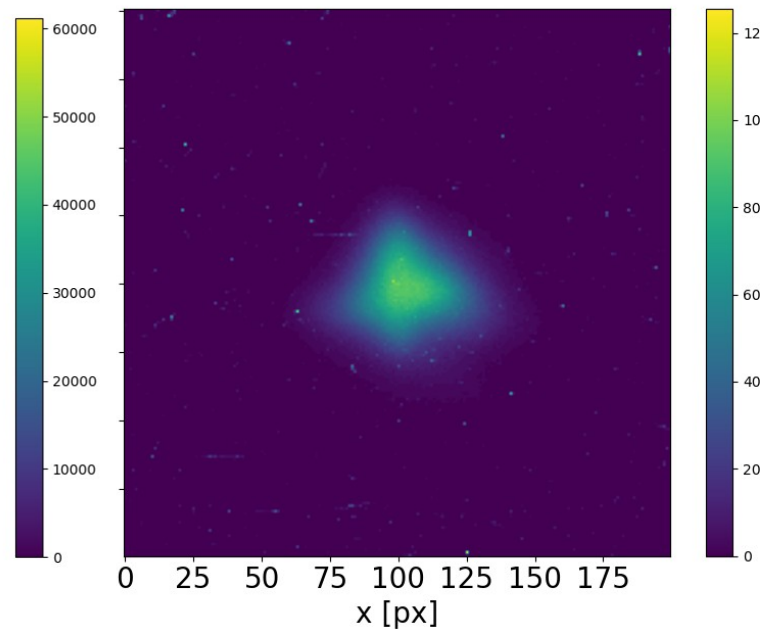
BNNT



CHROMOX

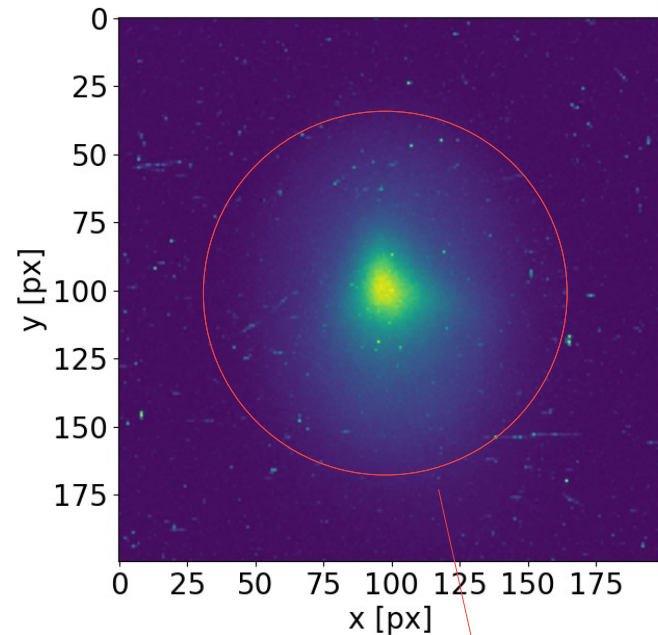


YAG

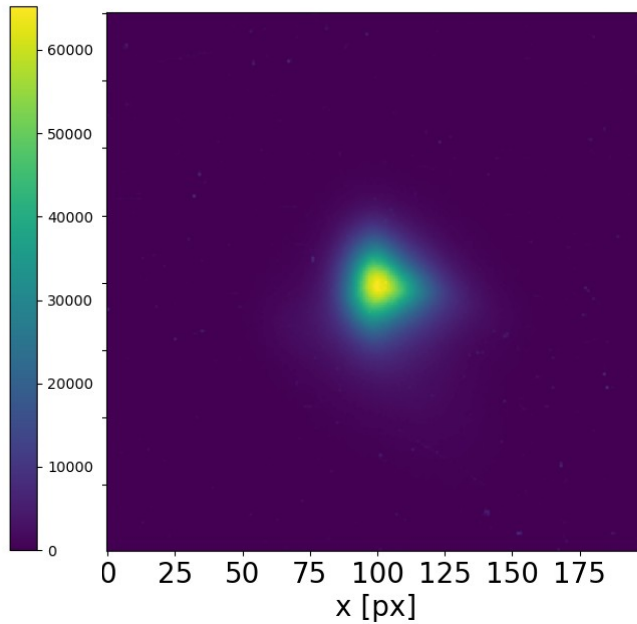


CLEAR Screen test for EBTS

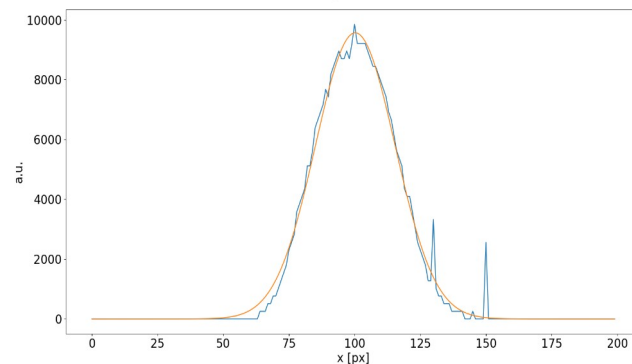
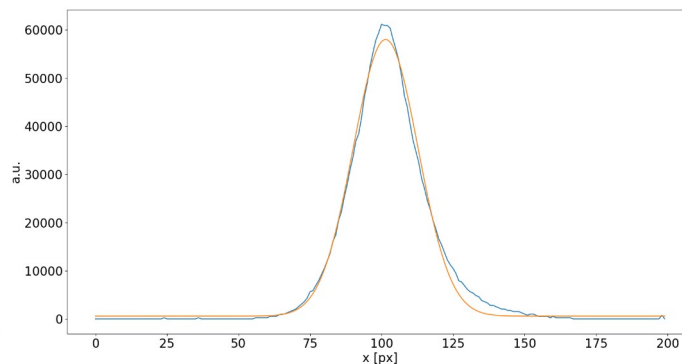
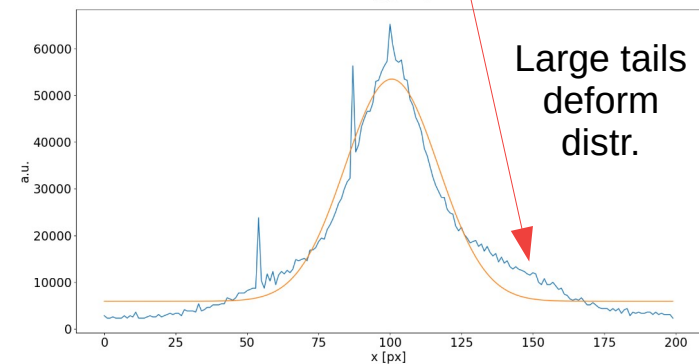
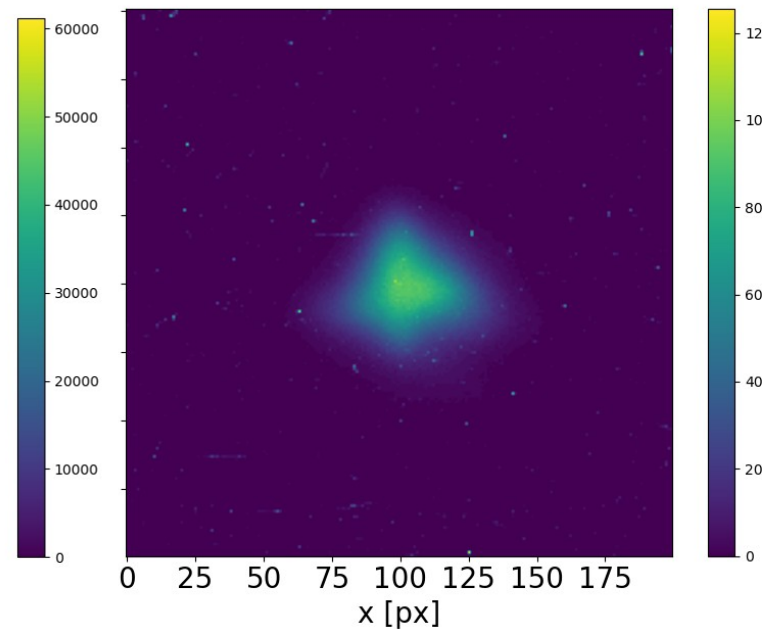
BNNT



CHROMOX

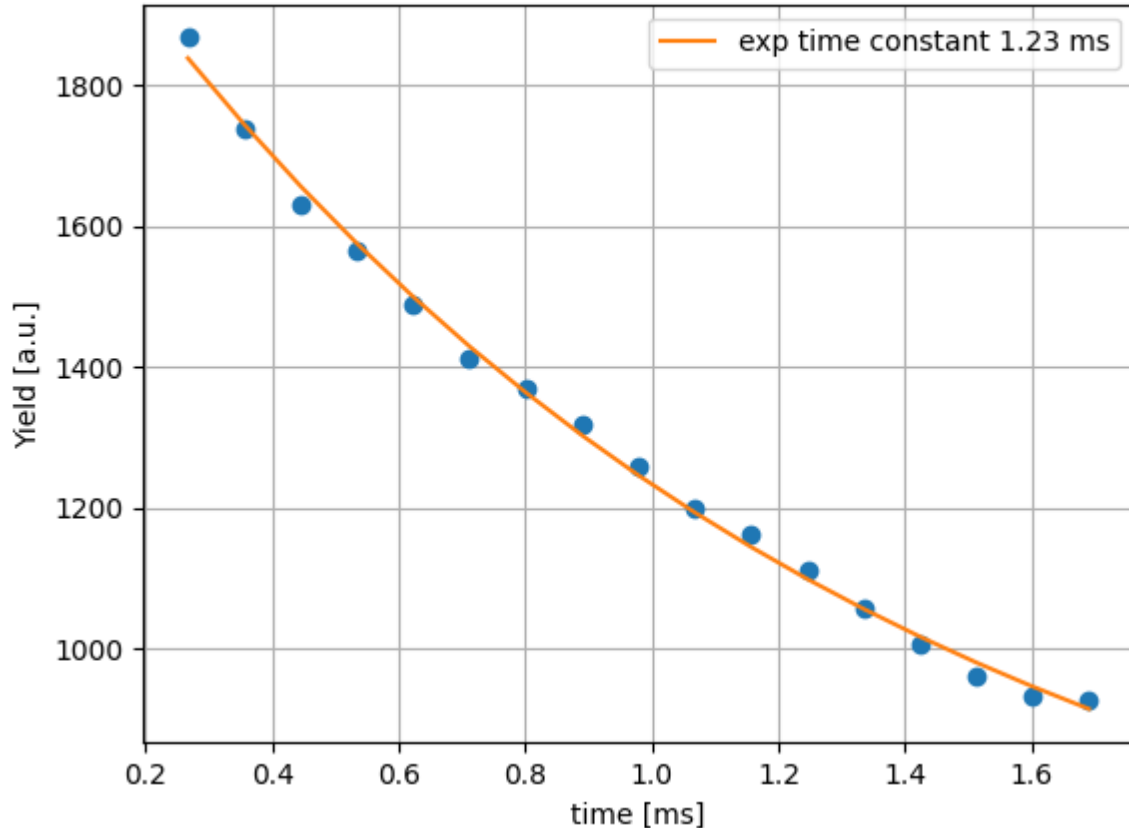


YAG



No damage observed at any screen

CHROMOX - timelife



Yield (normalized to CHROMOX)

- CHROMOX – 1
- BNNT – 0.025
- YAG – 5

Timelife

- CHROMOX – 1.23 ms
- YAG – 230 μ s

YAG – 9-11 weeks

CHROMOX – should be available

EBTS repetition rate = 1Hz

→ 1.23 ms is ok

Conclusion

- Chromox – best choice
 - Good yield, time-life and radiation hard
 - Should be available at CERN
- If time resolution needed?
 - Require OTR
 - Fast gated Intensified camera