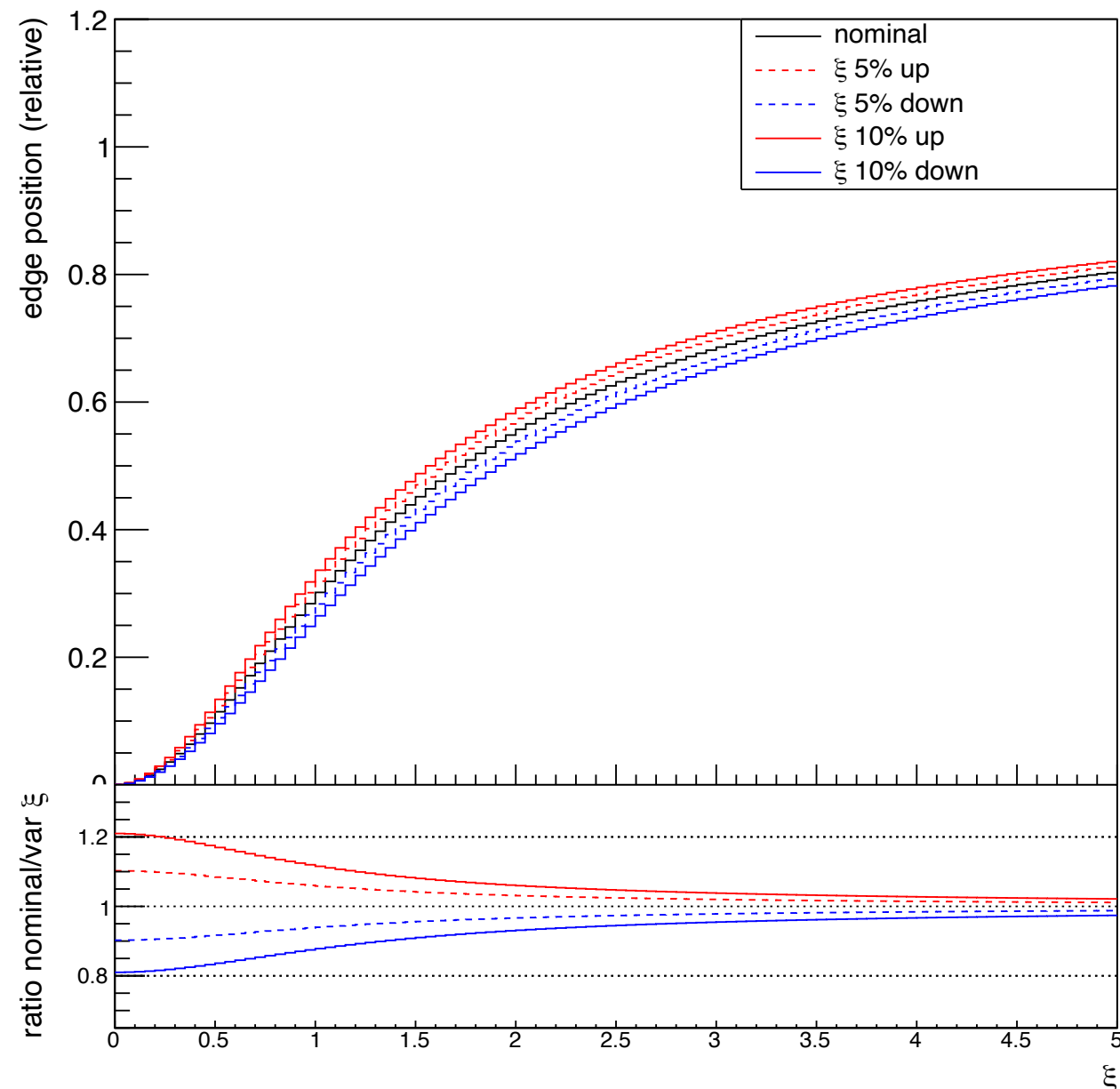


Results Chapter: Compton Edges

Ruth Jacobs

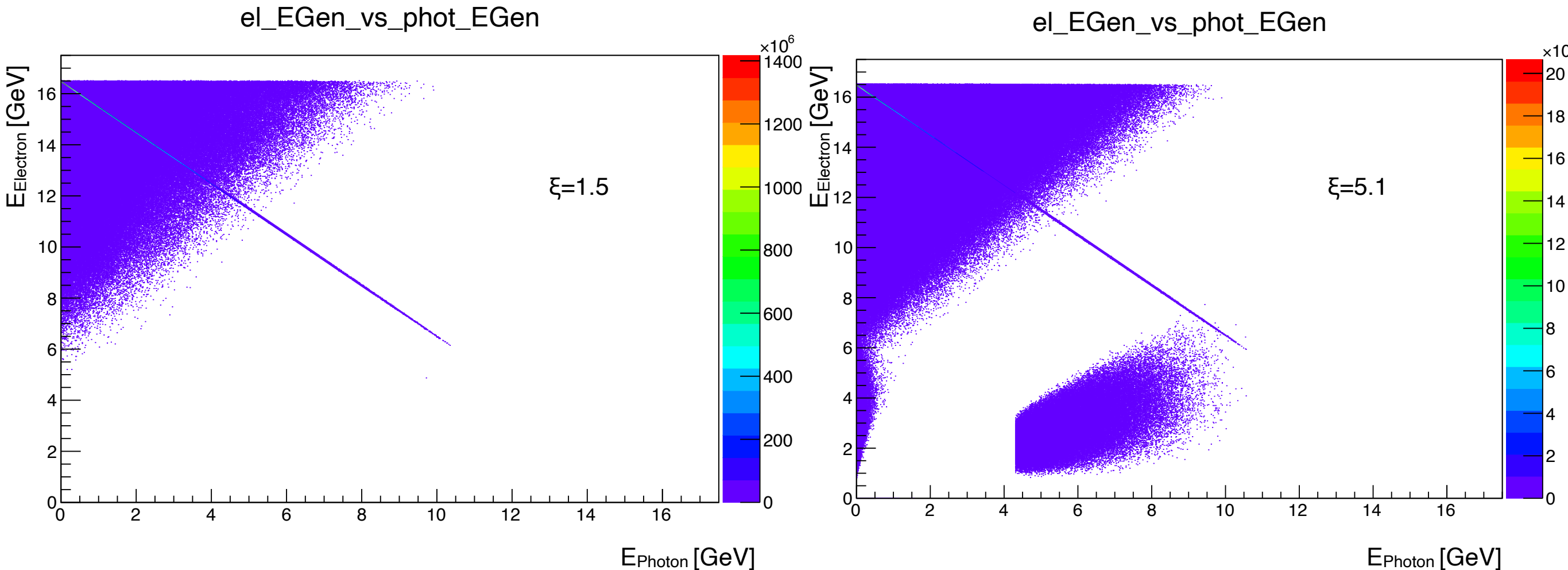
LUXE technical meeting
15th July 2020

Reminder ξ -behaviour



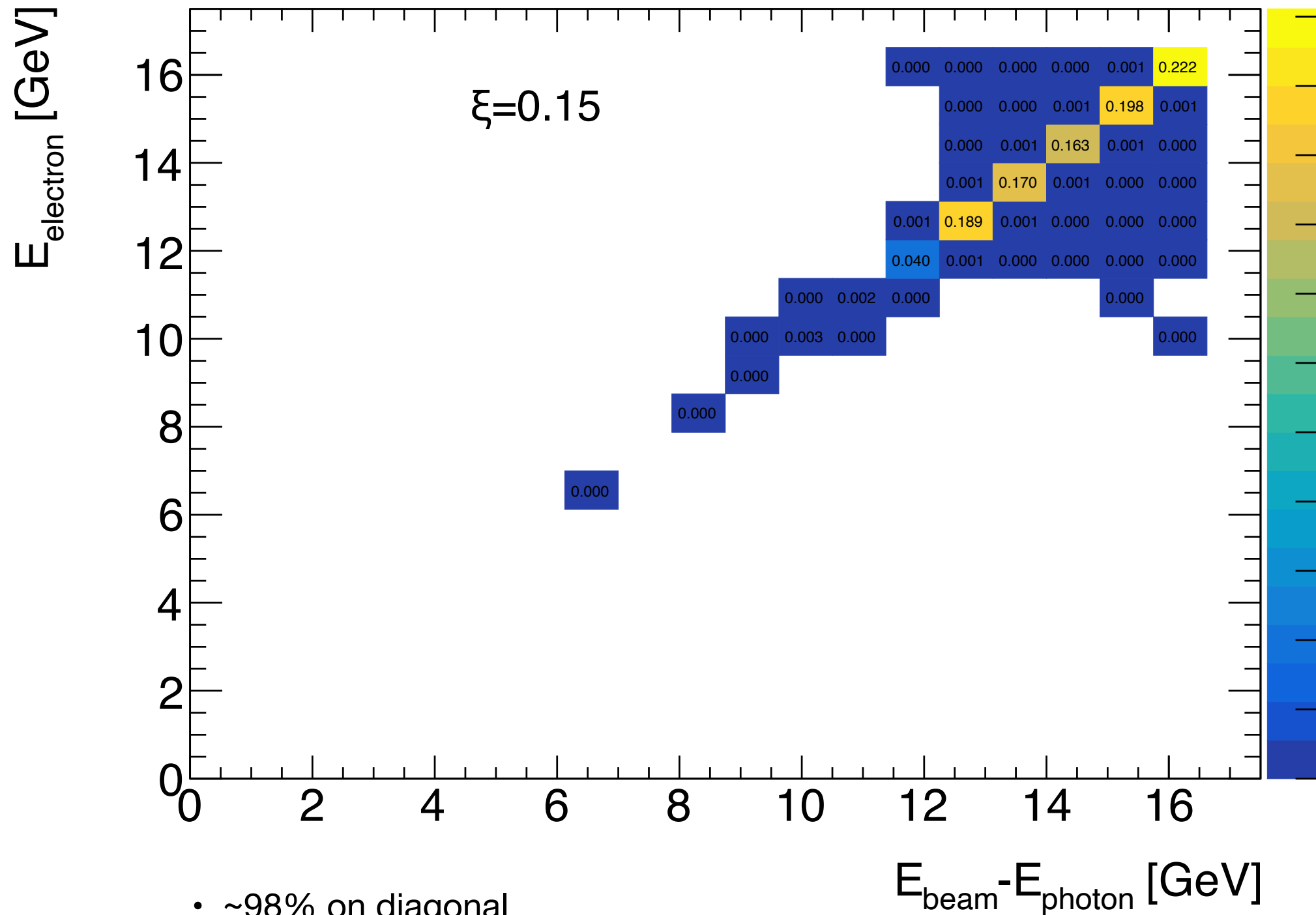
- assumed $1/\sqrt{1+\xi^2}$ behaviour valid for photon energies
- I plotted $1-1/\sqrt{1+\xi^2}$ for electrons in this plot
- not necessarily true (only valid if one electron emits 1 photon...)

Compton Electron vs Photon Energy

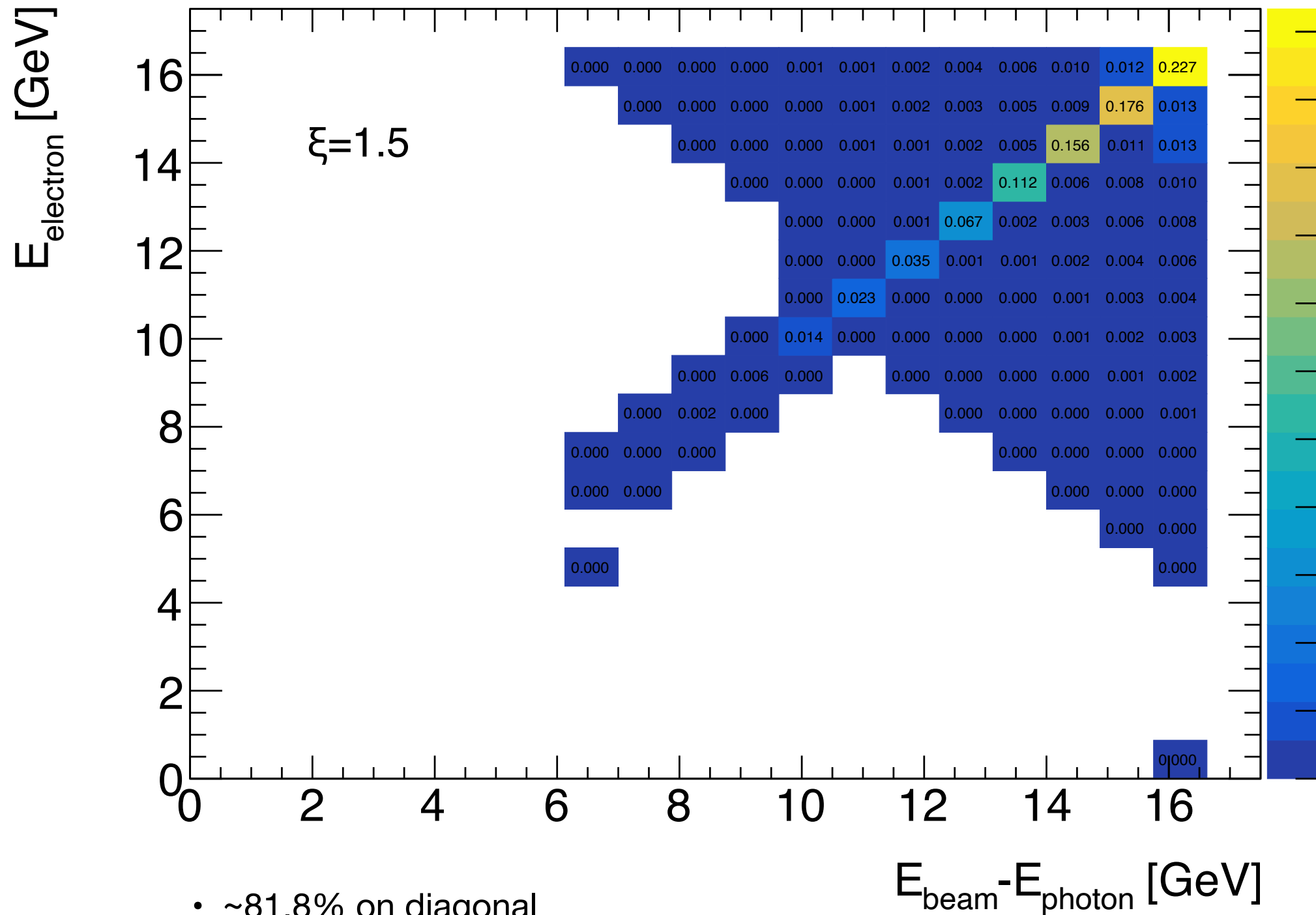


- shown here: leading outgoing electron and leading photon per stdhep event
- diagonal: electron energy = 16.5GeV-photon energy
- intermediate ξ : most particles still on diagonal
- high ξ : many off-diagonal particles ("blob" → Trident electrons?)

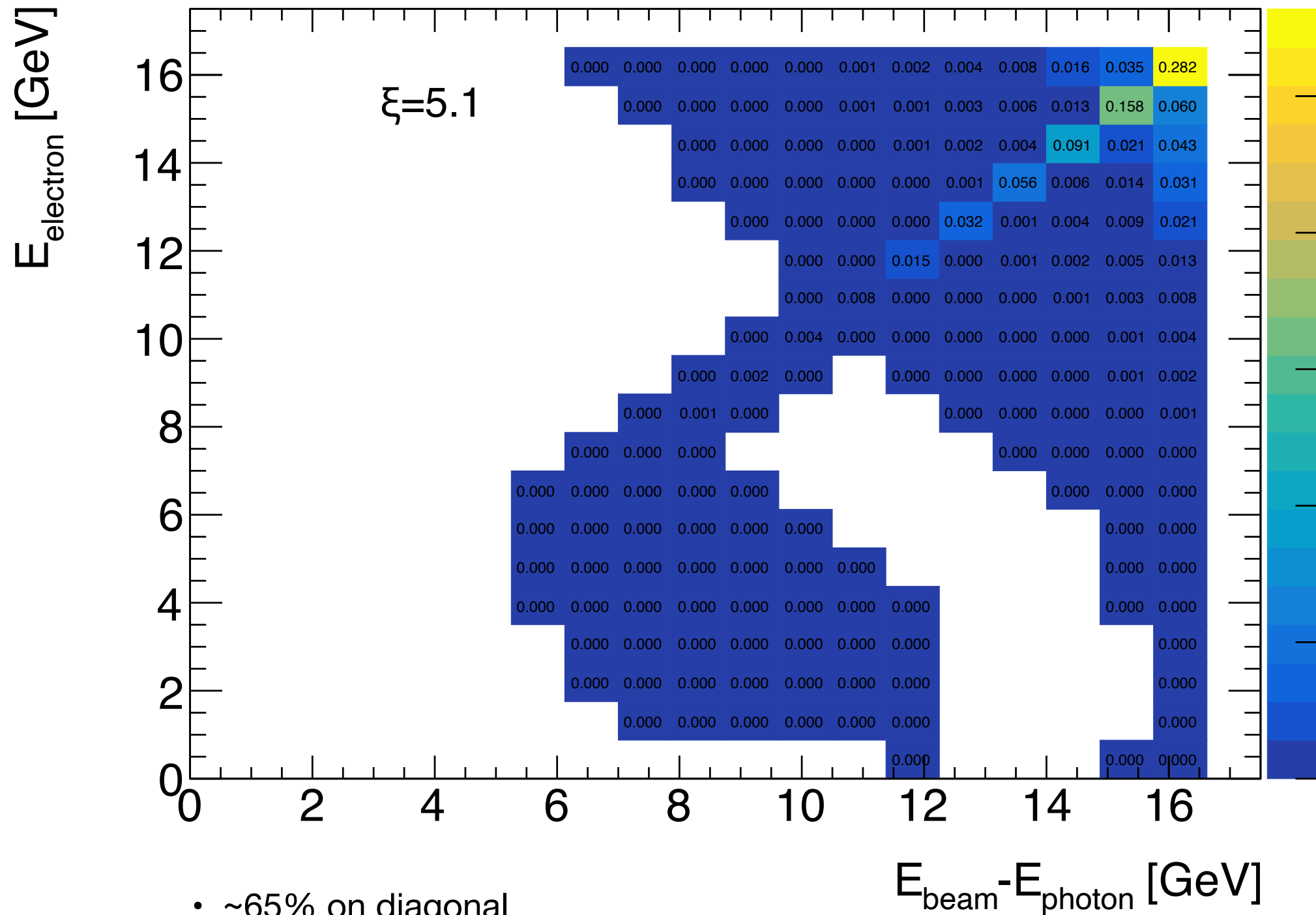
Compton Electron vs Photon Energy



Compton Electron vs Photon Energy



Compton Electron vs Photon Energy



Conclusion

- $1-1/\sqrt{1+\xi^2}$ behaviour seems ok up to $\xi \sim 1.5$ where we can determine the edge shift
- can we exploit the fact that we know both the photon and electron energy?
(albeit not scatter-by-scatter...)
- working on edge/norm vs. ξ plots