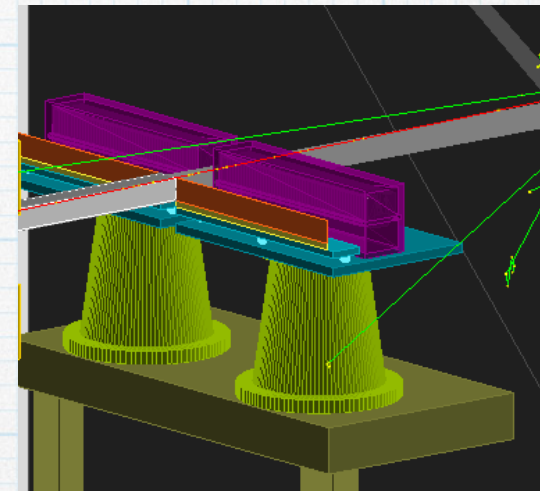


Photon flux measurements

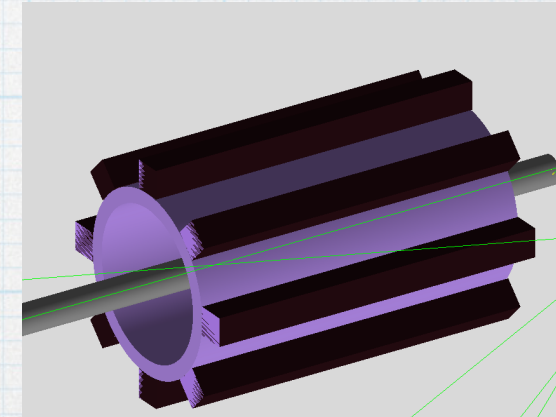
Tasks

To measure total flux of photons

- the technologies:
 - a) conversion detector



- b) backscattering calorimeter



For the CDR

- a) quantify how well a) and b) can measure the flux and above some threshold =>

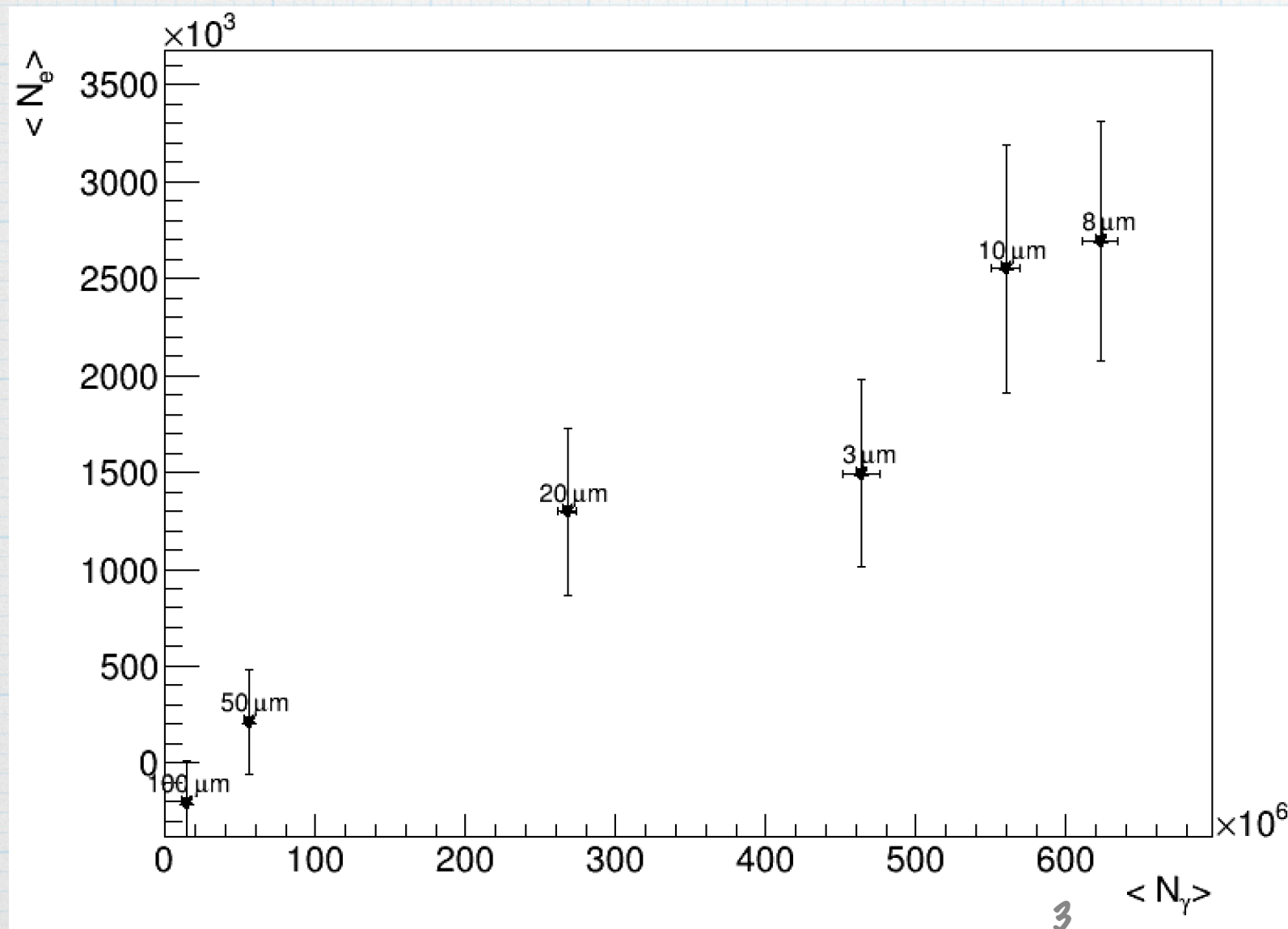
show relative resolution on photon flux of the two technologies as function of number of photons

Number of True photons

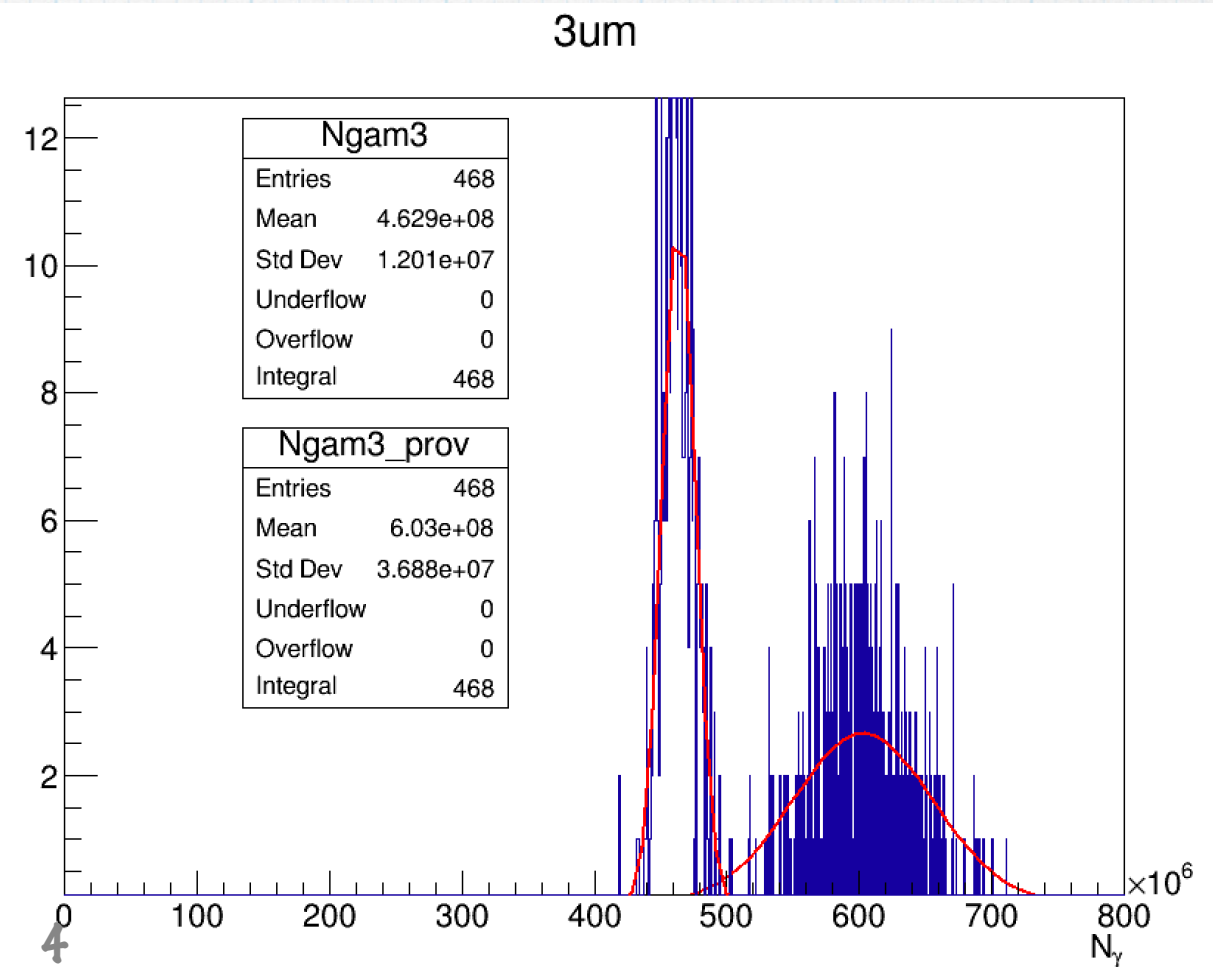
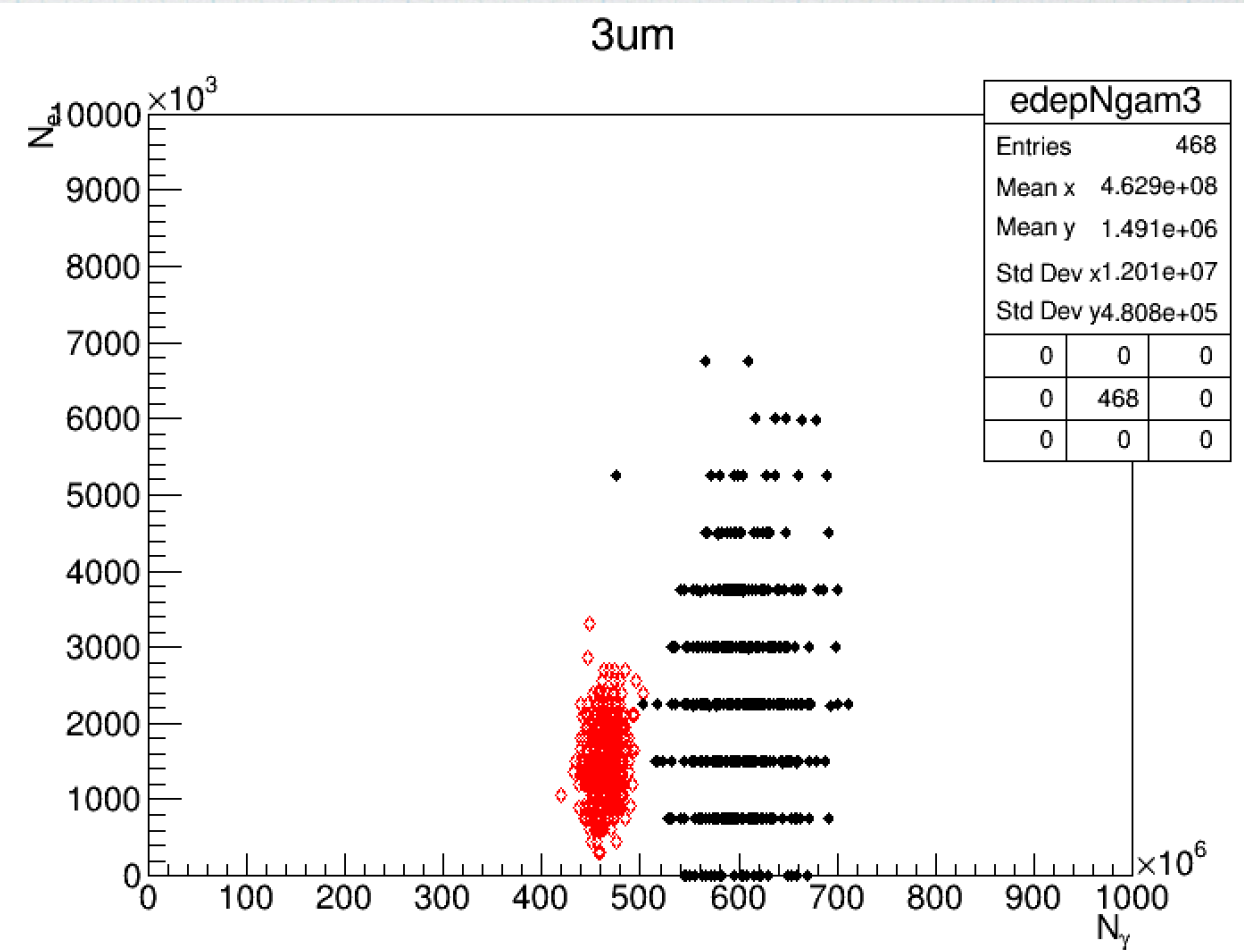
More accurate HICS for high ξ , simulated rate=99.9% of true rate

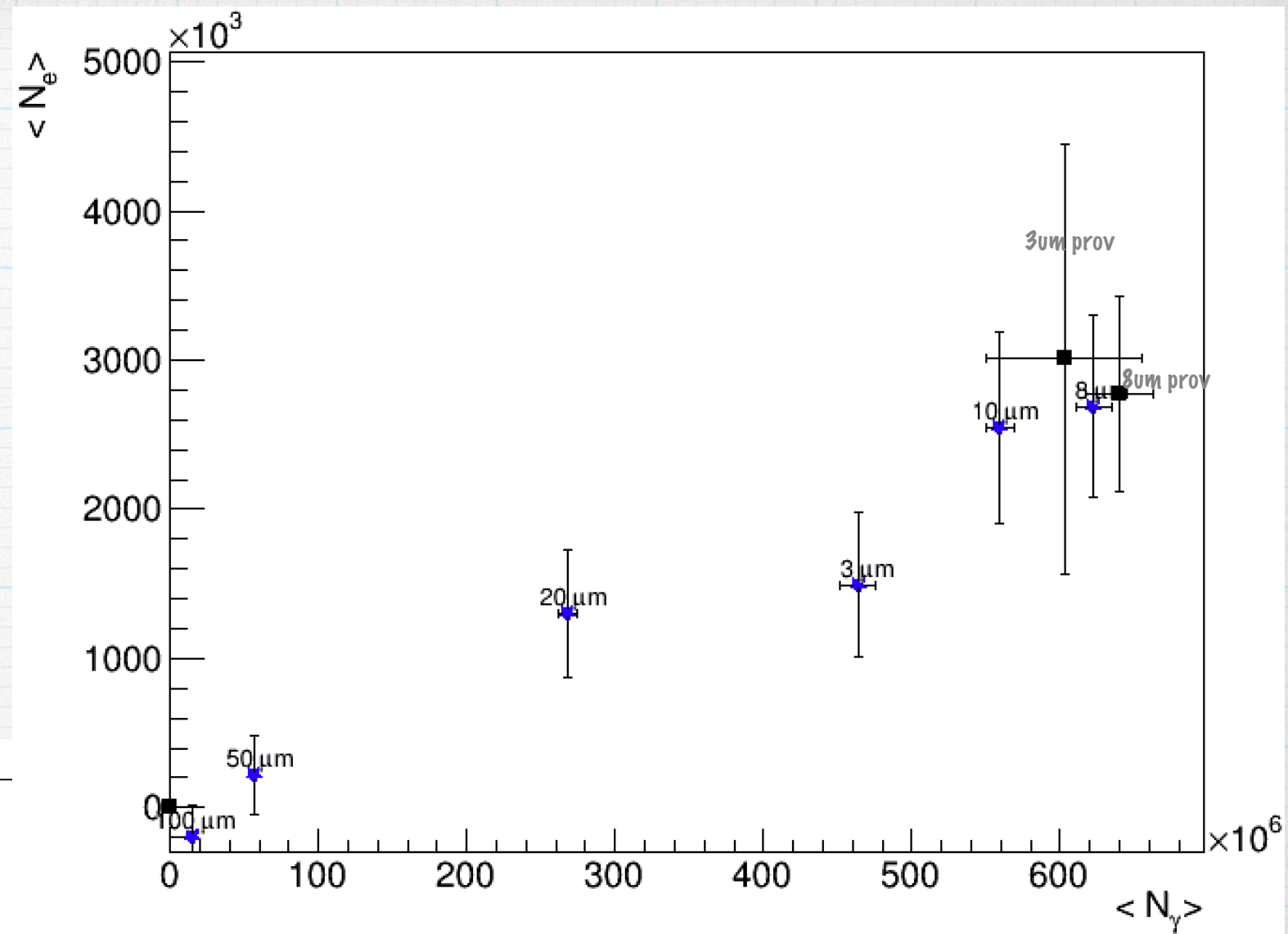
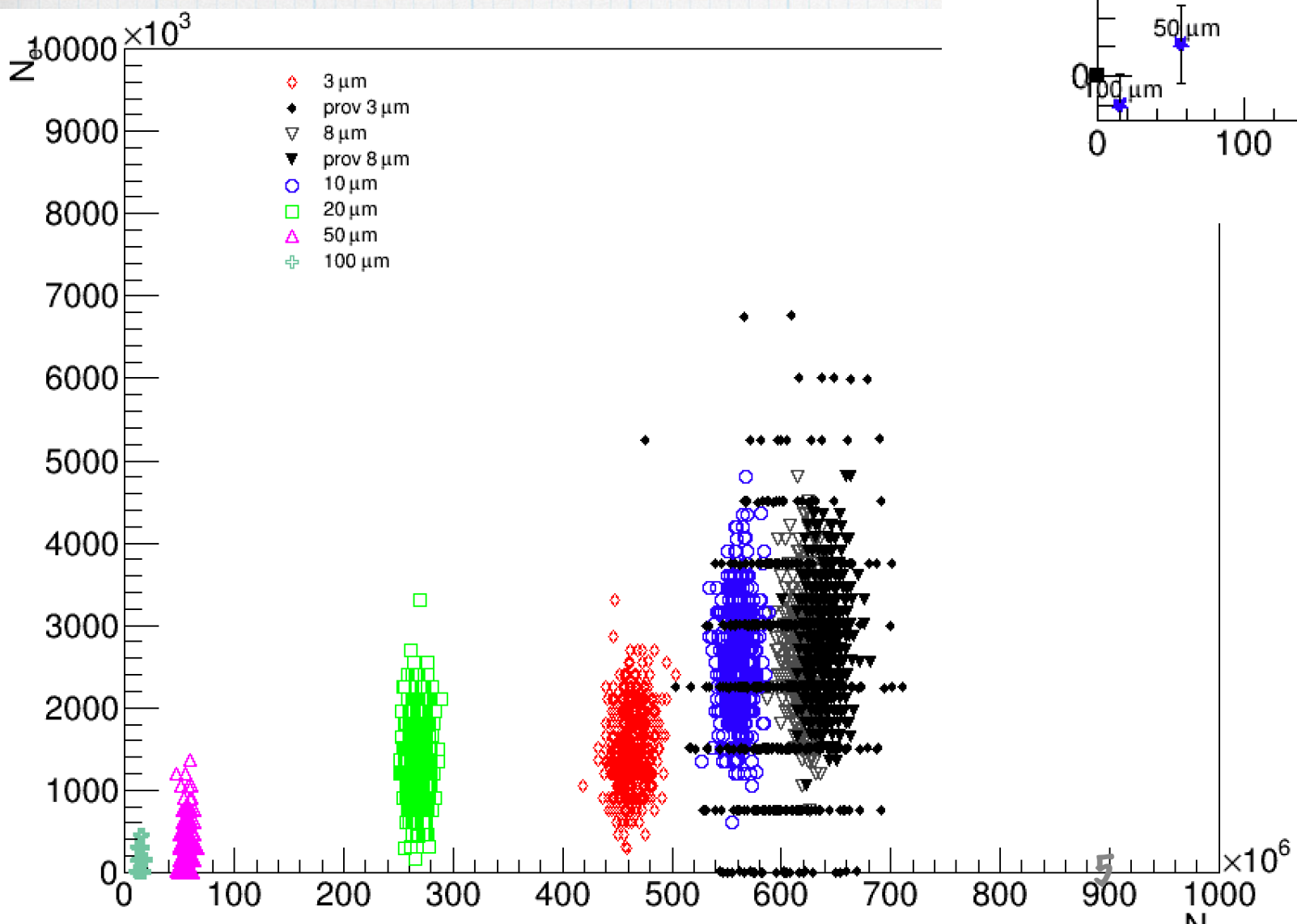
- 1000bxs "provisional" JETI40, e-laser, 16.5GeV, $w_0=3, 8\mu\text{m}$

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

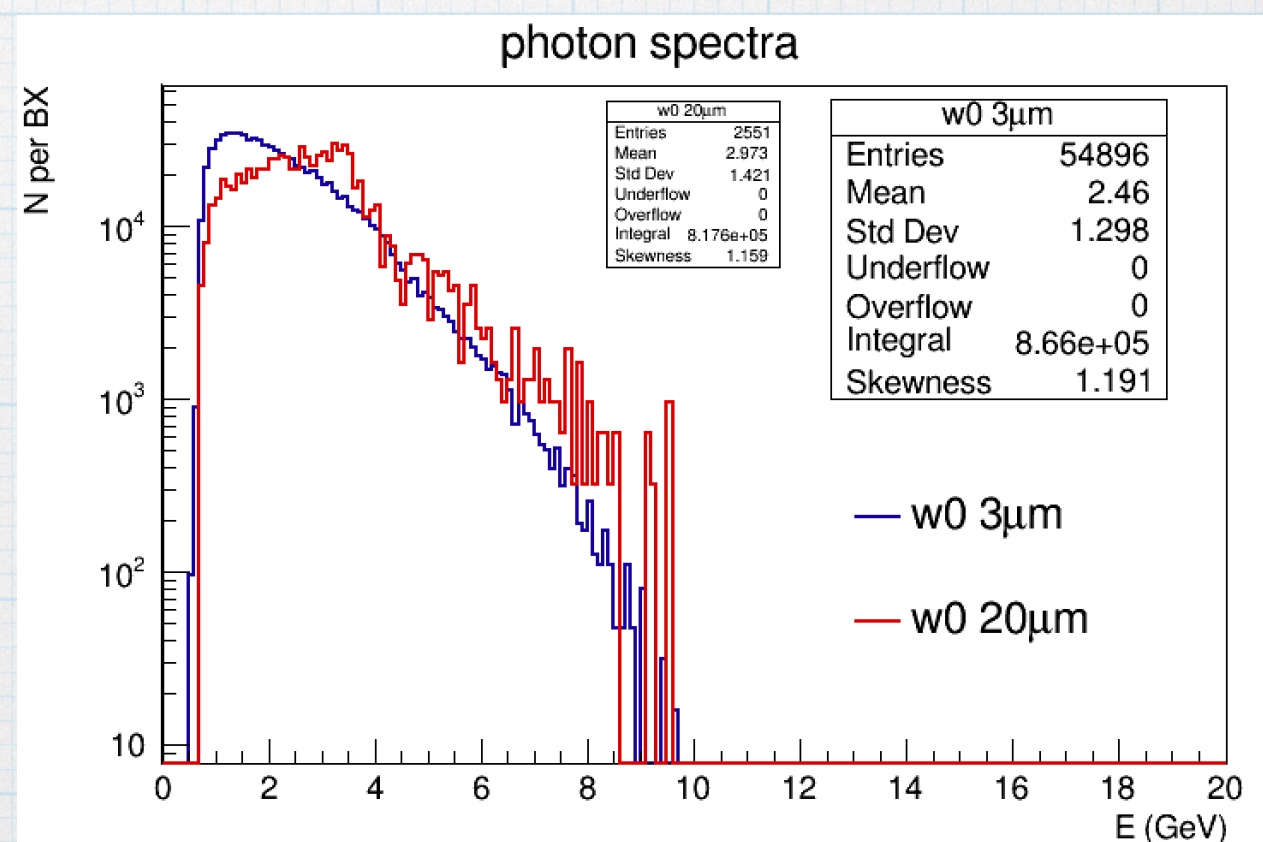
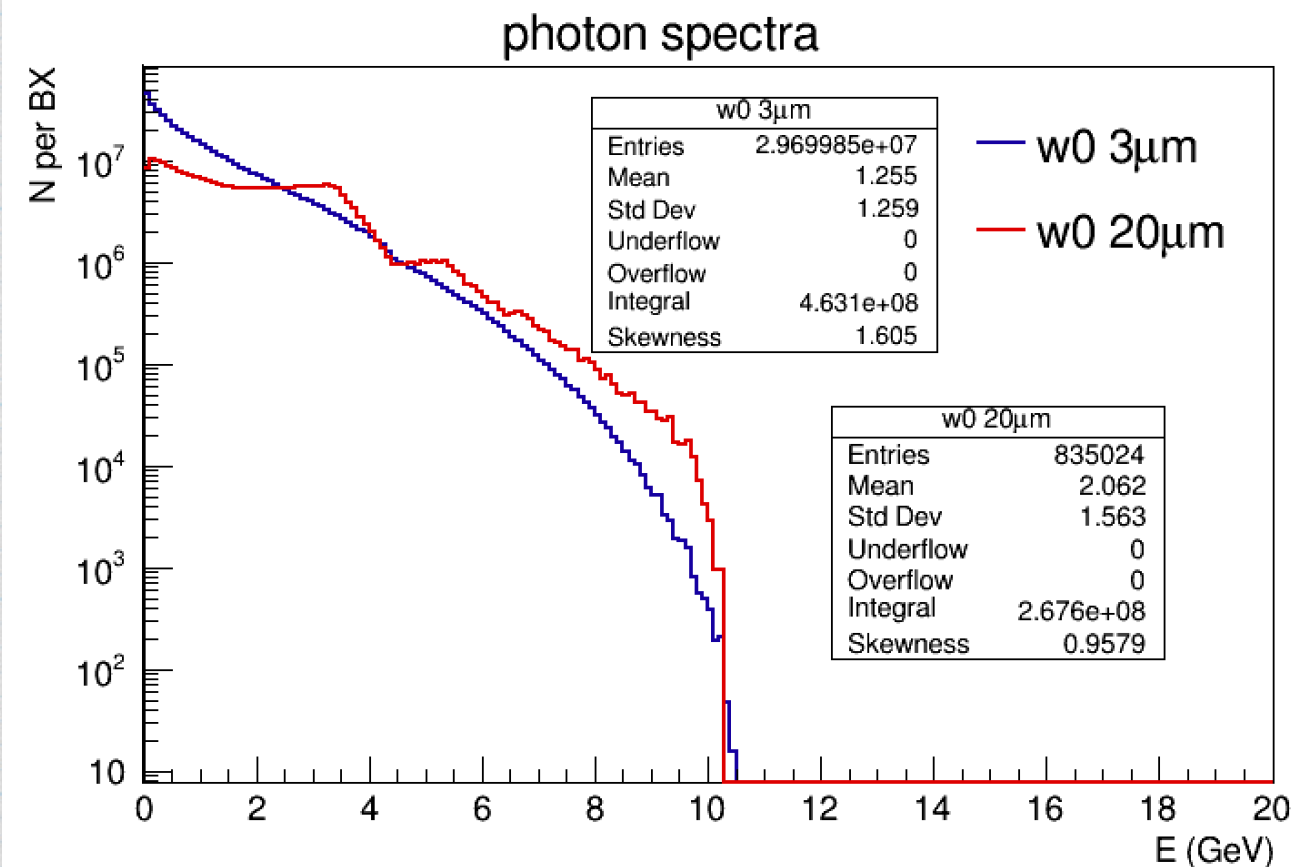
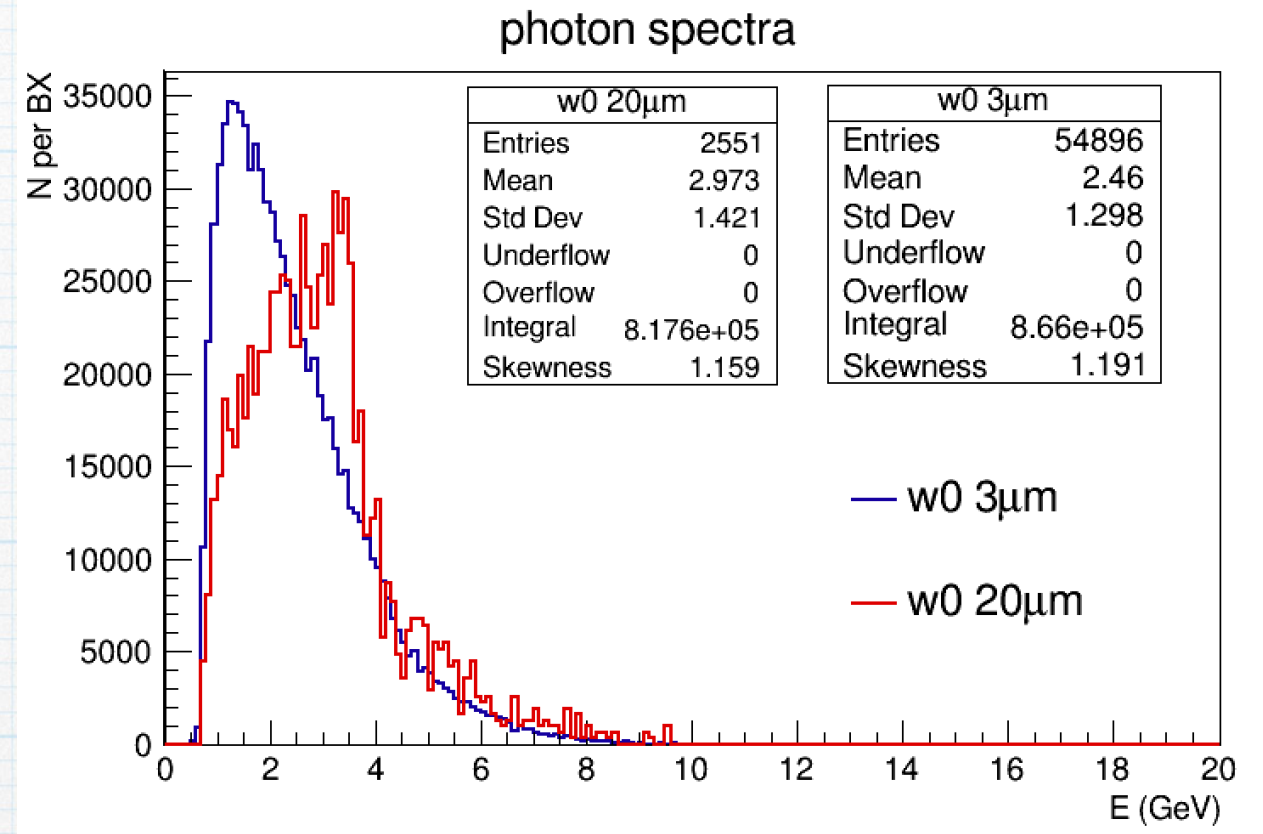
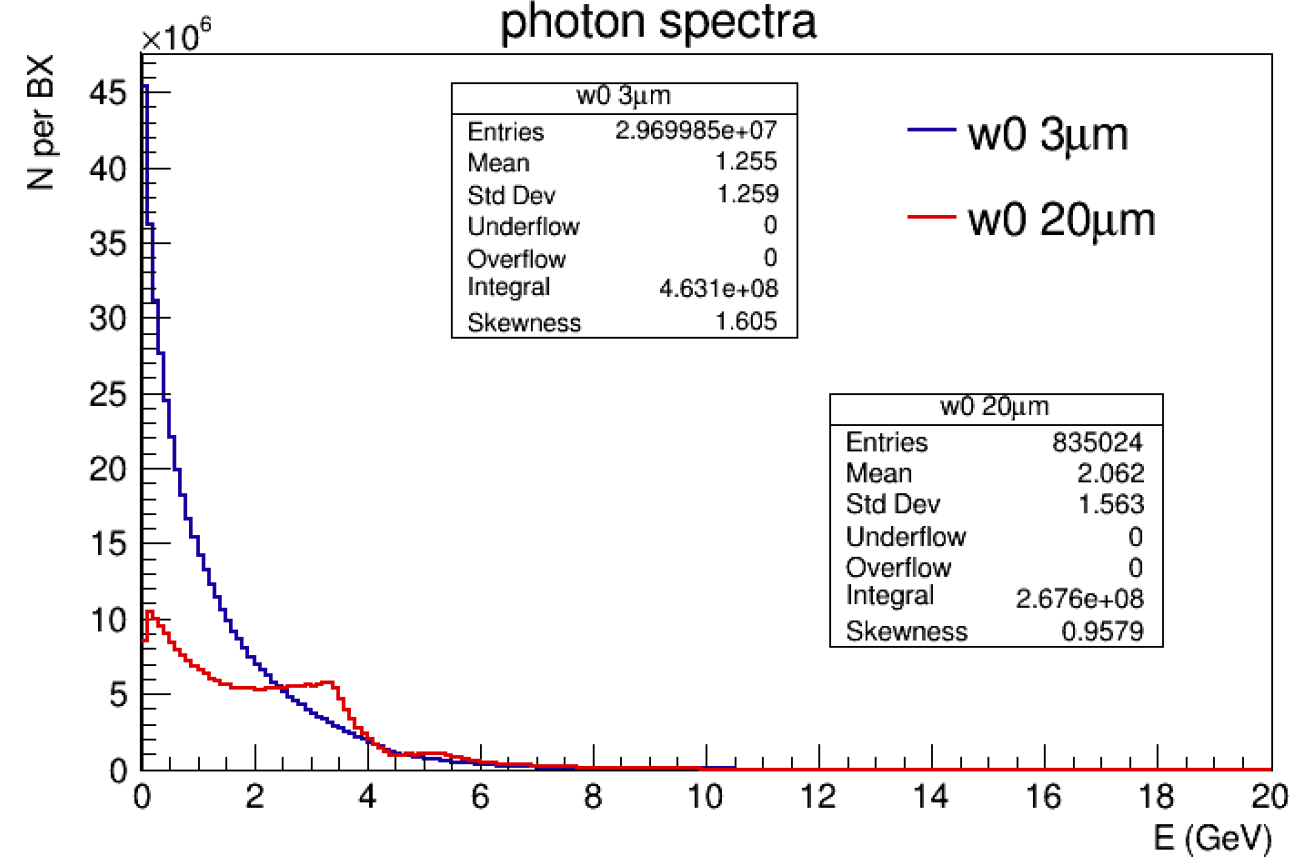


Previous vs
 "provisional" JET140,
 e-laser, 16.5GeV,
 $w_0 = 3 \mu\text{m}$





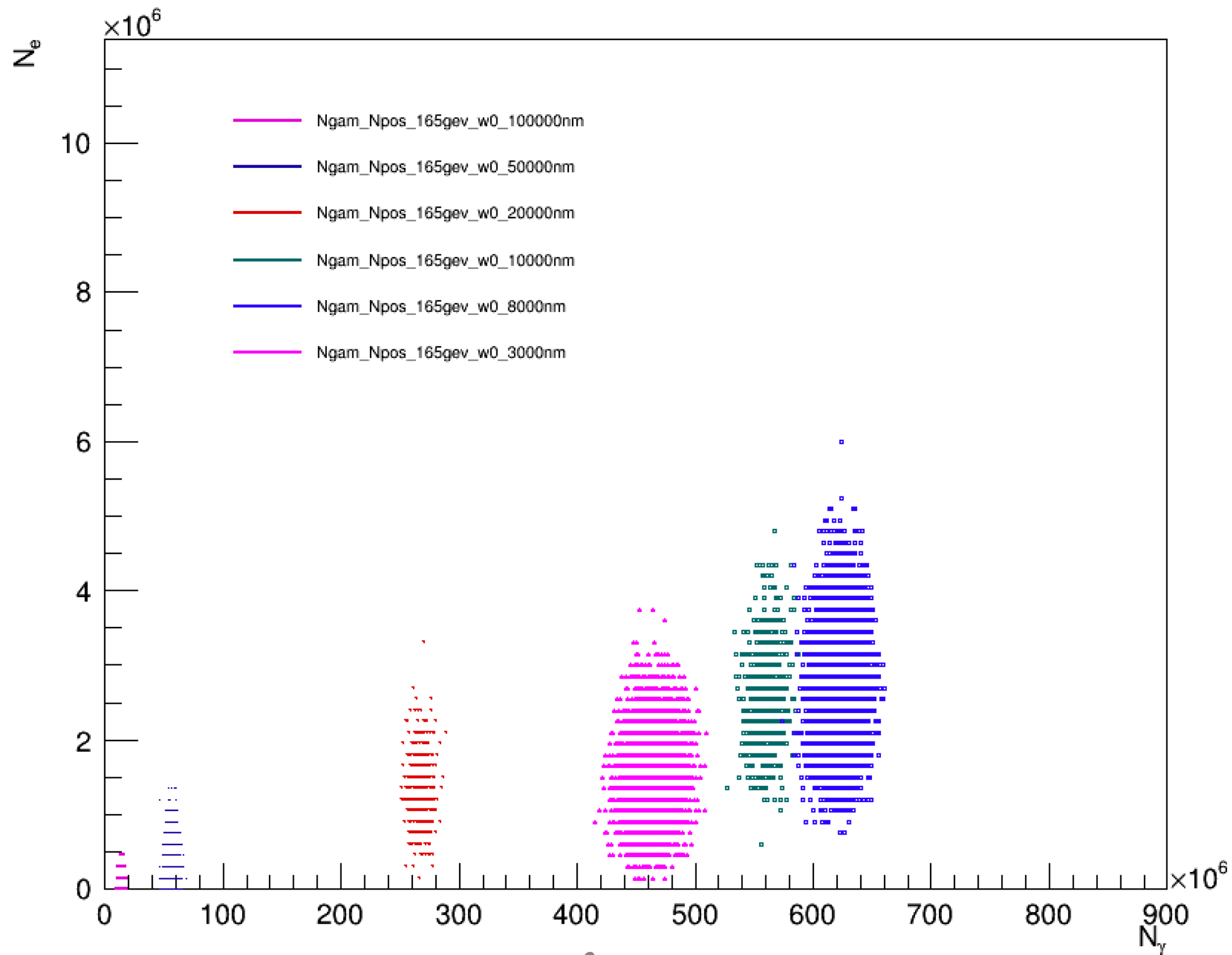
photon spectra

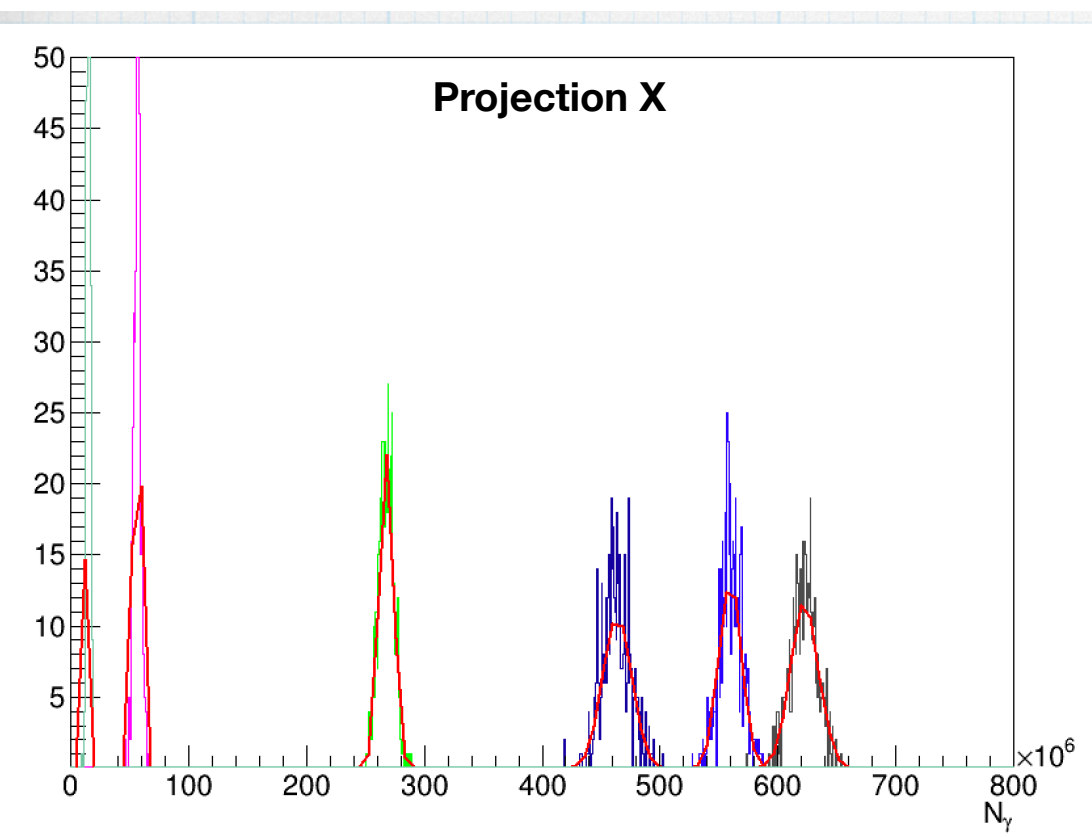
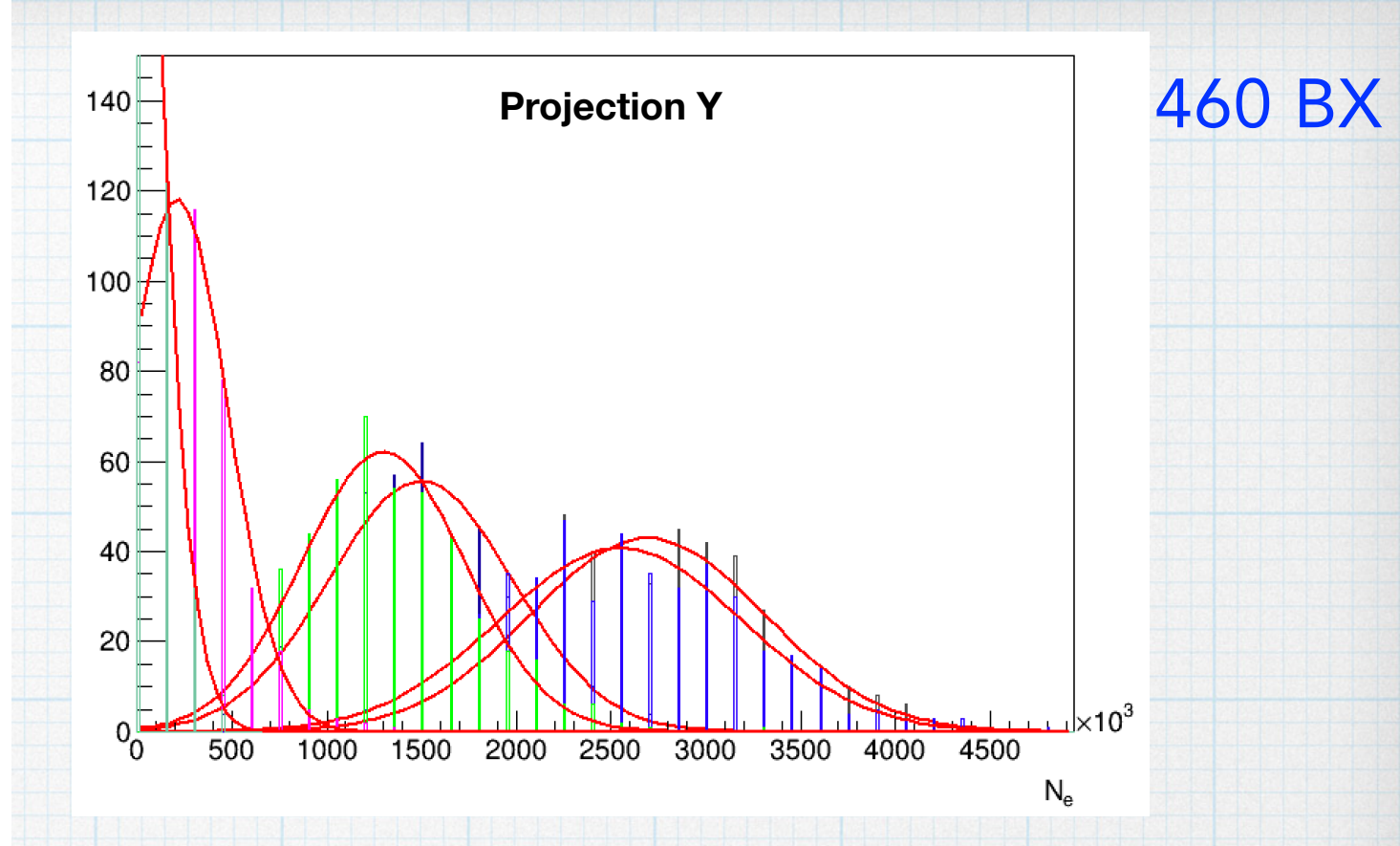
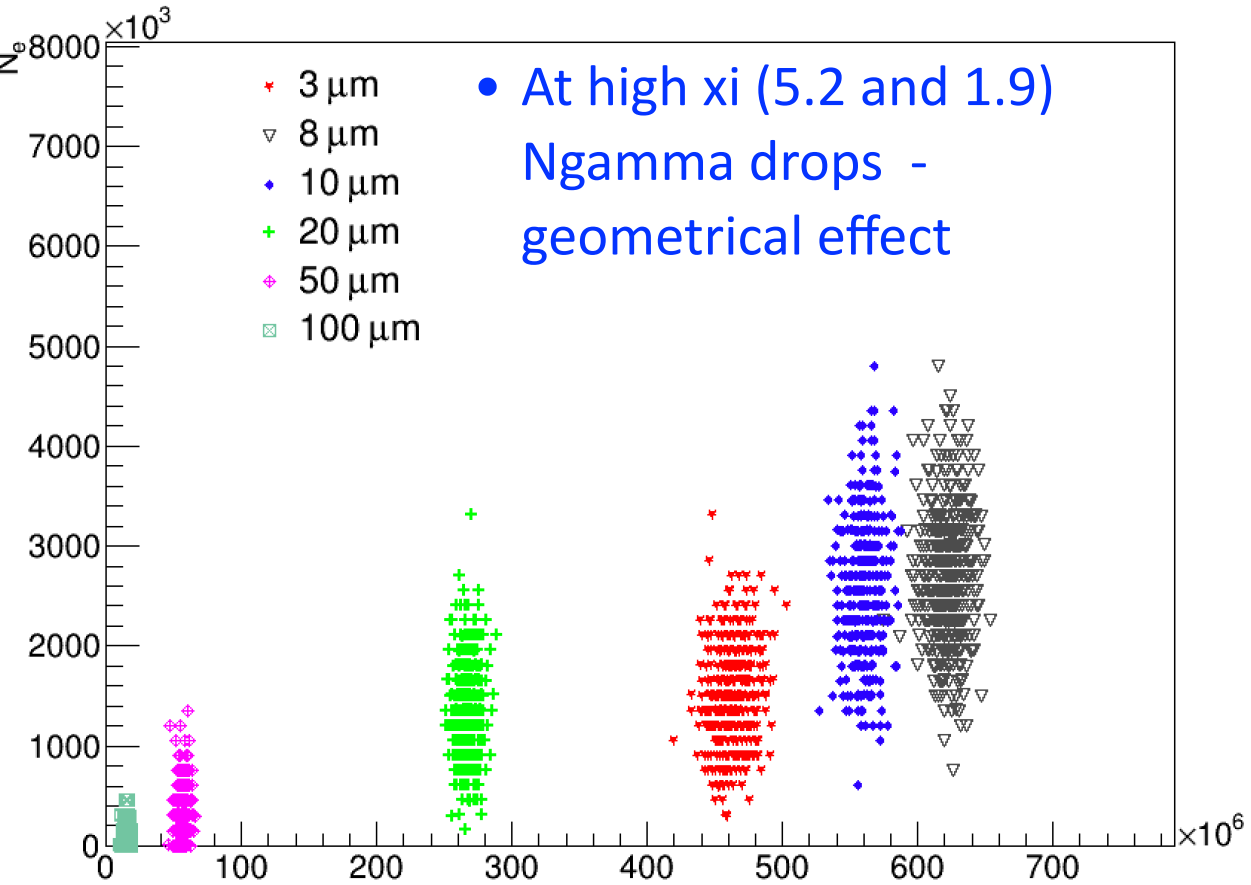


Back up

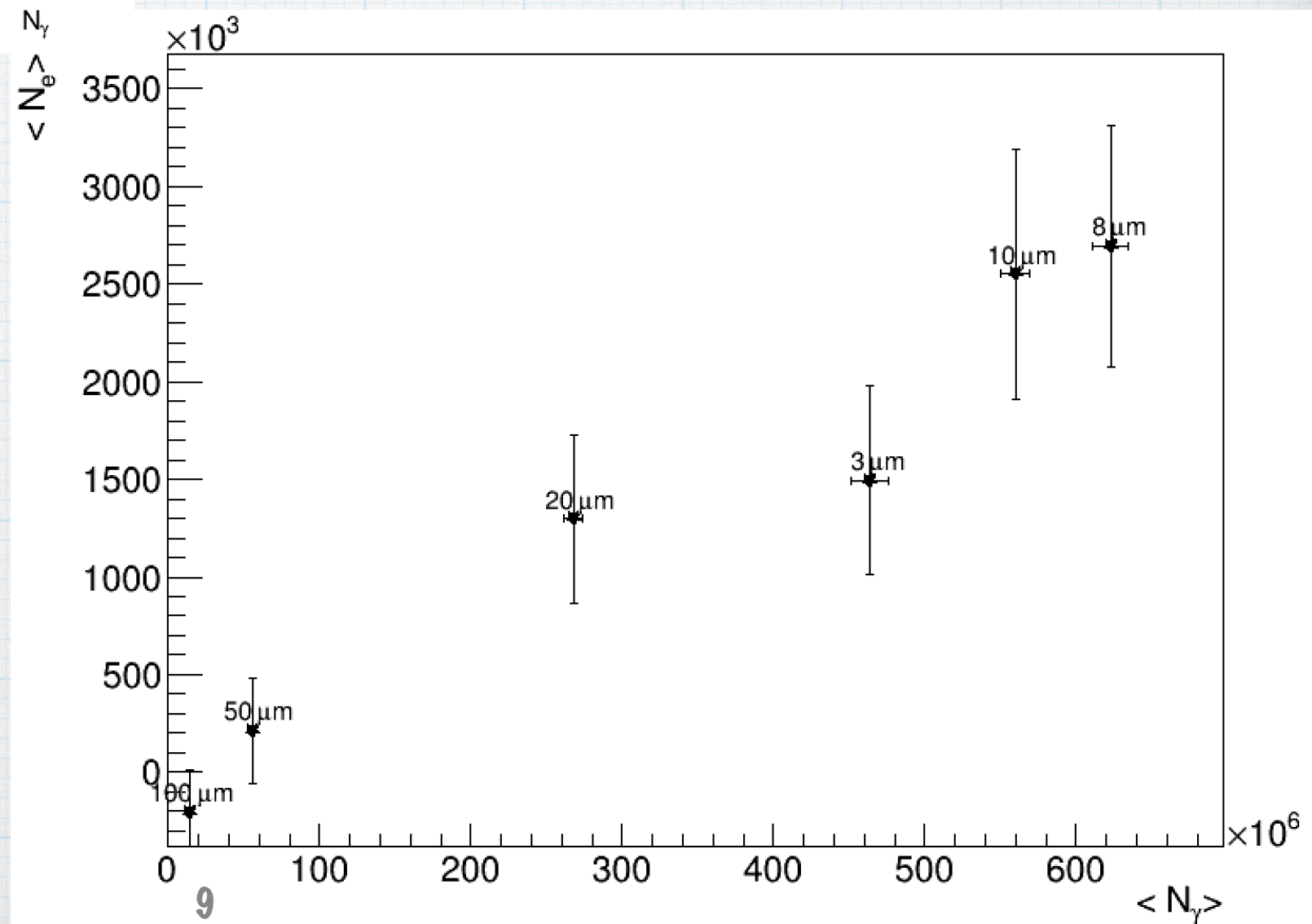
number of pairs vs number of photons per BX for different ξ in Lanex screens (setup w/o beam pipe)

JETI40, 16.5 GeV, 50 μm





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



	$\langle N_{\text{gam}} \rangle$	$\langle N_{\text{gam}} \rangle$ provisional
$3\mu\text{m}$	$4.64\text{e}+08$	$5.91\text{e}+08$
$8\mu\text{m}$	$6.23\text{e}+08$	$6.40\text{e}+08$