



Number Of Photons

Xu Sun
with help of Ping

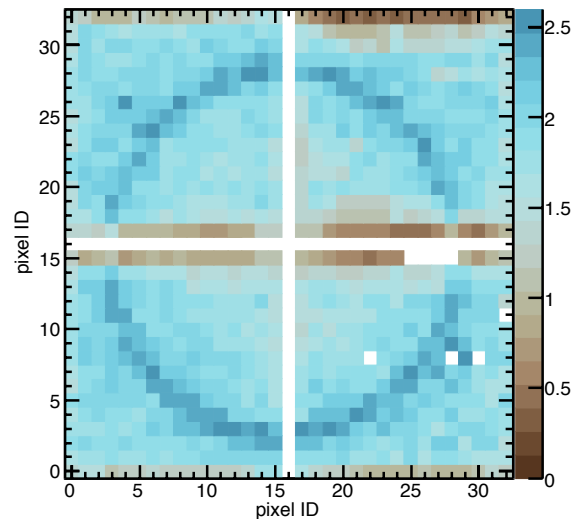
QA Updates



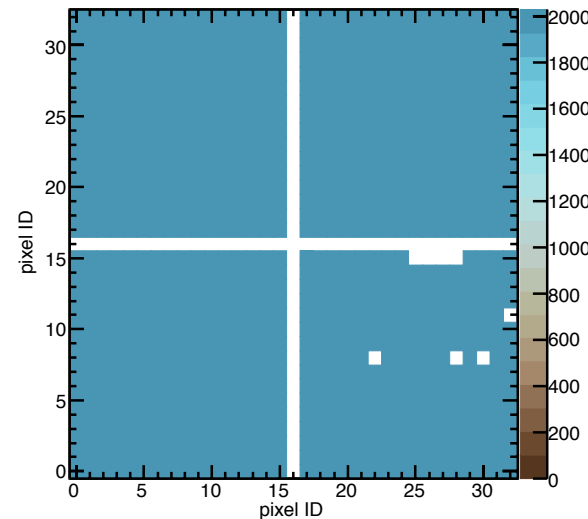
[git@github.com:sunxuhit/BeamTest_mRICH.git](https://github.com:sunxuhit/BeamTest_mRICH.git)

v1.03: include ring finder for data and simulation

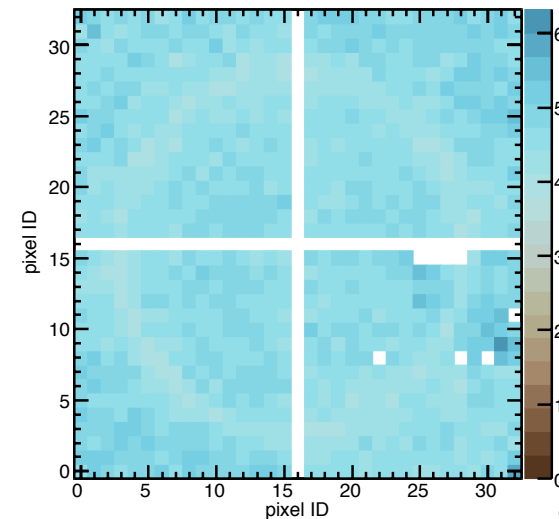
sig/bkg



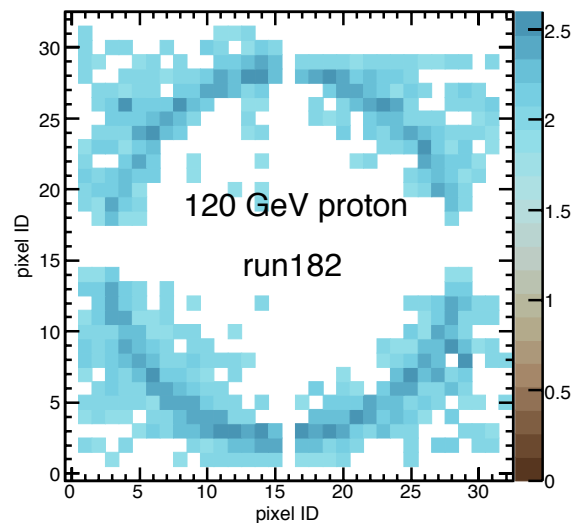
mean



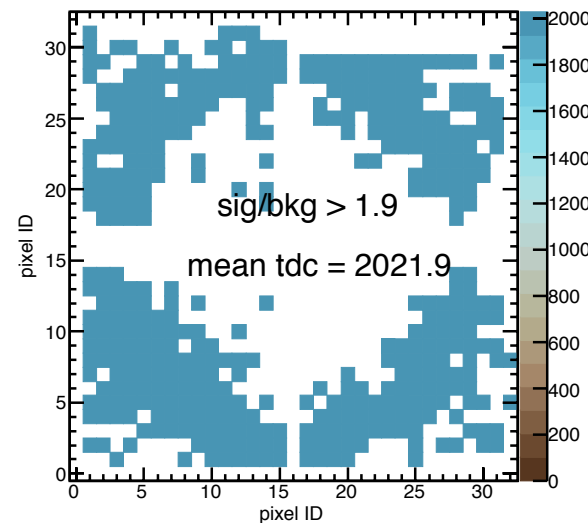
sigma



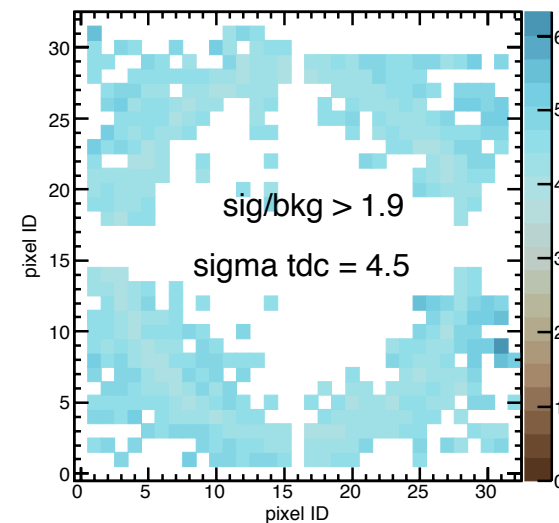
sig/bkg > 1.9



mean



sigma

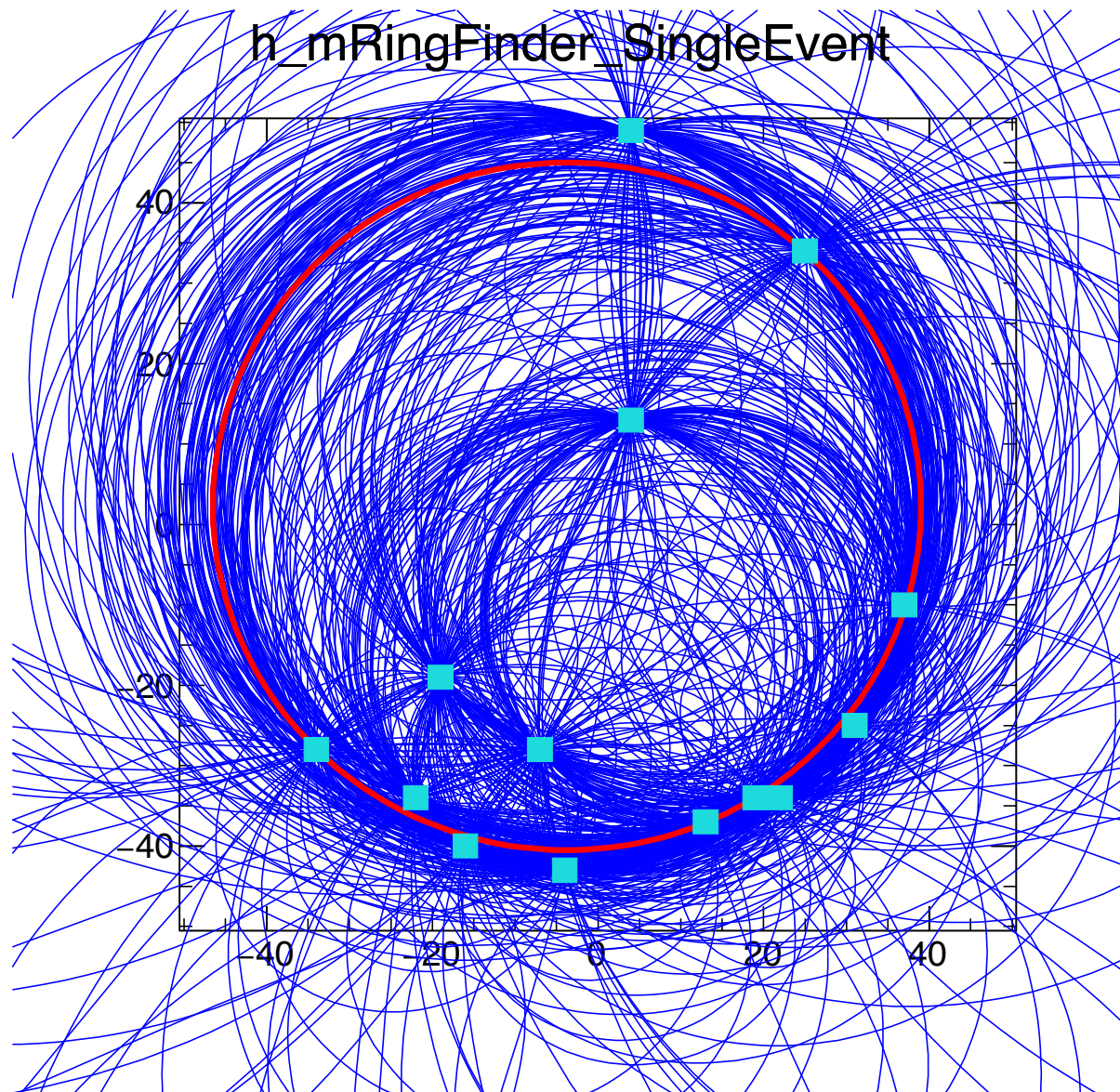


- save mean & sigma of tdc
- tdc cuts set to 3 sigma

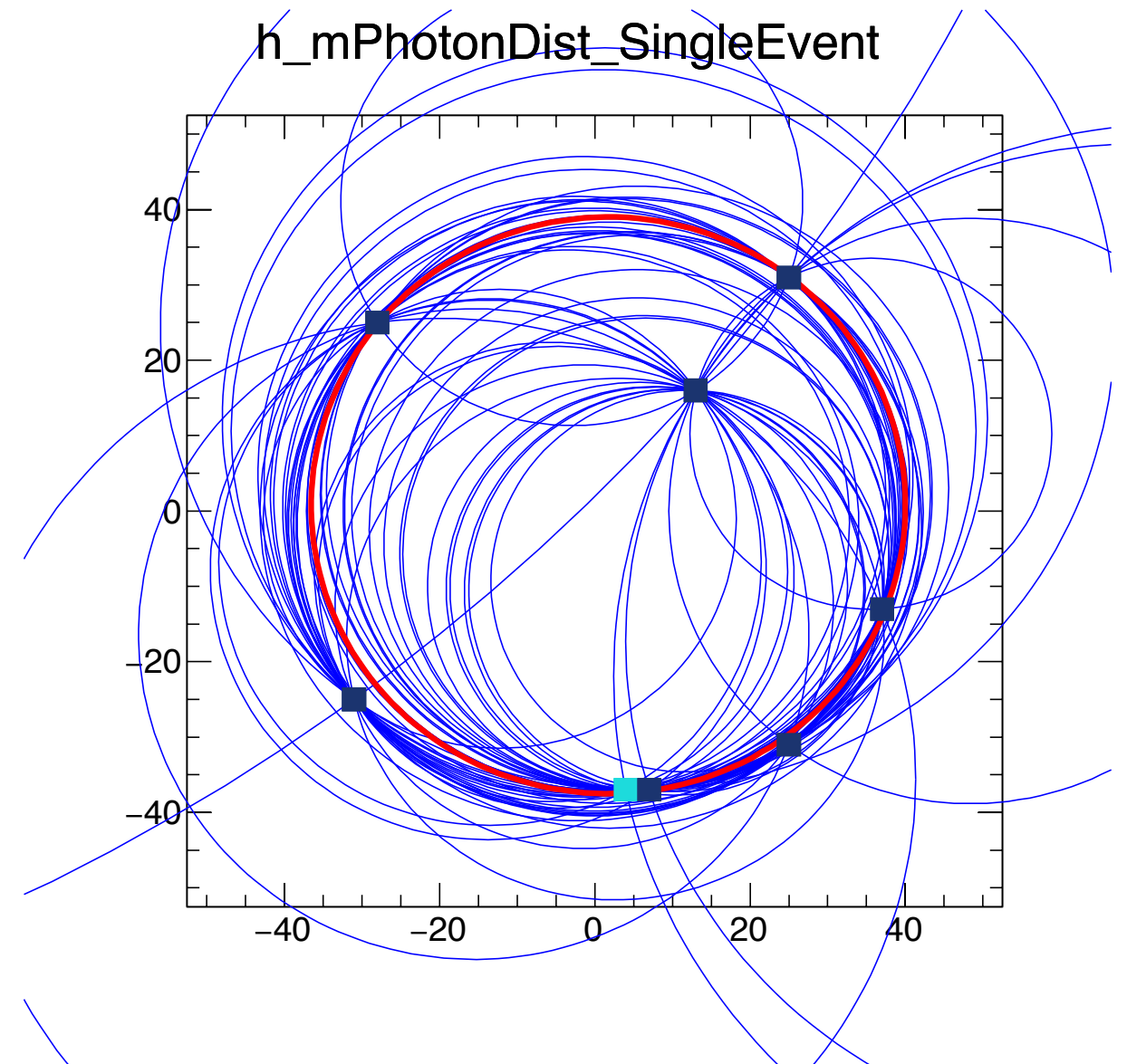
Ring Finder



data



simulation

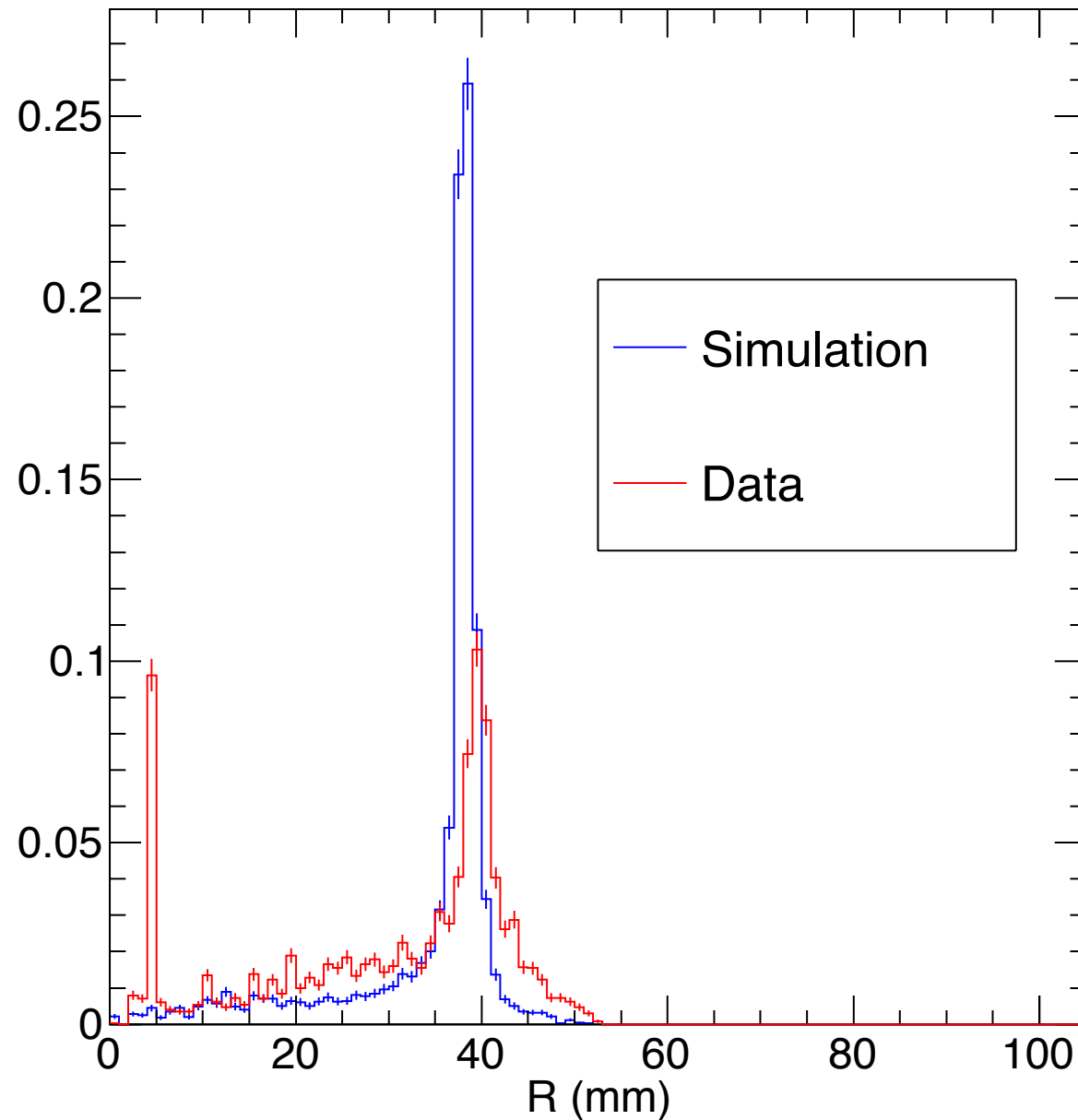


- **every 3 “photons” form a ring**
- **data shows more photons than simulation**

Ring Radius



ring radius

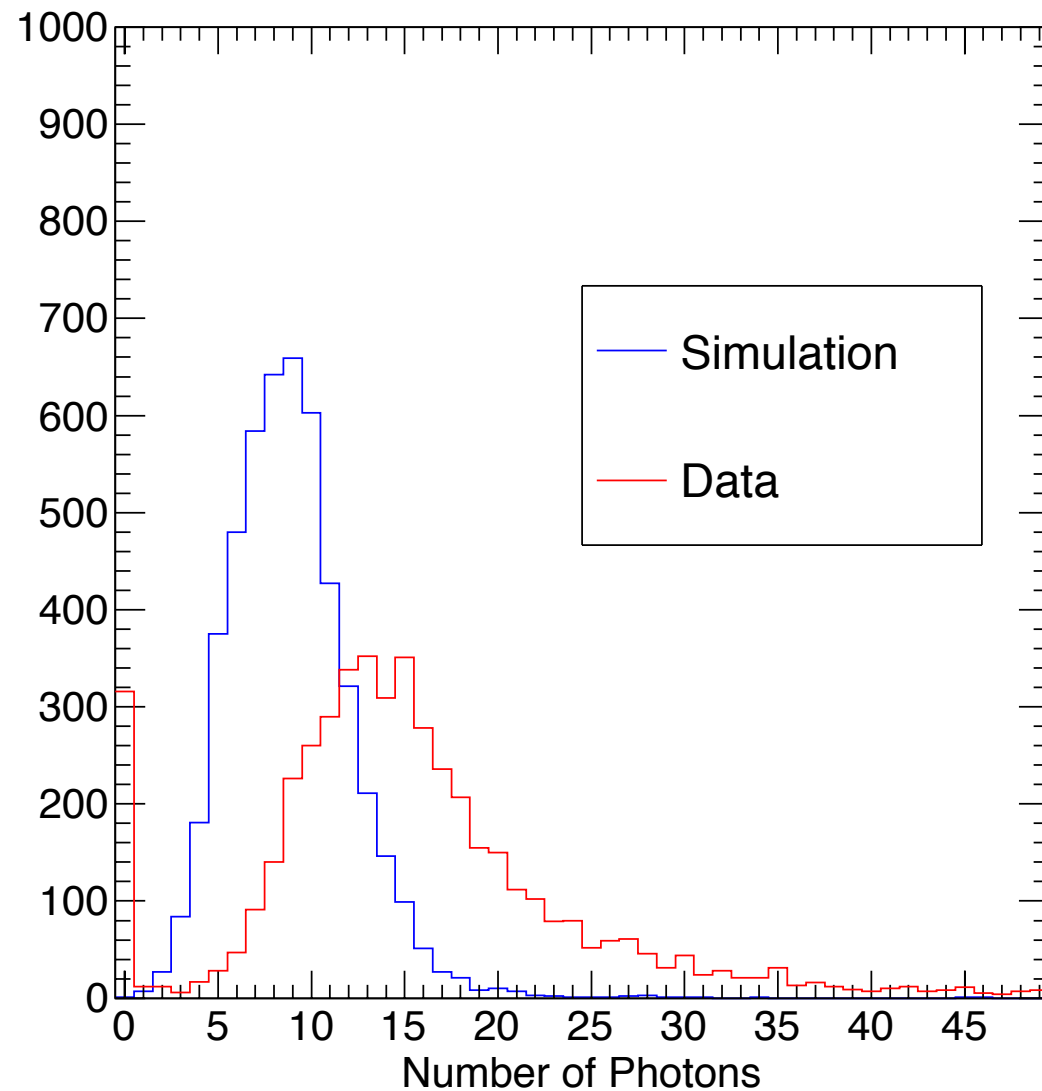


- Radius in data is slightly larger than simulation => due to sensor geometry

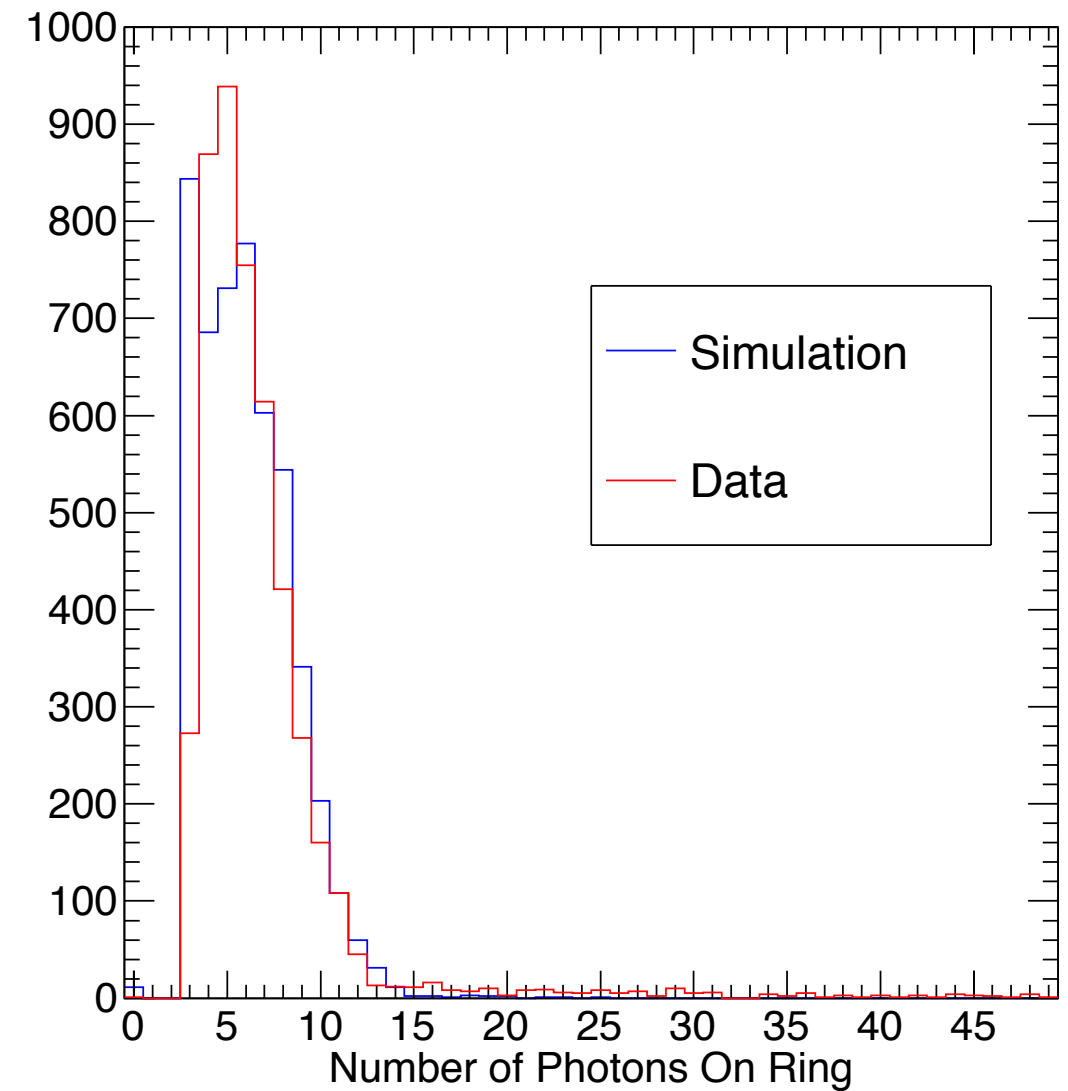
Number of Photons



total number of photons



number of photons on ring

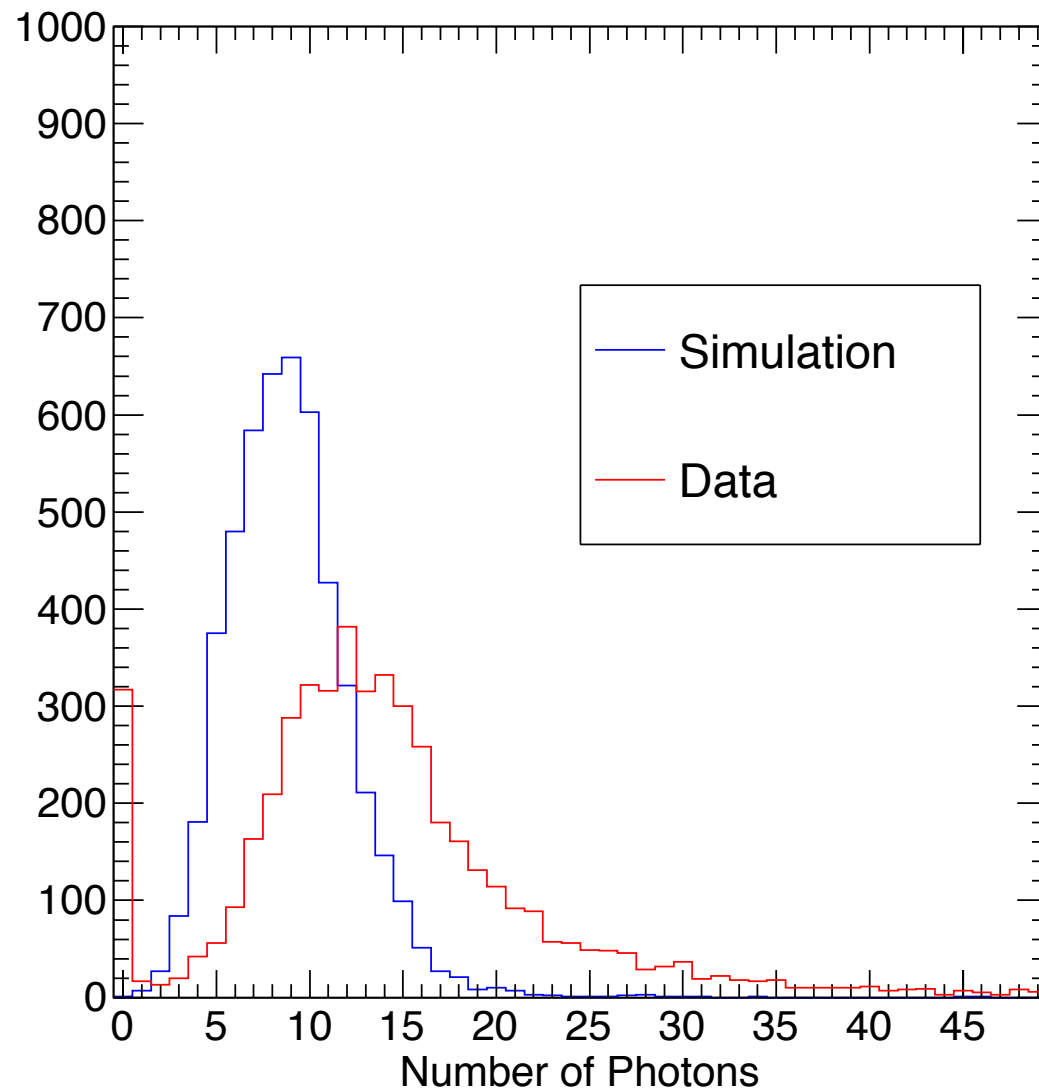


- **data shows more total photons**
- **photons on ring matched with simulation**
- **more photons from noise?**

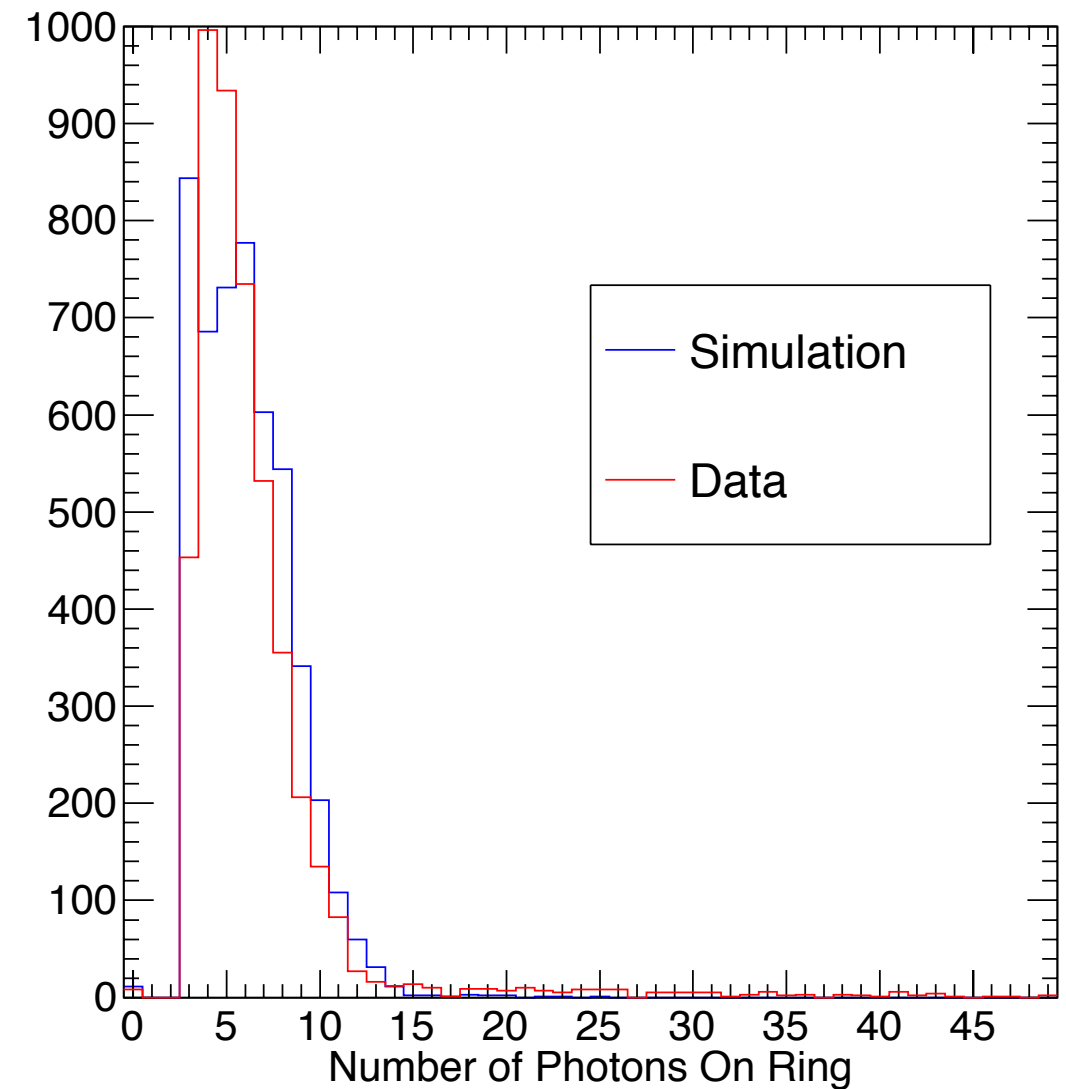
2 sigma cut



total number of photons



number of photons on ring

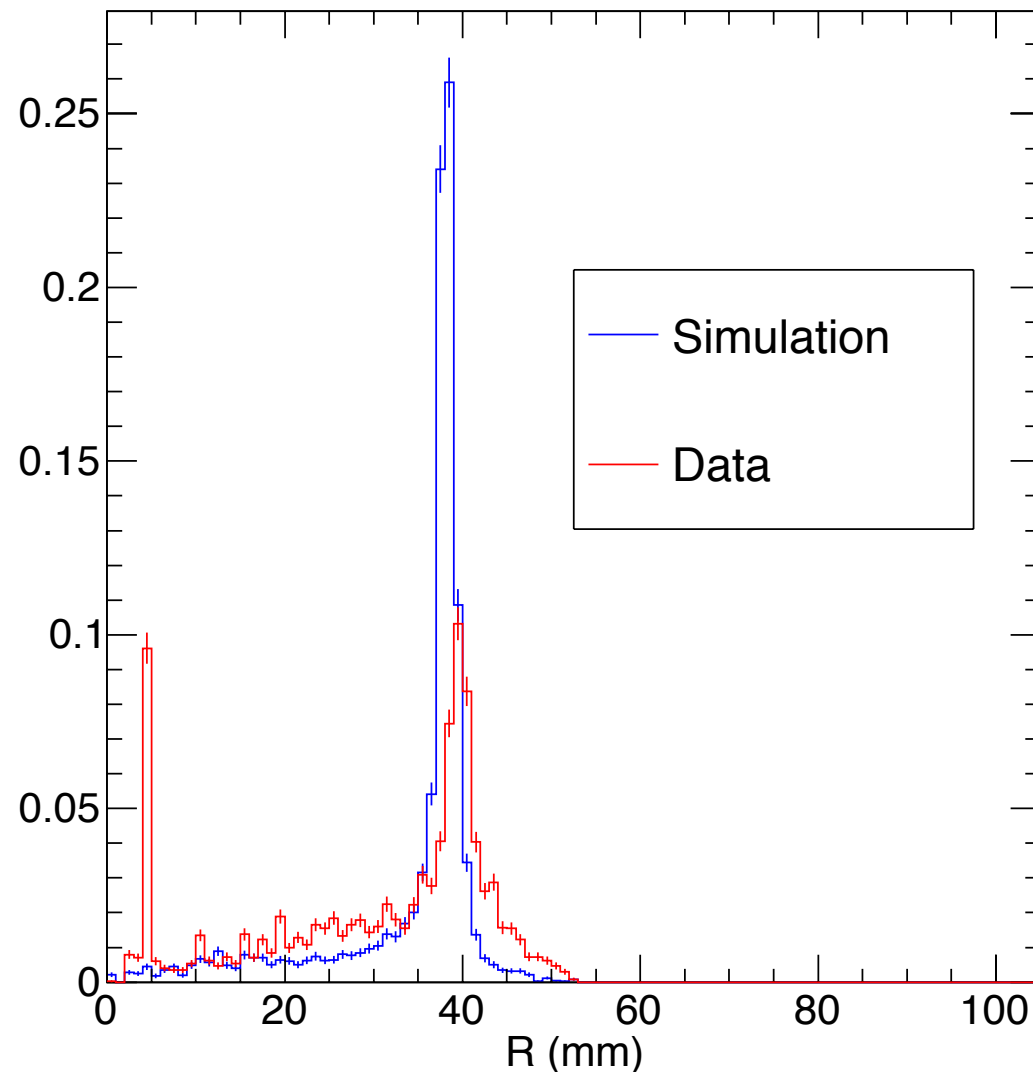


- total photons decreased => tight cut
- photons on ring still matched with simulation => cut off noise?

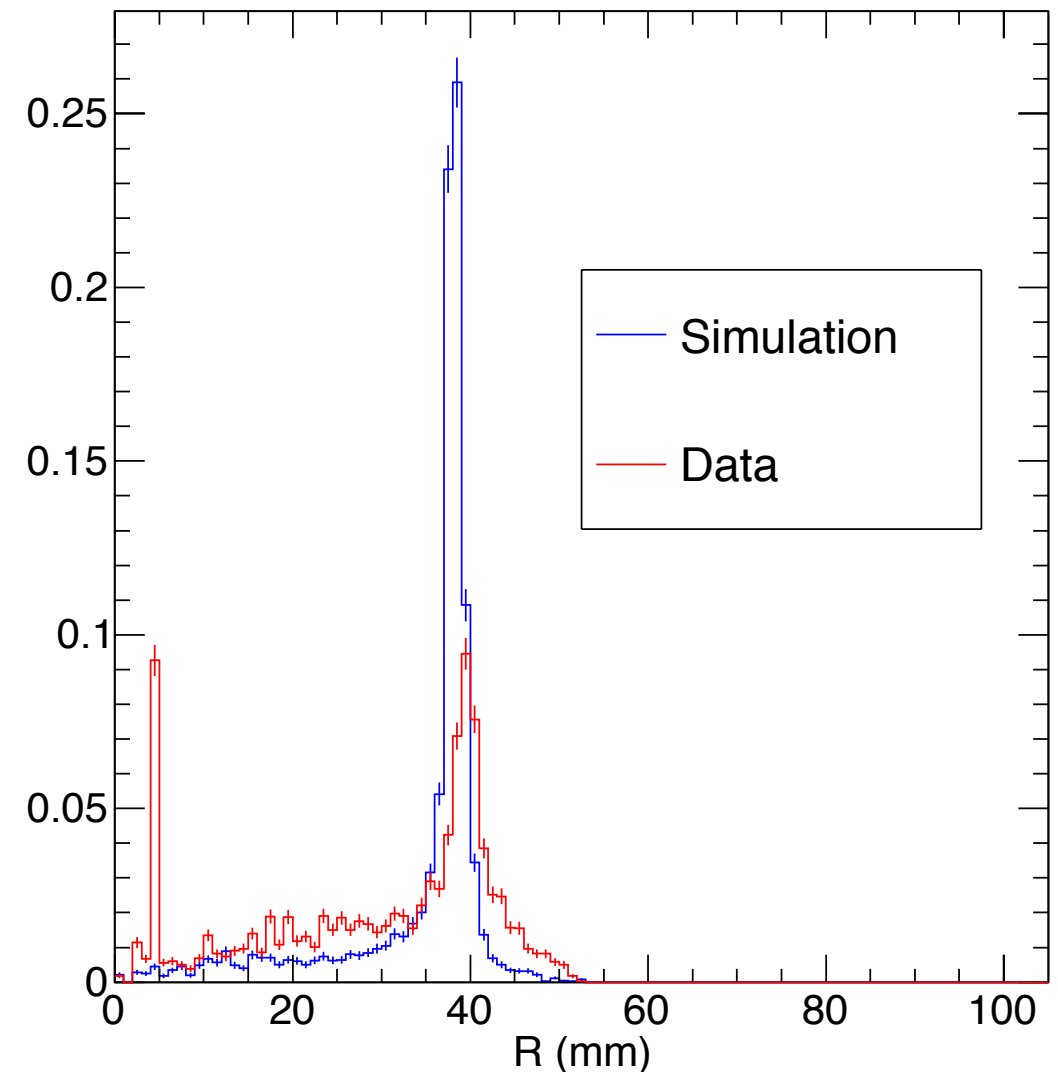
Ring Radius @ 2 sigma



3 sigma
ring radius



2 sigma
ring radius



- ring radius doesn't change much => cut off noise?
- need more investigation of tdc cuts

Summary and Outlook

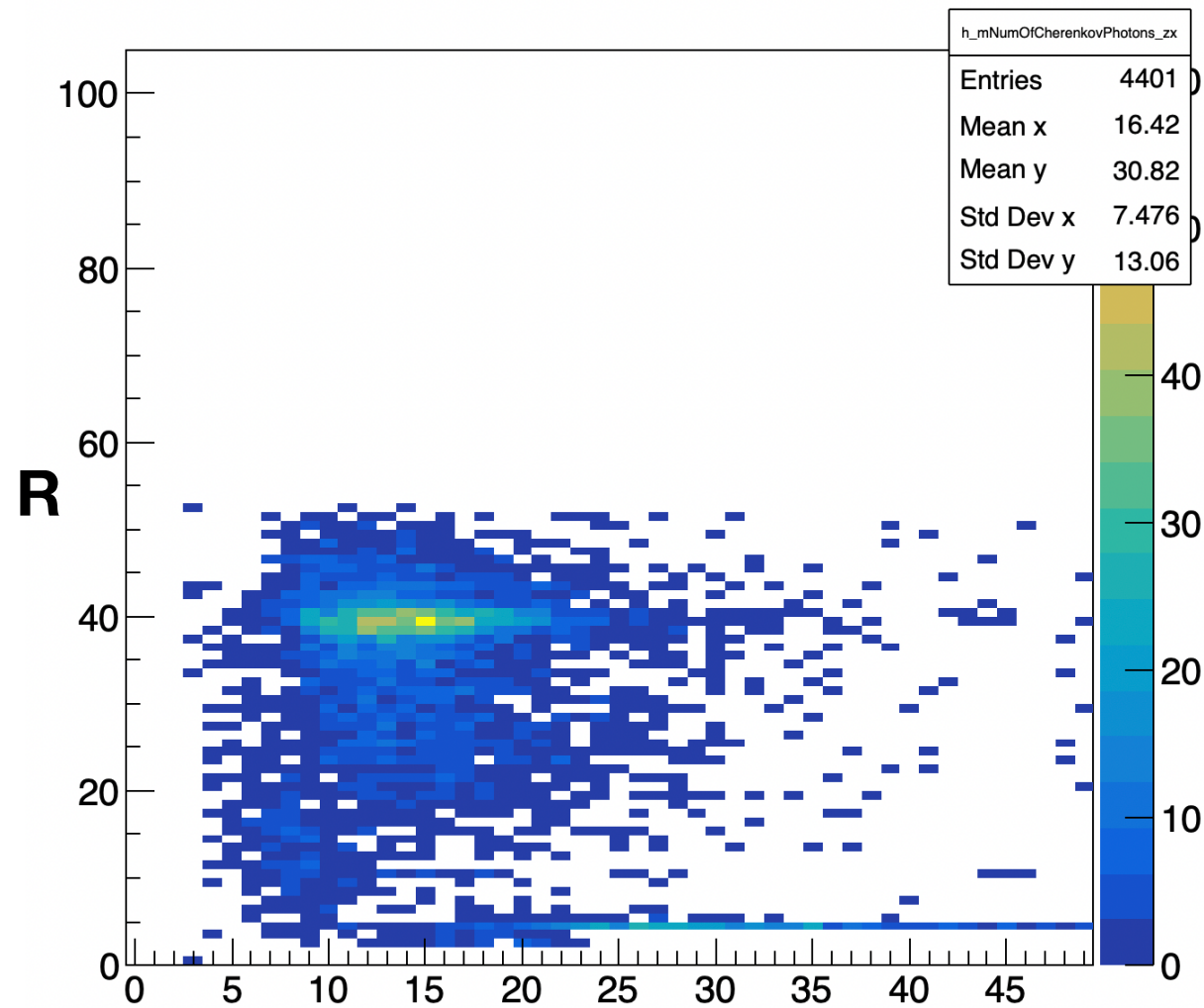


- Implement ring finder into code package
- Need more investigation of tdc cut

backups

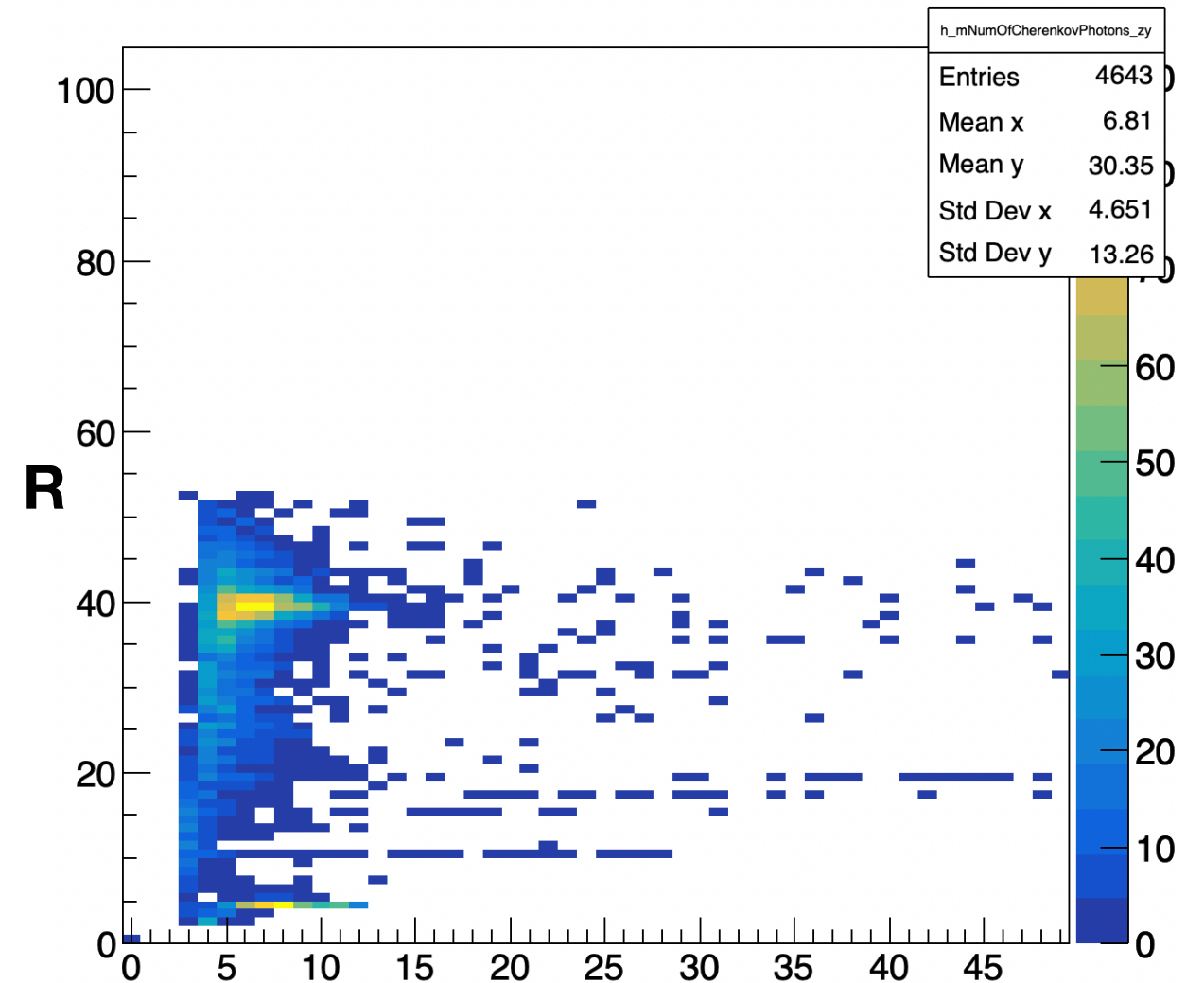


h_mNumOfCherenkovPhotons zx projection



Number of Photons

h_mNumOfCherenkovPhotons zy projection



Number of Photons on Ring