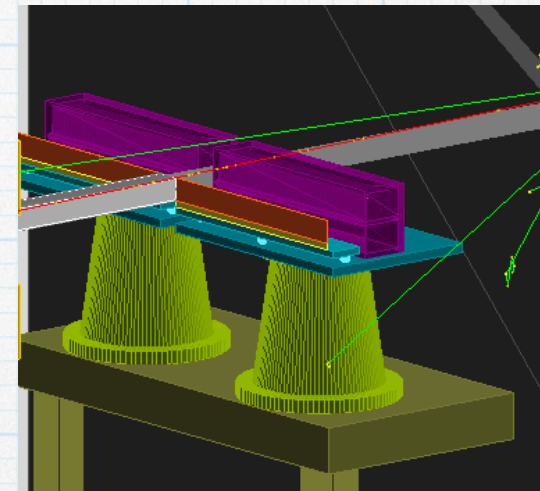


Photon flux measurements

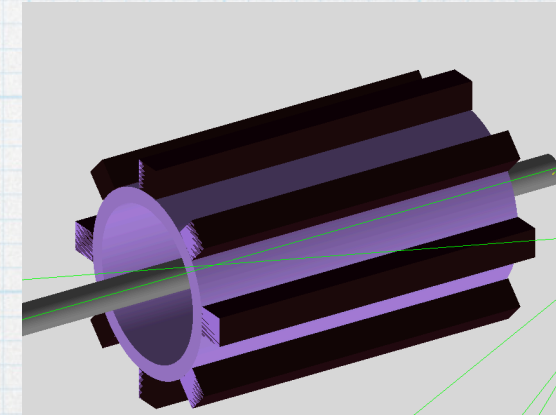
Tasks

To measure total flux of photons above some threshold
(\sim MeV-GeV)

- the technologies:
 - a) conversion detector



- b) backscattering calorimeter



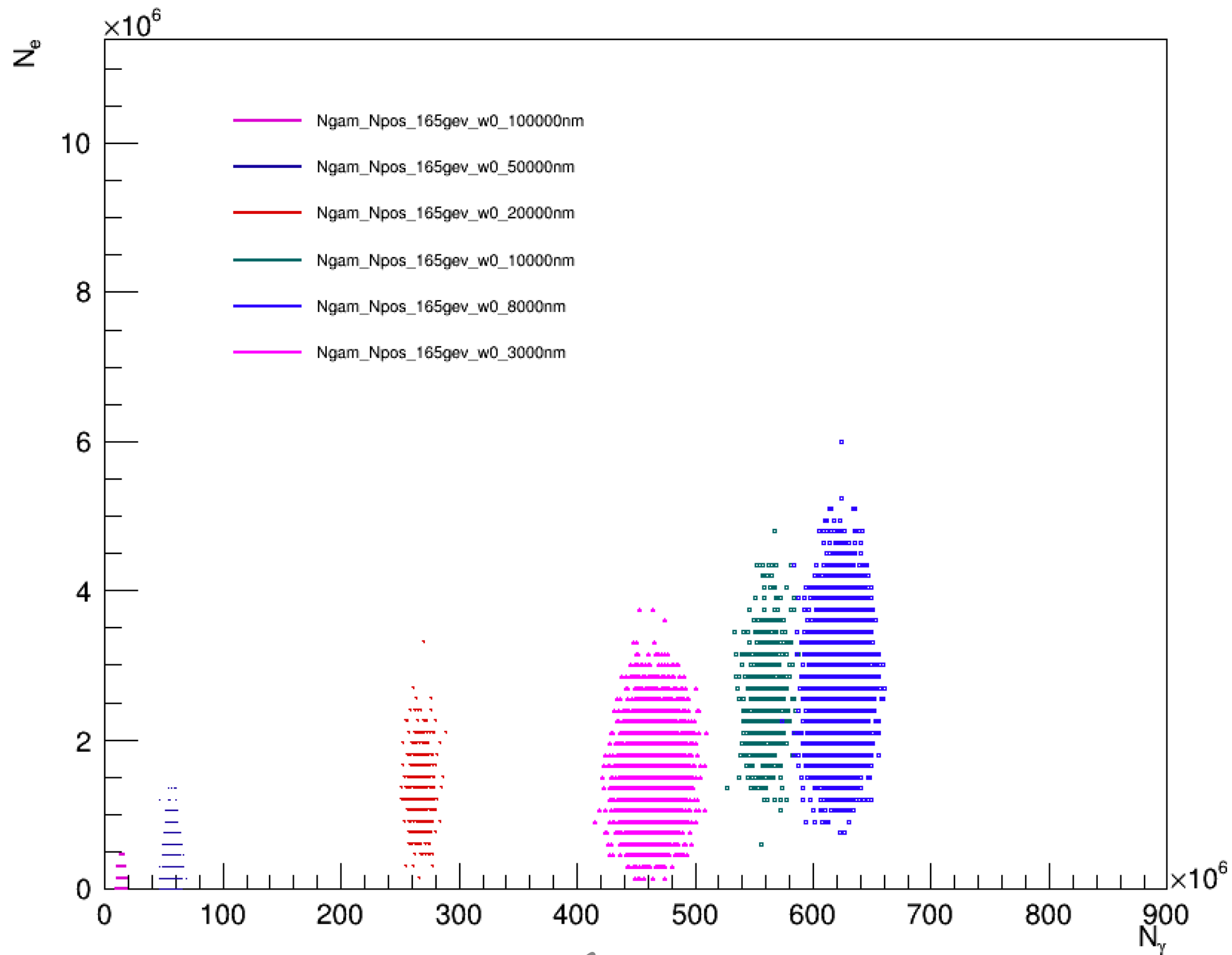
For the CDR

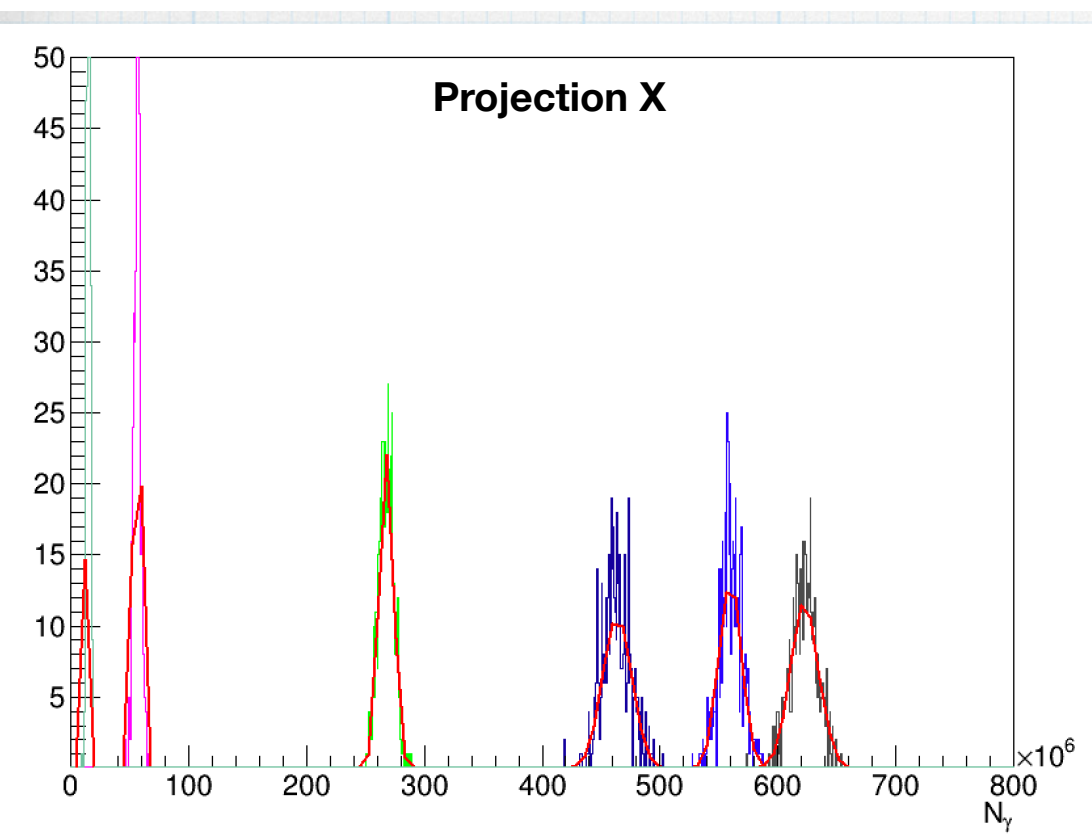
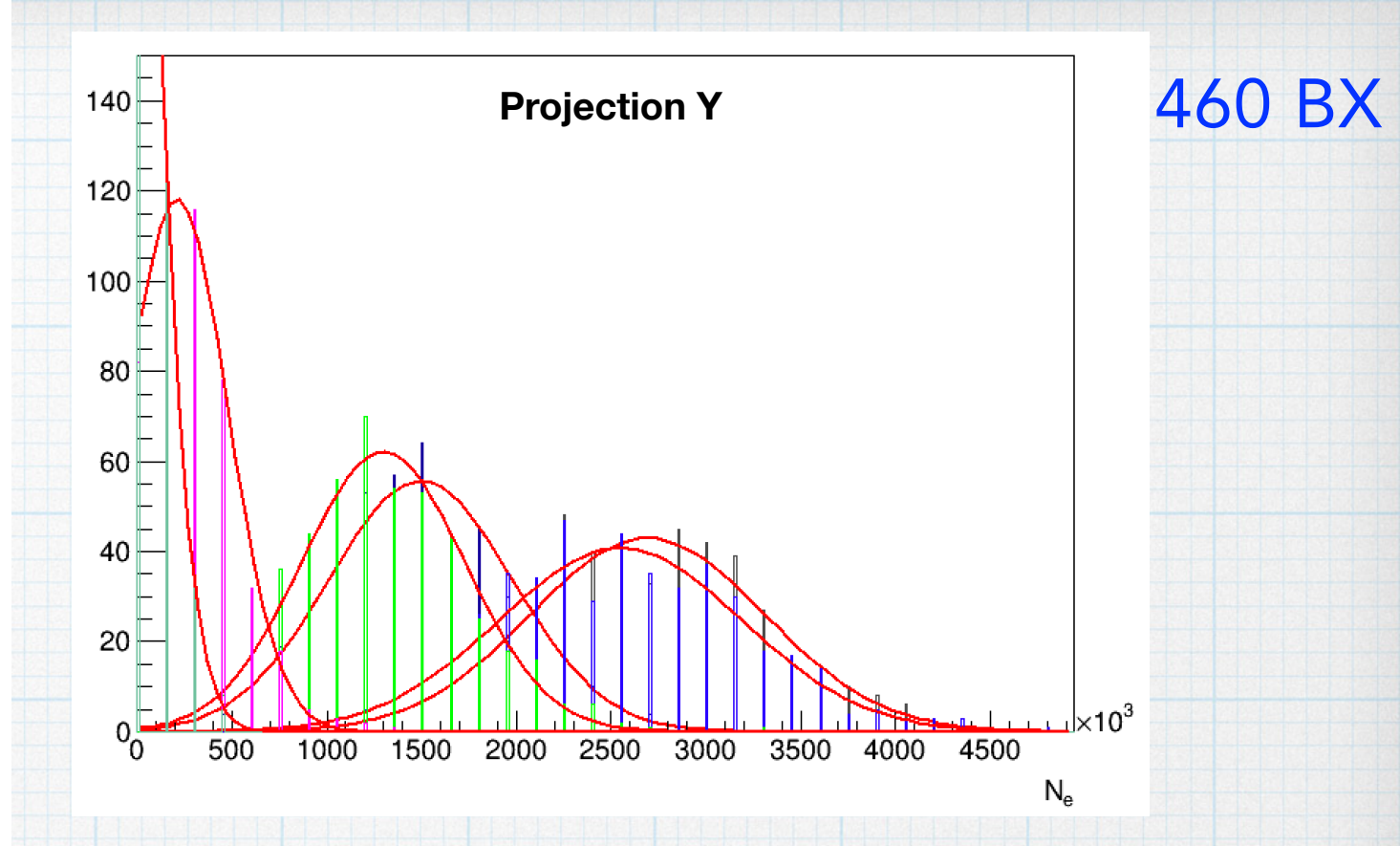
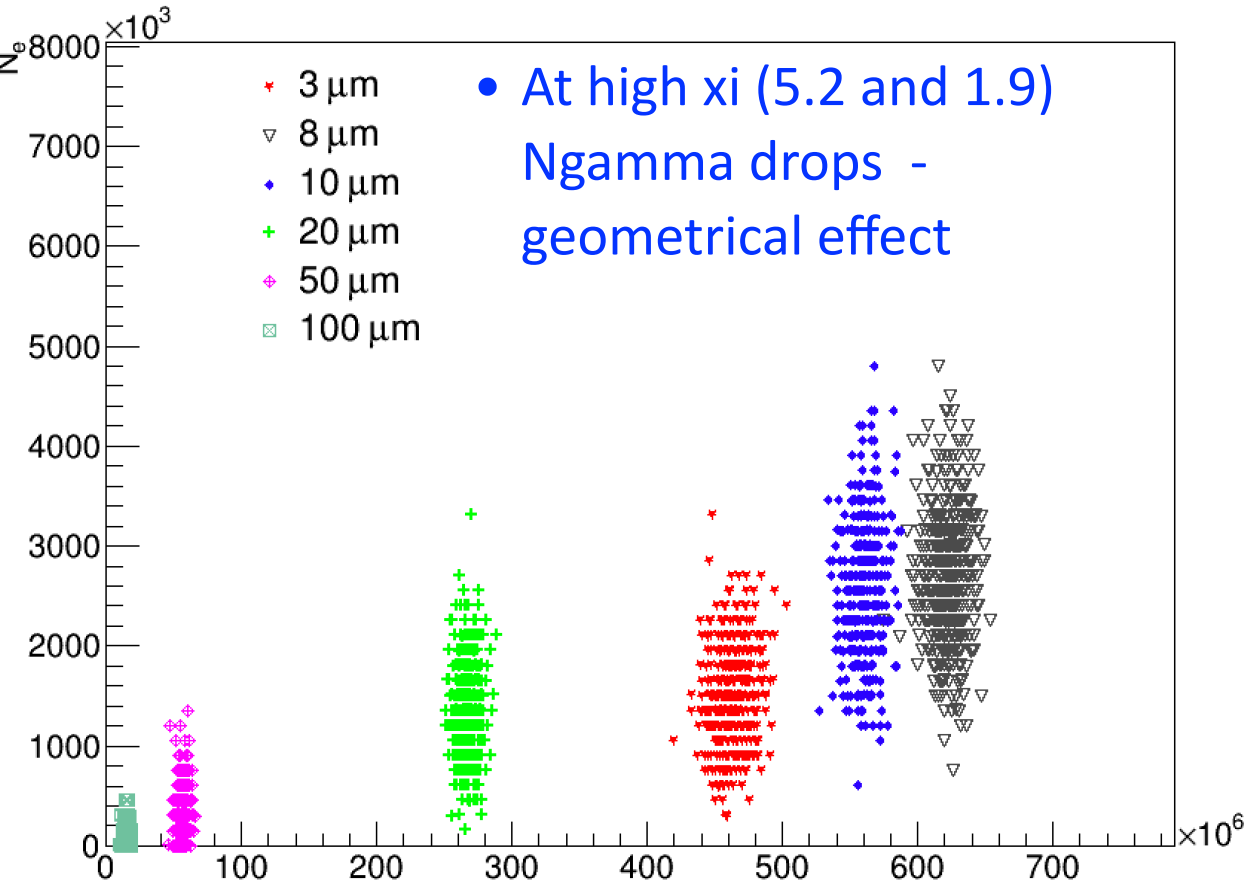
- a) quantify how well a) and b) can measure the flux and above which threshold \Rightarrow

show relative resolution on photon flux of the two technologies as function of number of photons

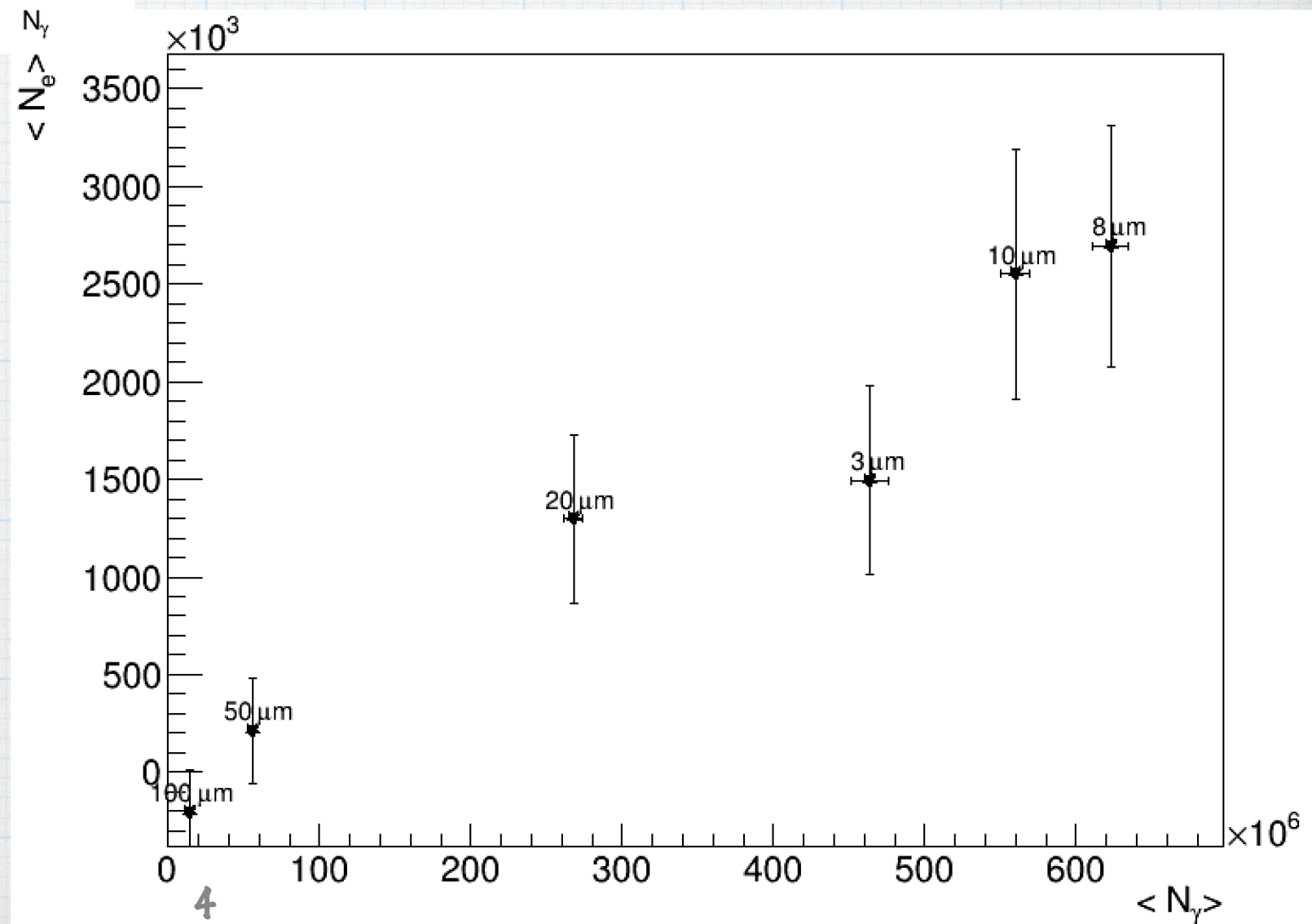
number of pairs vs number of photons per BX for different xi in Lanex scrteens (setup w/o beam pipe)

JETI40, 16.5 GeV, 50 um





• Spread in number of electrons is
substantial $\sim 25\text{-}30\%$

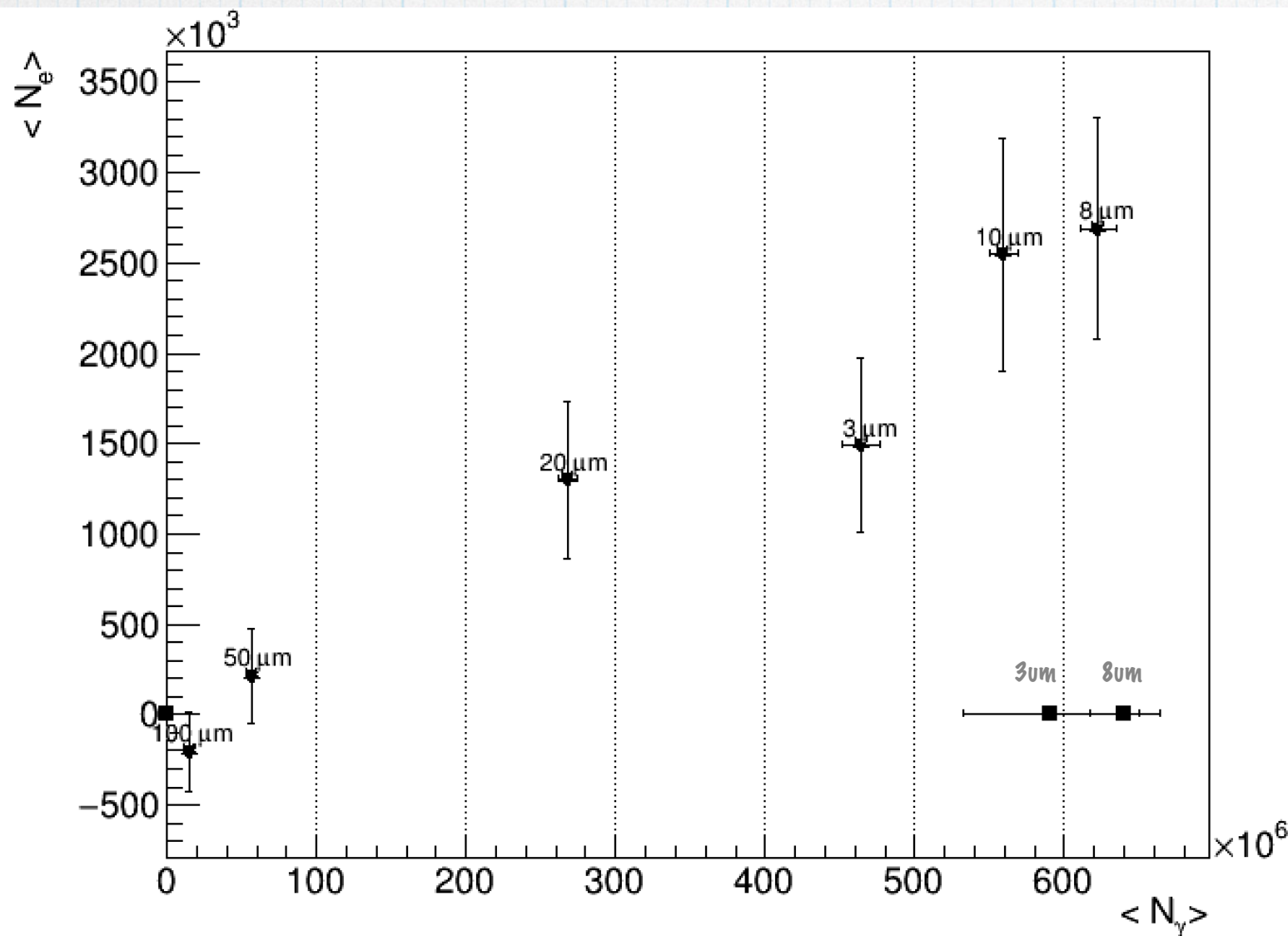


Number of True photons

More accurate HICS for high ξ , simulated rate=99.9% of true rate

- 1000bxs "provisional" JETI40, e-laser, 16.5GeV, $w_0=3, 8\mu\text{m}$

| Experiment Config | $w_0 = 3\mu\text{m}$ | $3.5\mu\text{m}$ | $4.0\mu\text{m}$ | $4.5\mu\text{m}$ | $5.0\mu\text{m}$ | $6.5\mu\text{m}$ | $8.0\mu\text{m}$ |
|--------------------------------|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| peak SQED ξ | 5.12 | 4.44 | 3.88 | 3.45 | 3.1 | 2.39 | 1.94 |
| peak SQED χ (16.5 GeV) | 0.9 | 0.79 | 0.69 | 0.61 | 0.55 | 0.42 | 0.34 |
| JETI40 e-laser 16.5 GeV | 10000 | 6000 | 5994 | 6000 | 6000 | | 10000 |
| JETI40 e-laser 16.5 GeV (prov) | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |



| | $\langle N_{\text{gam}} \rangle$ | $\langle N_{\text{gam}} \rangle$ provisional |
|-----------------|----------------------------------|---|
| 3 μm | 4.64e+08 | 5.91e+08 |
| 8 μm | 6.23e+08 | 6.40e+08 |