

# Preliminary PSF study for Beamtest Data

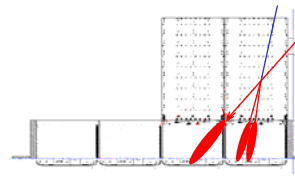
Beamtest VRVS  
22/08/06

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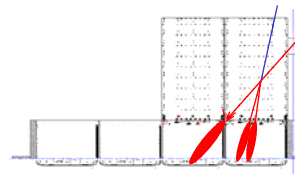
# Outline



- Data
- Some basic distributions wrt  $M_c$  and Events Selection
- Tagged Photons
- FullBrems
- $M_c$
- Conclusions



# Data



- **Tagged Photons**

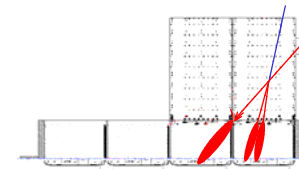
- Beam Energy: 0.5 - 1 - 1.5 - 2.5 GeV
- Beam Angle: 0 - 30 - 48 deg

- **FullBrems**

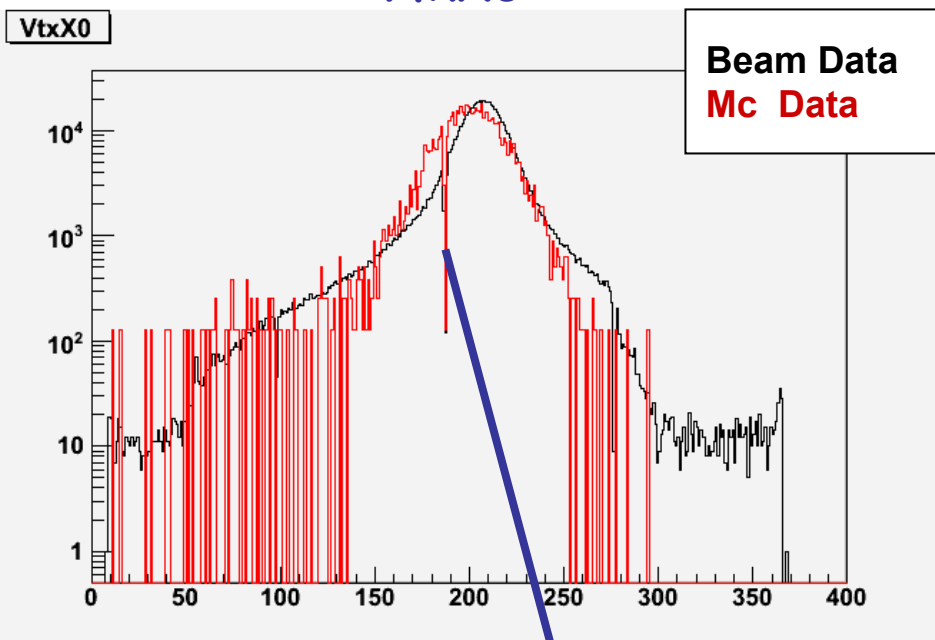
- Beam Energy: 2.5 GeV
- Beam Angle: 0 - 30 - 50 deg



# Beam Position and Geometry

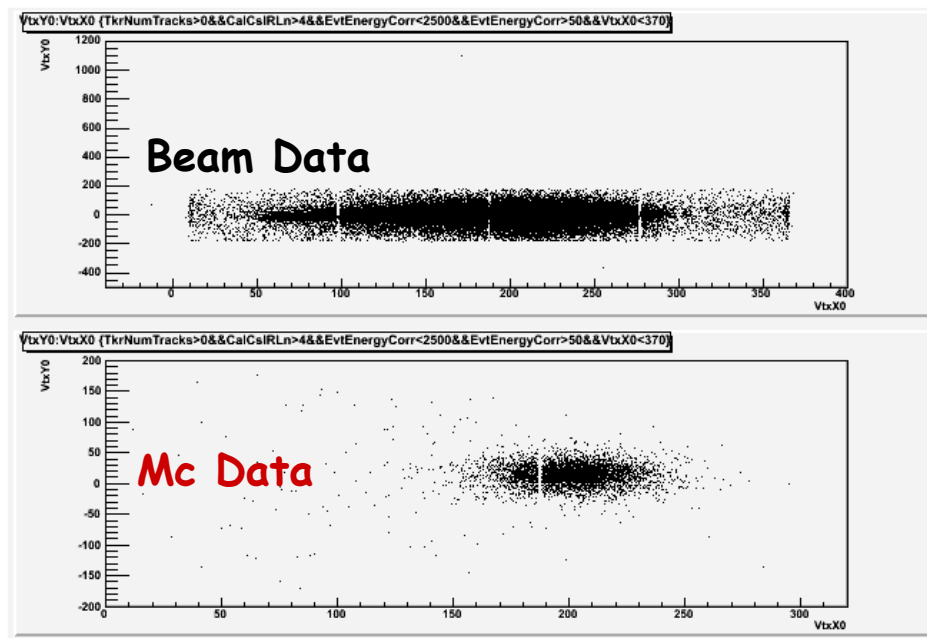


$V_{tx}X0$



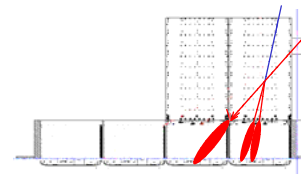
**Ladder Boundary  
is in the same position**

$V_{tx}Y0$  vs  $V_{tx}X0$

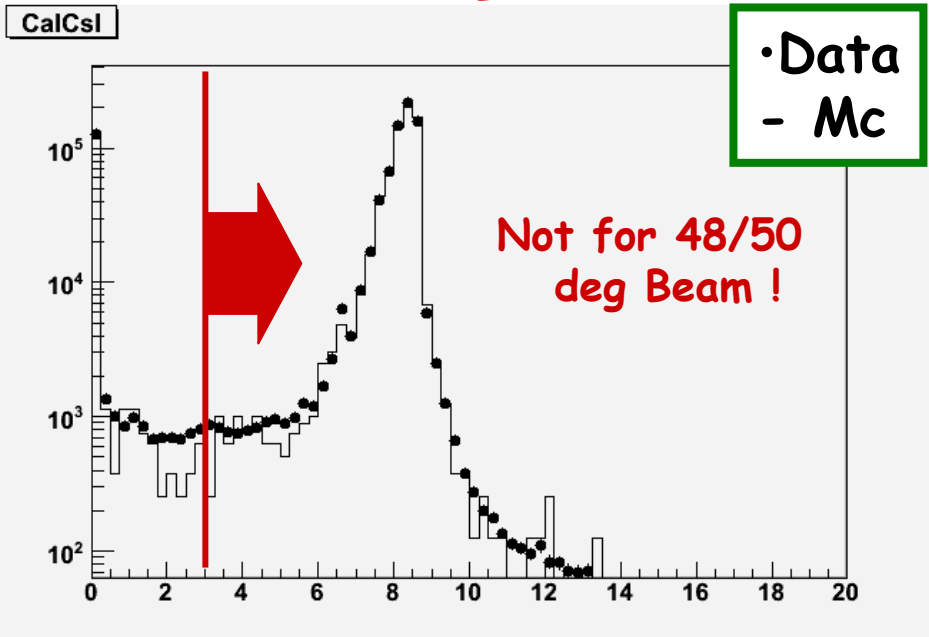




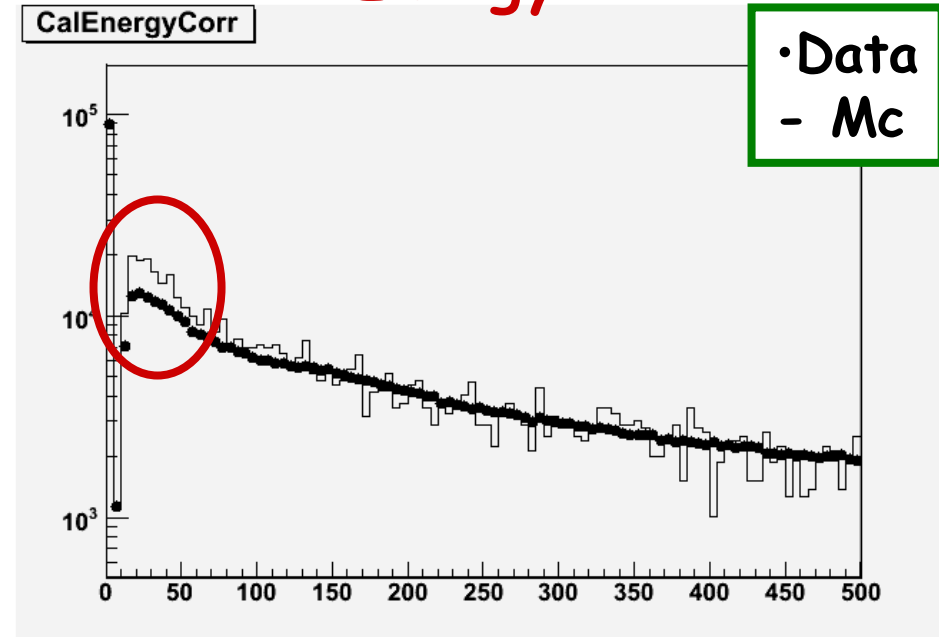
# Event Selection



$CalCsIRLn > 3$

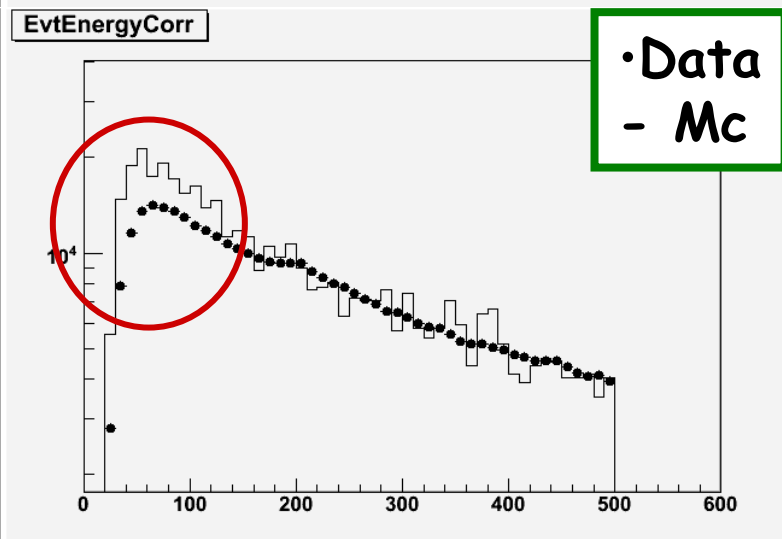
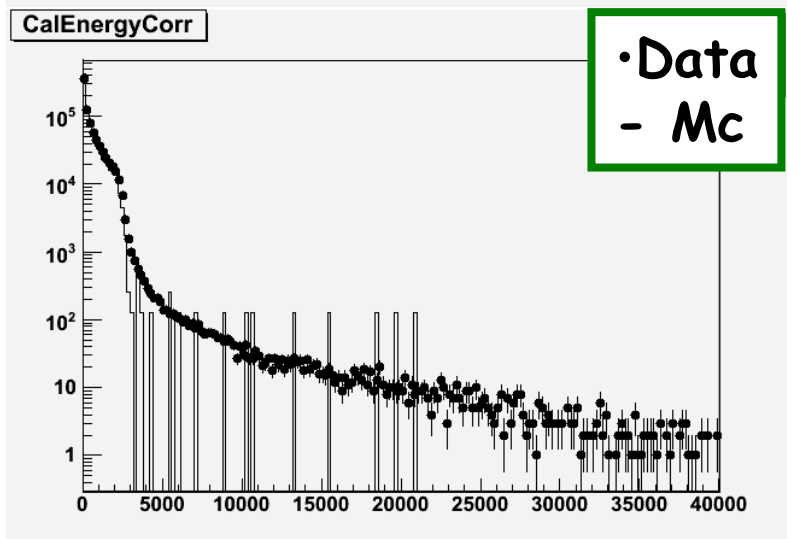
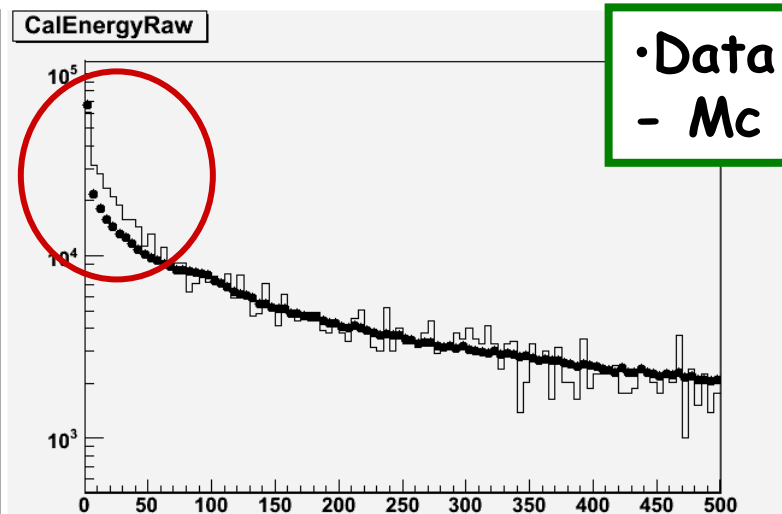
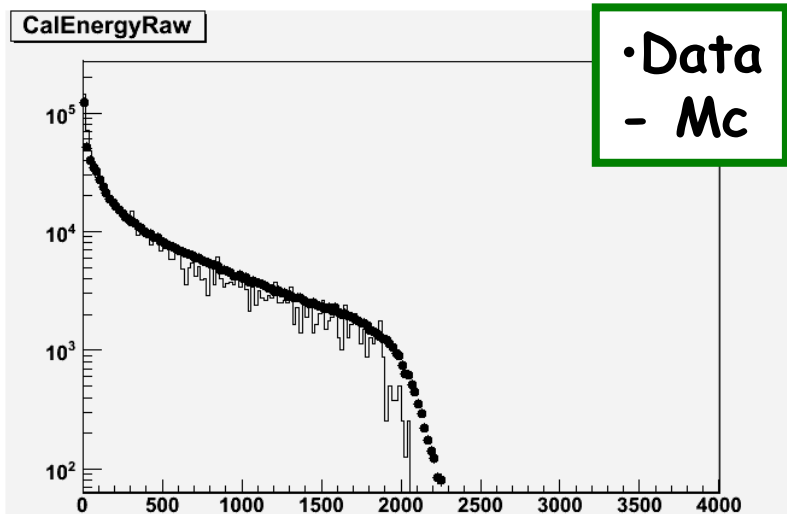
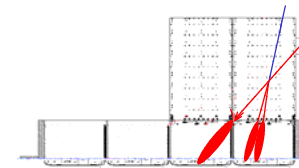


$CalEnergyCorr > 30$



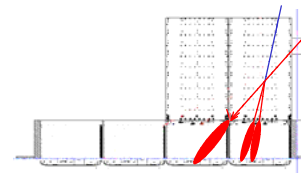


# Energy Distributions





# Event Selection



## Tagged Photons:

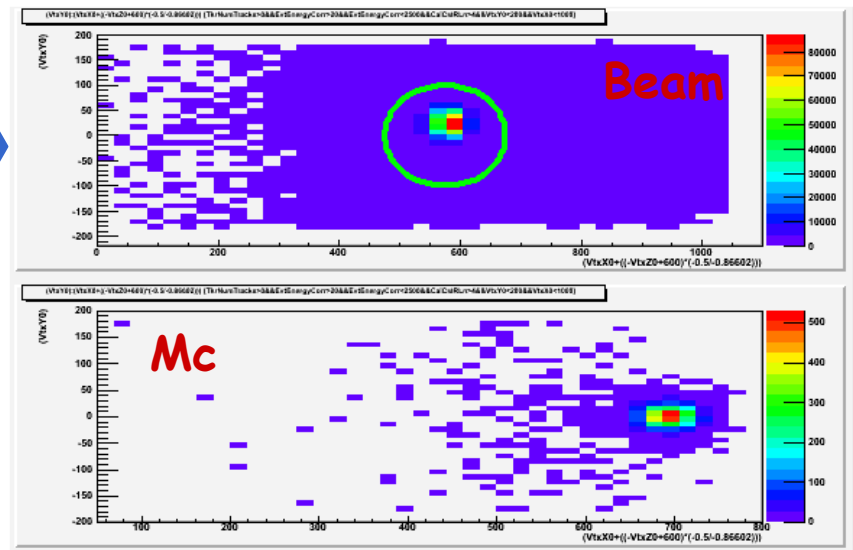
- Only 1 Hit in each Si Taggers

## FullBrems Photons:

- Geometrical Cut on Impact Point:
- Vtx Position extrapolated from beam direction (No Bias)

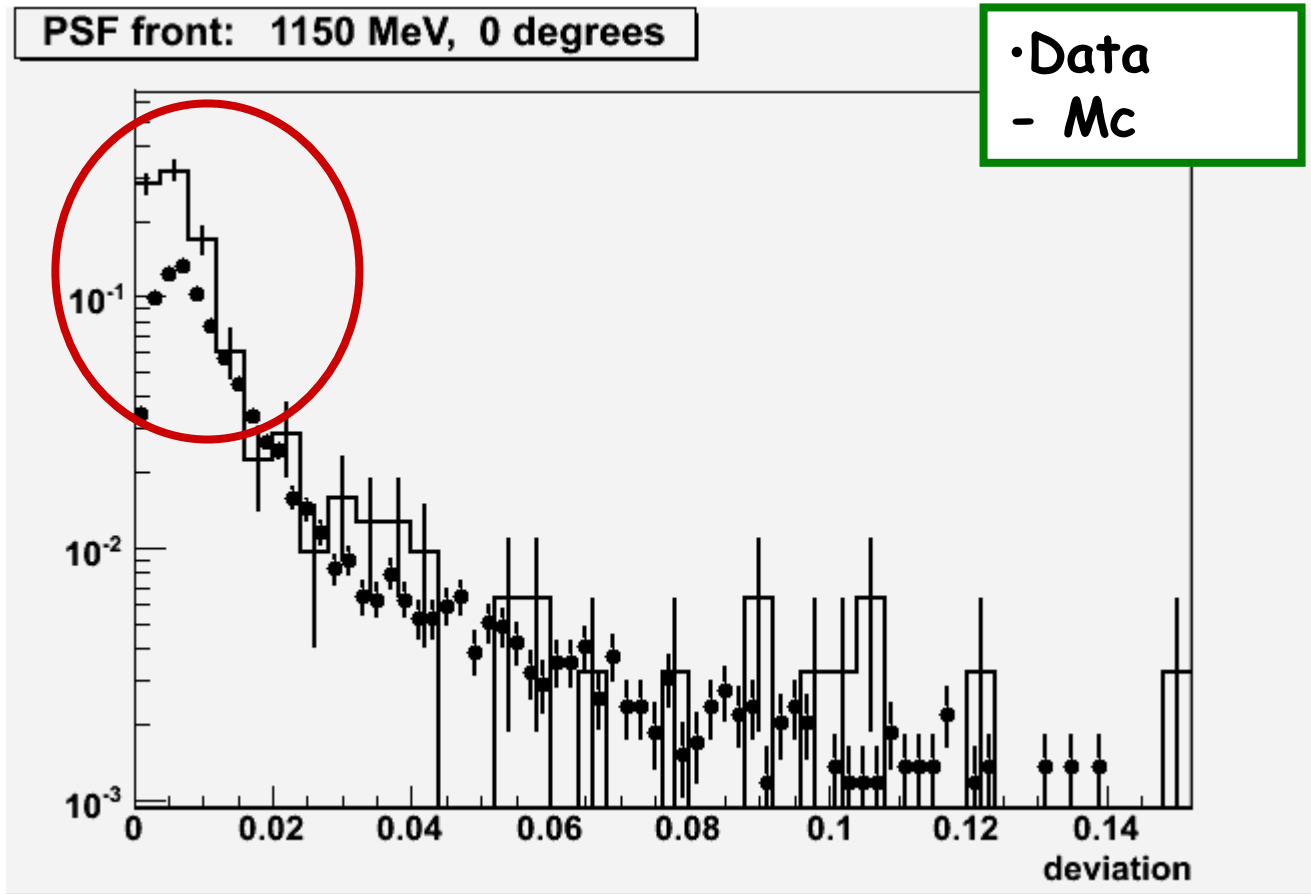
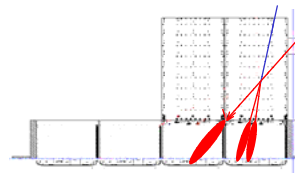


### YIn vs XIn





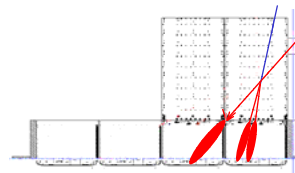
# Direction Error



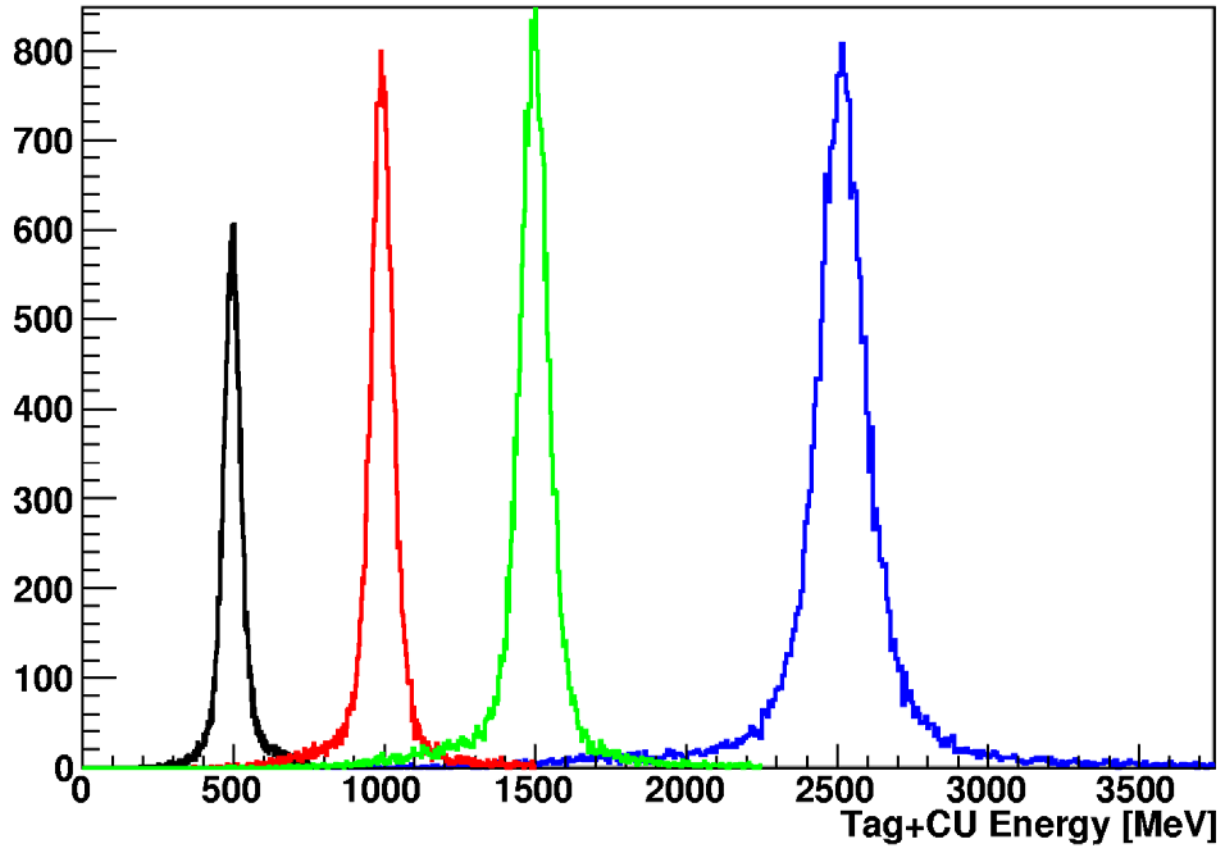




# Tagger+CU Energy

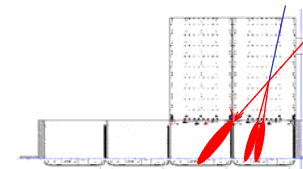


Tag Energy + CU Energy



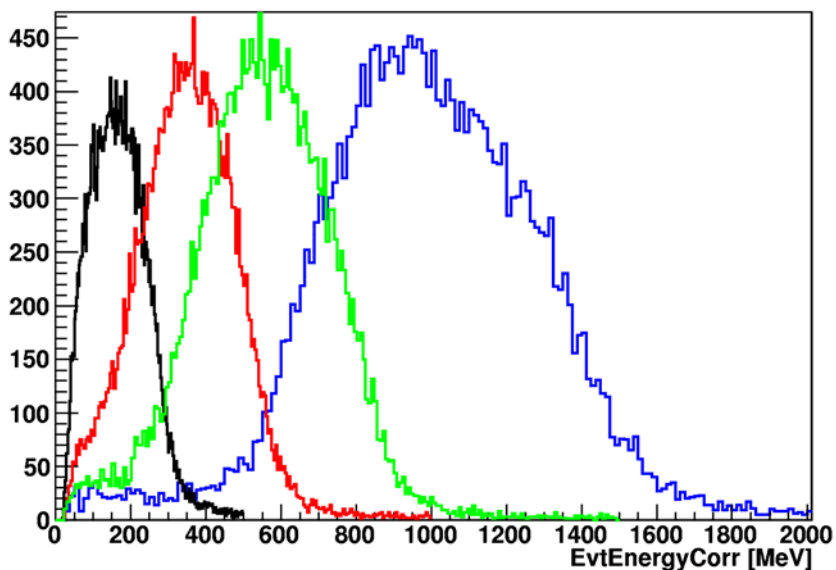


# Tagged Photons Energy Range



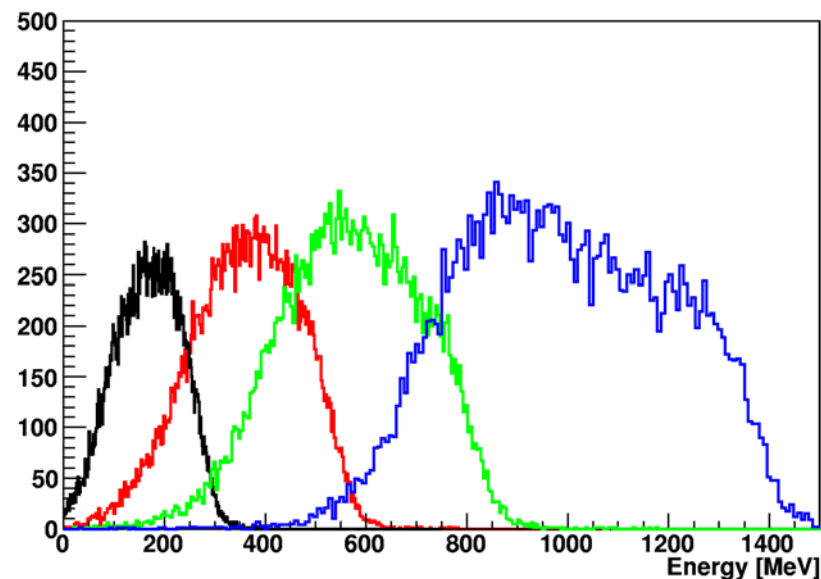
## CU Energy

EvtEnergyCorr



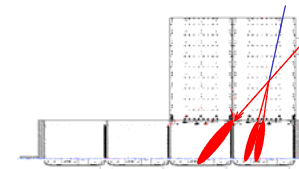
## Tagger $\gamma$ Energy

Tag gamma Energy

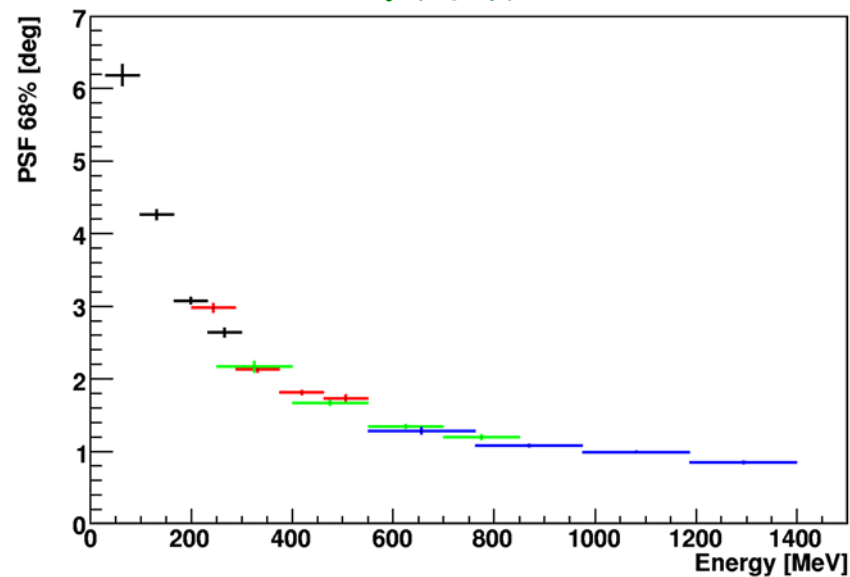




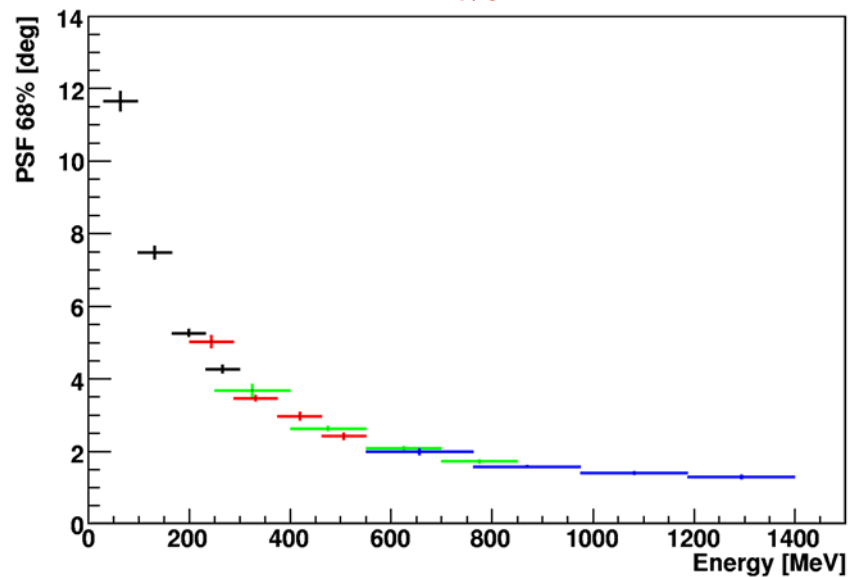
# Tagged PSF 68% (0 deg)



## Front

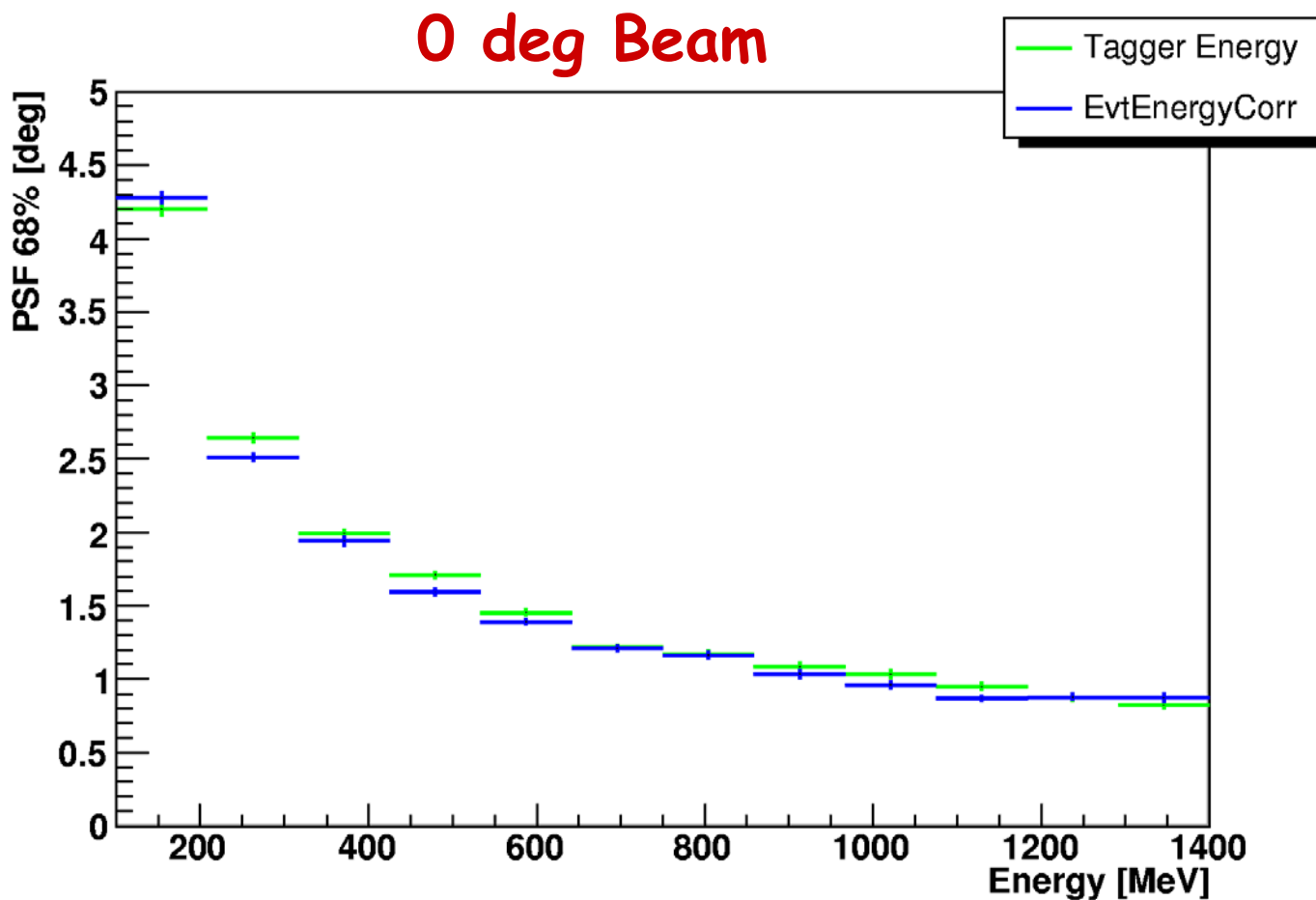
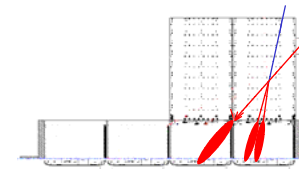


## Back



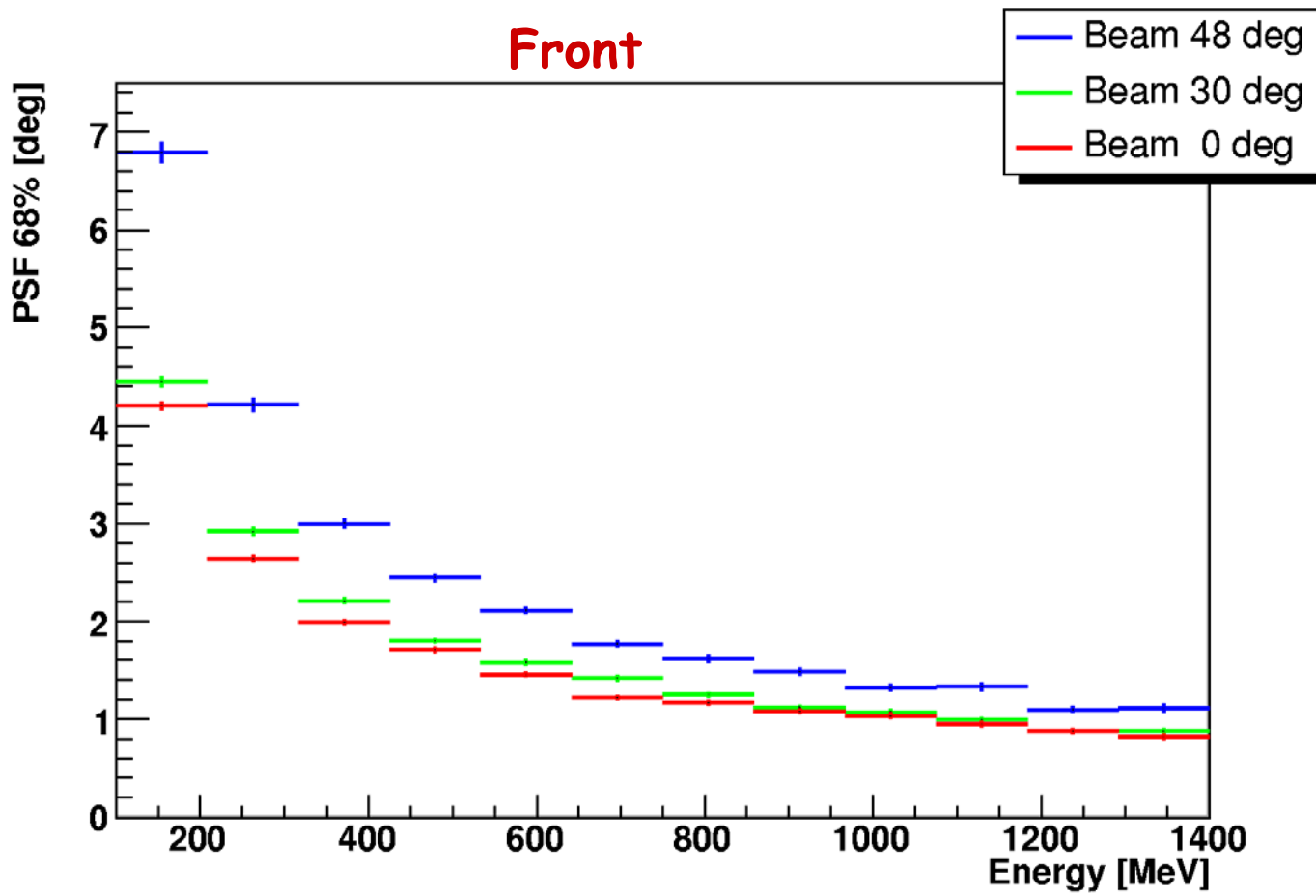
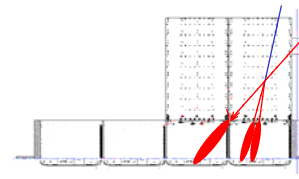


# Tag Energy or EvtEnergyCorr?



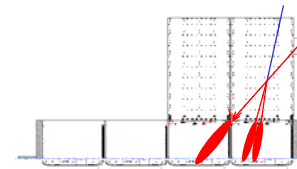


# Beam Angle Effect

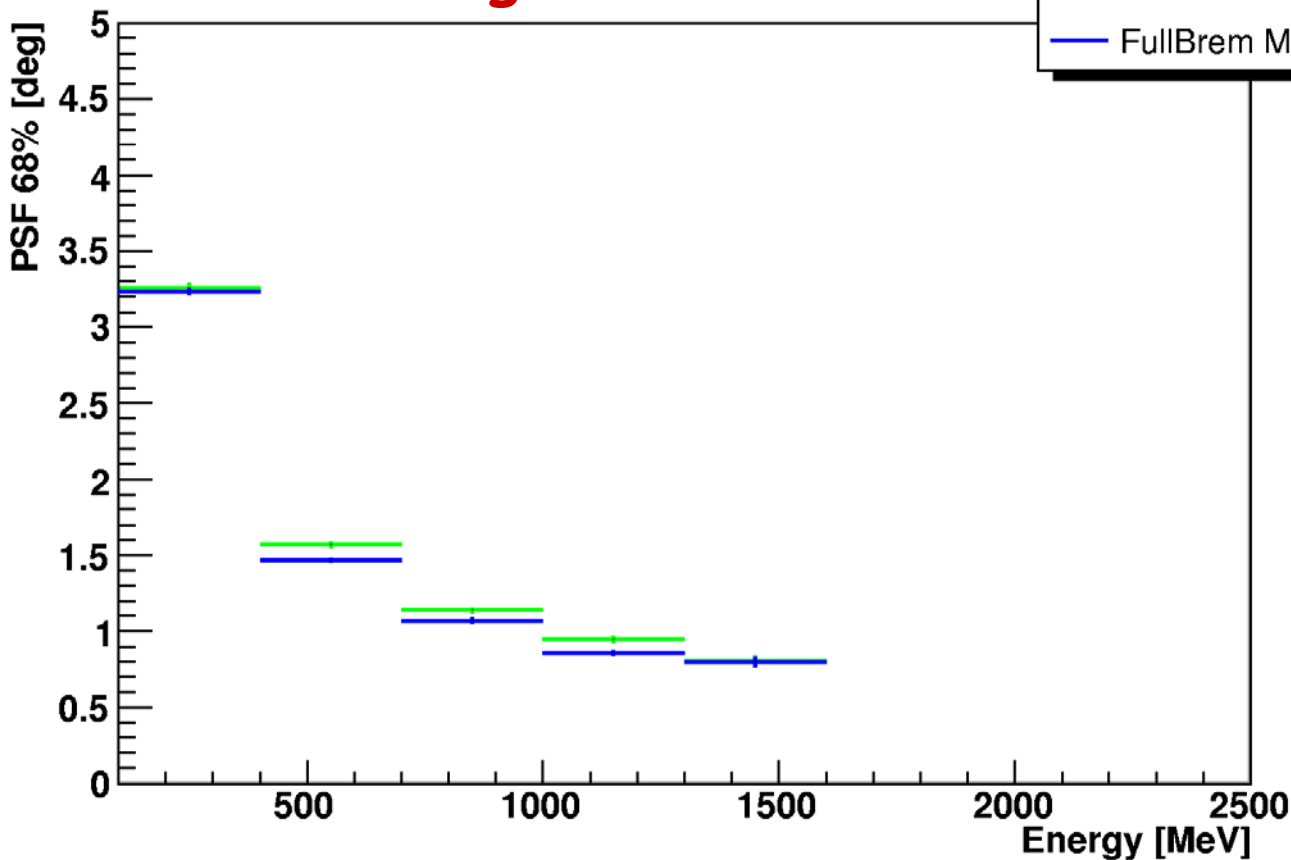




# TagMode vs FullBremMode



0 deg Beam

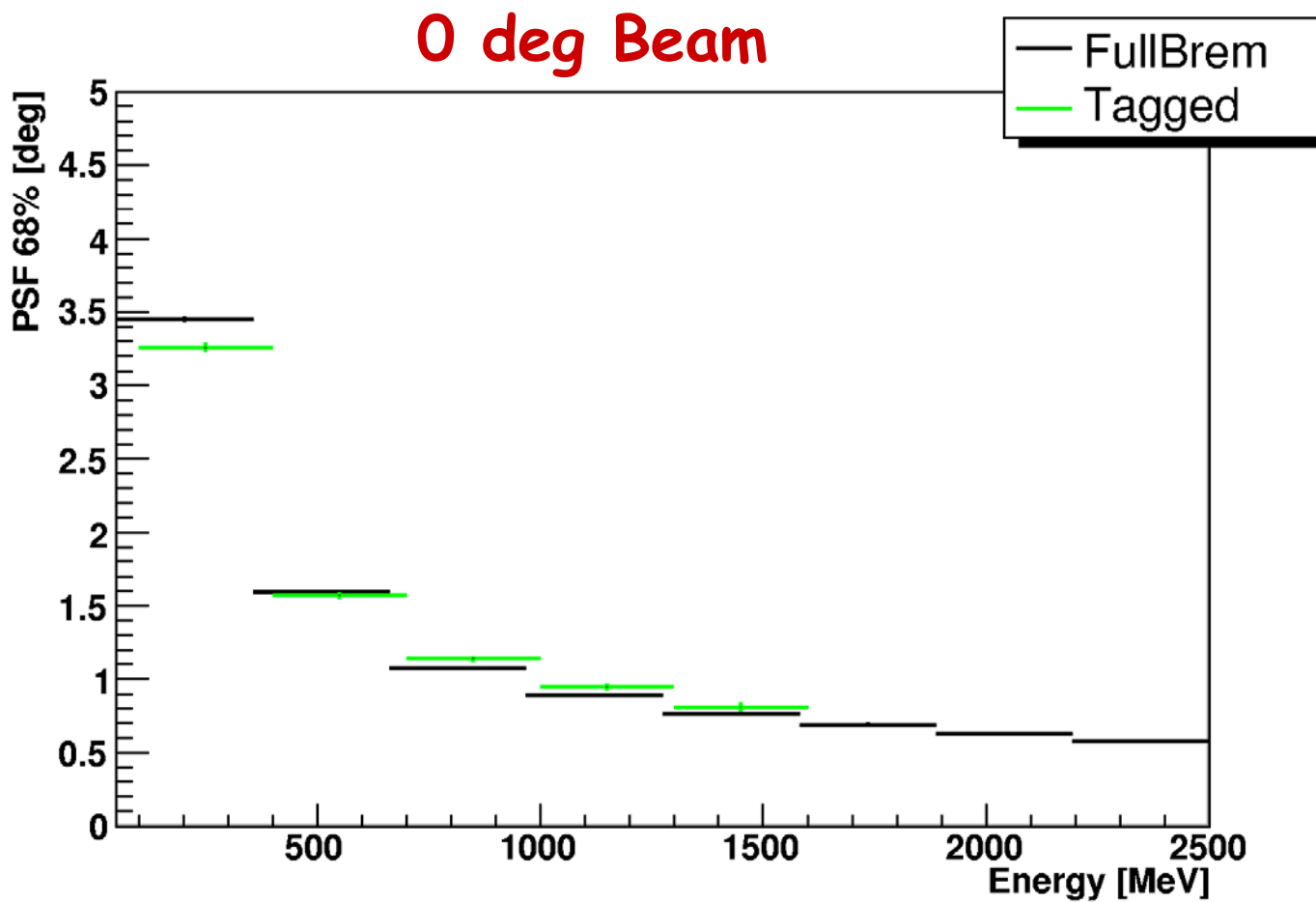
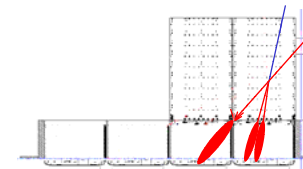


TagMode:  
Tagged Photons  
using Tagger  
infos to compute  
Direction Error

FullBremMode:  
Photons selected  
with Tagger but  
NO Tagger info  
is used to compute  
Direction Error

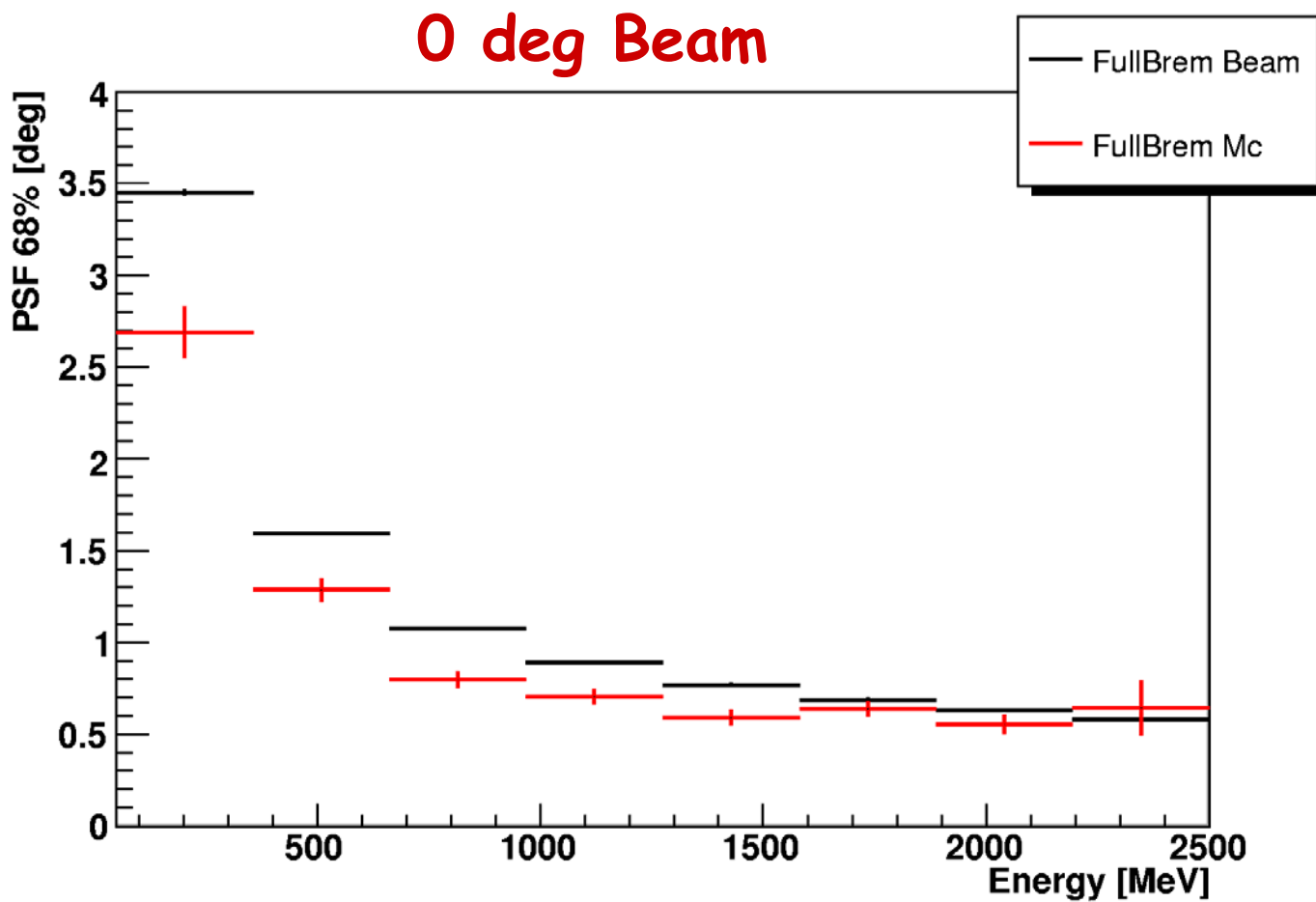
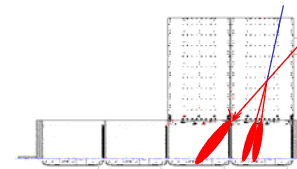


# Tagged vs FullBrem





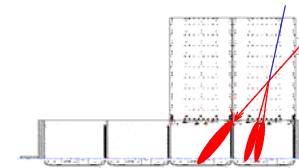
# FullBrem Beam Data vs Mc



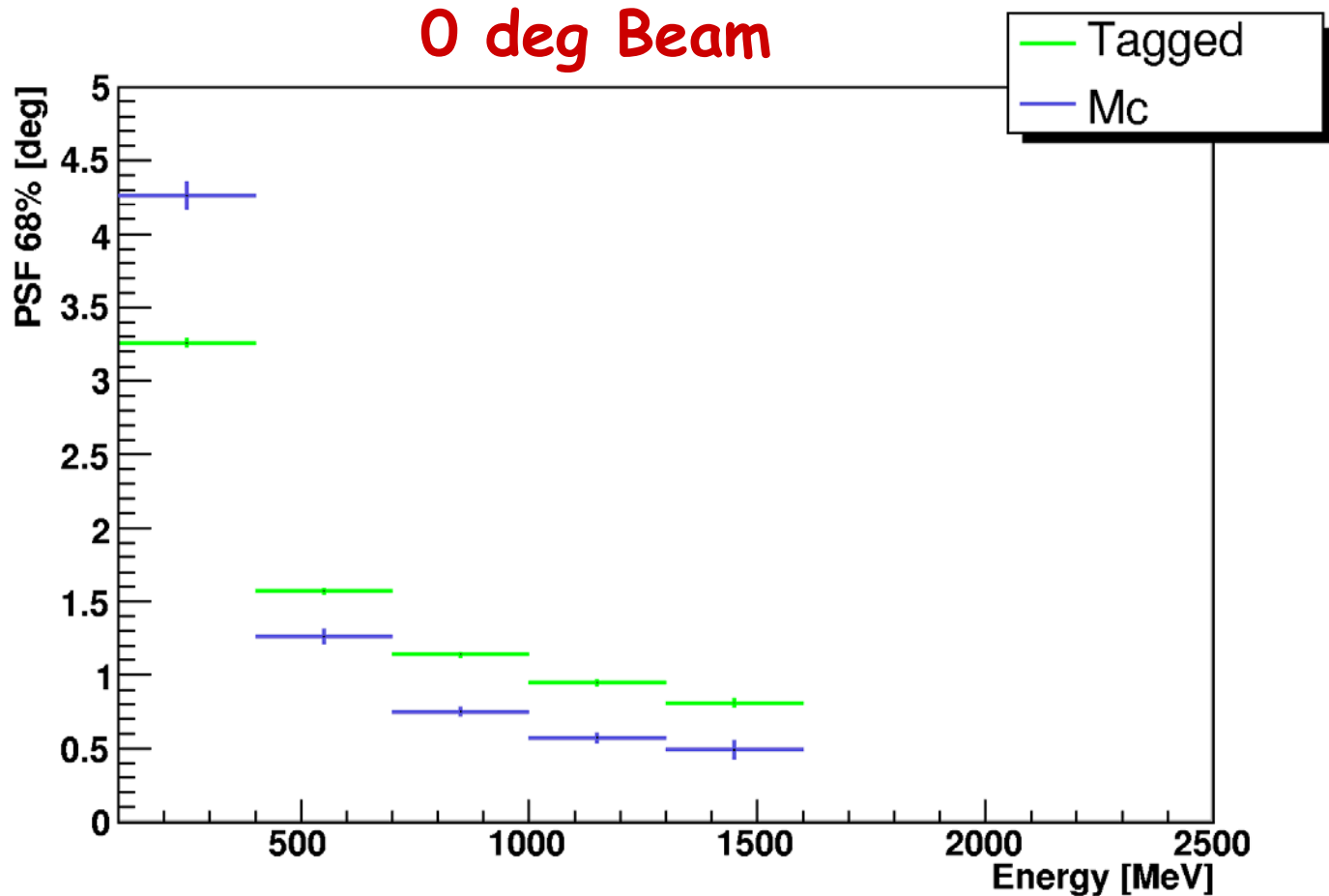




# Tagged vs Mc



0 deg Beam



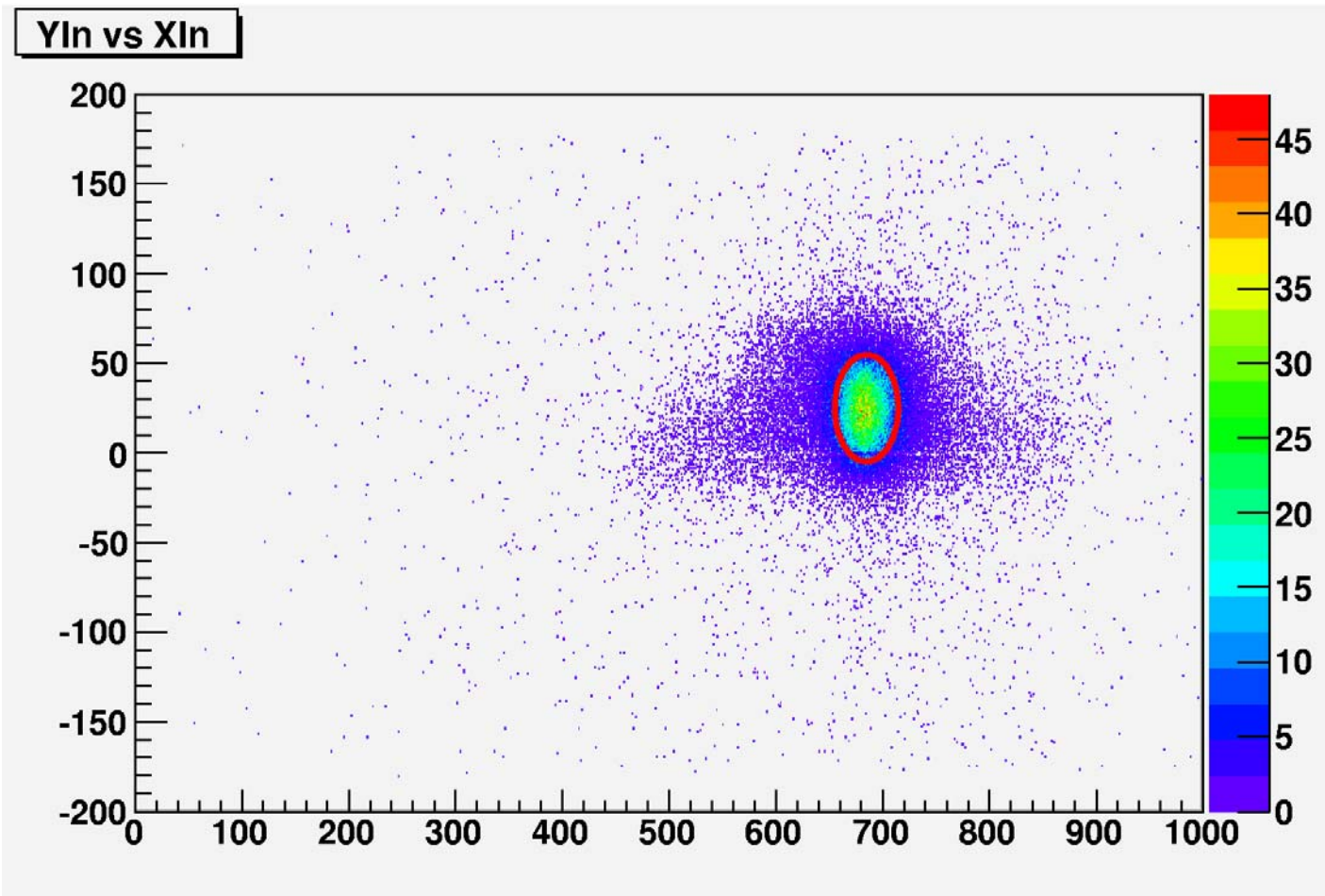
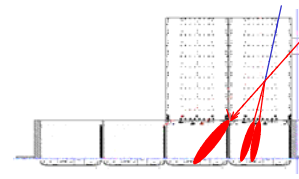
Tagger Position  
not correct in Mc



We use  
McDirErr

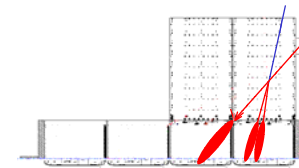


# Impact Point Cut for Tagged



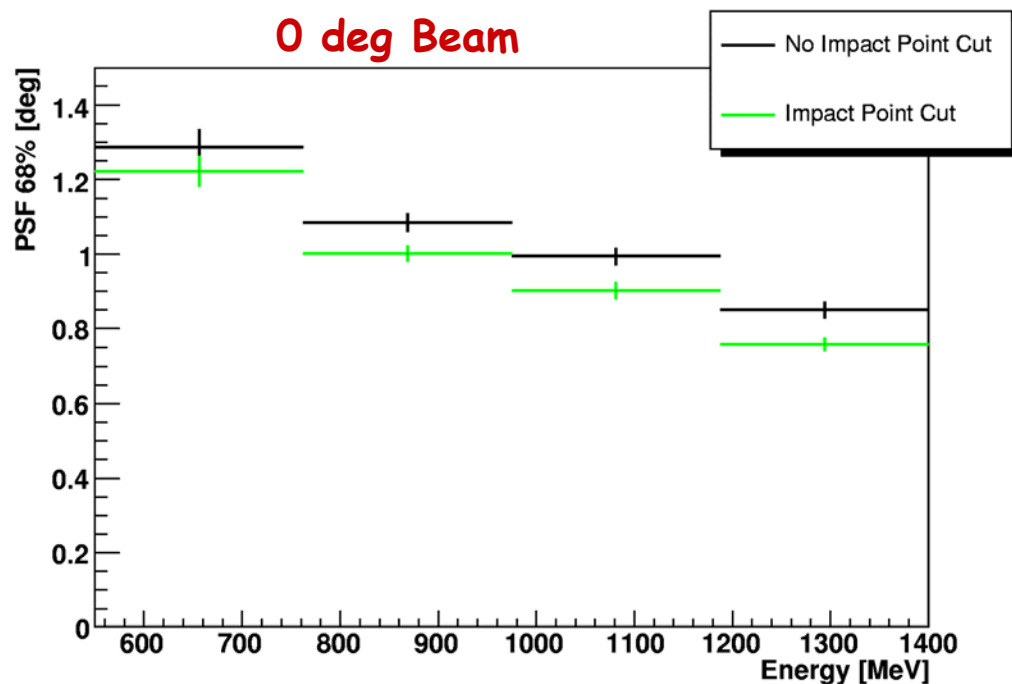


# Impact Point Cut

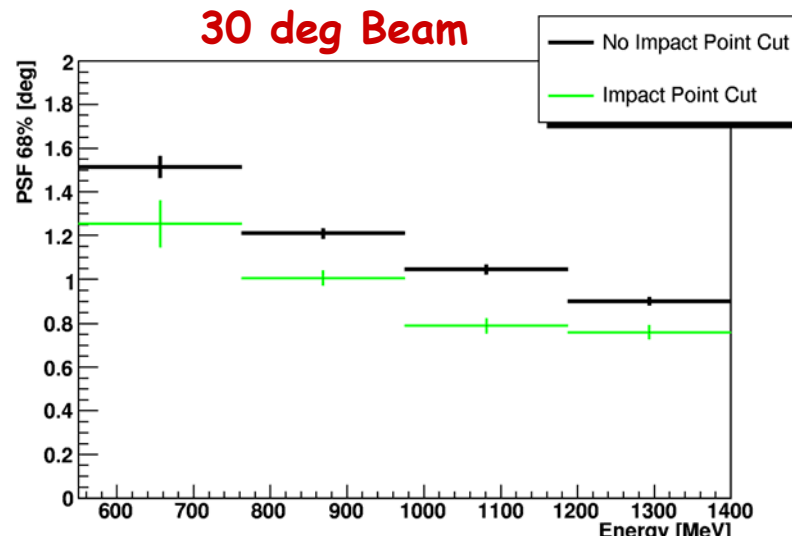


## Beam Energy = 2.5 GeV

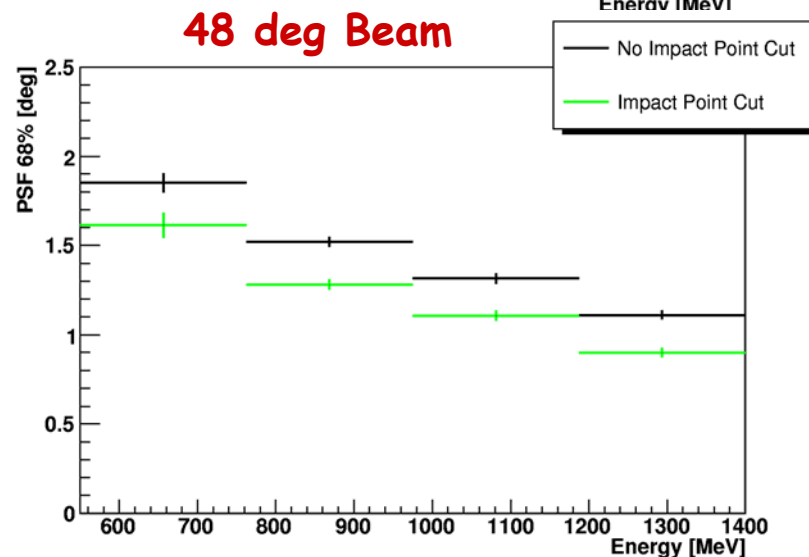
### 0 deg Beam



### 30 deg Beam

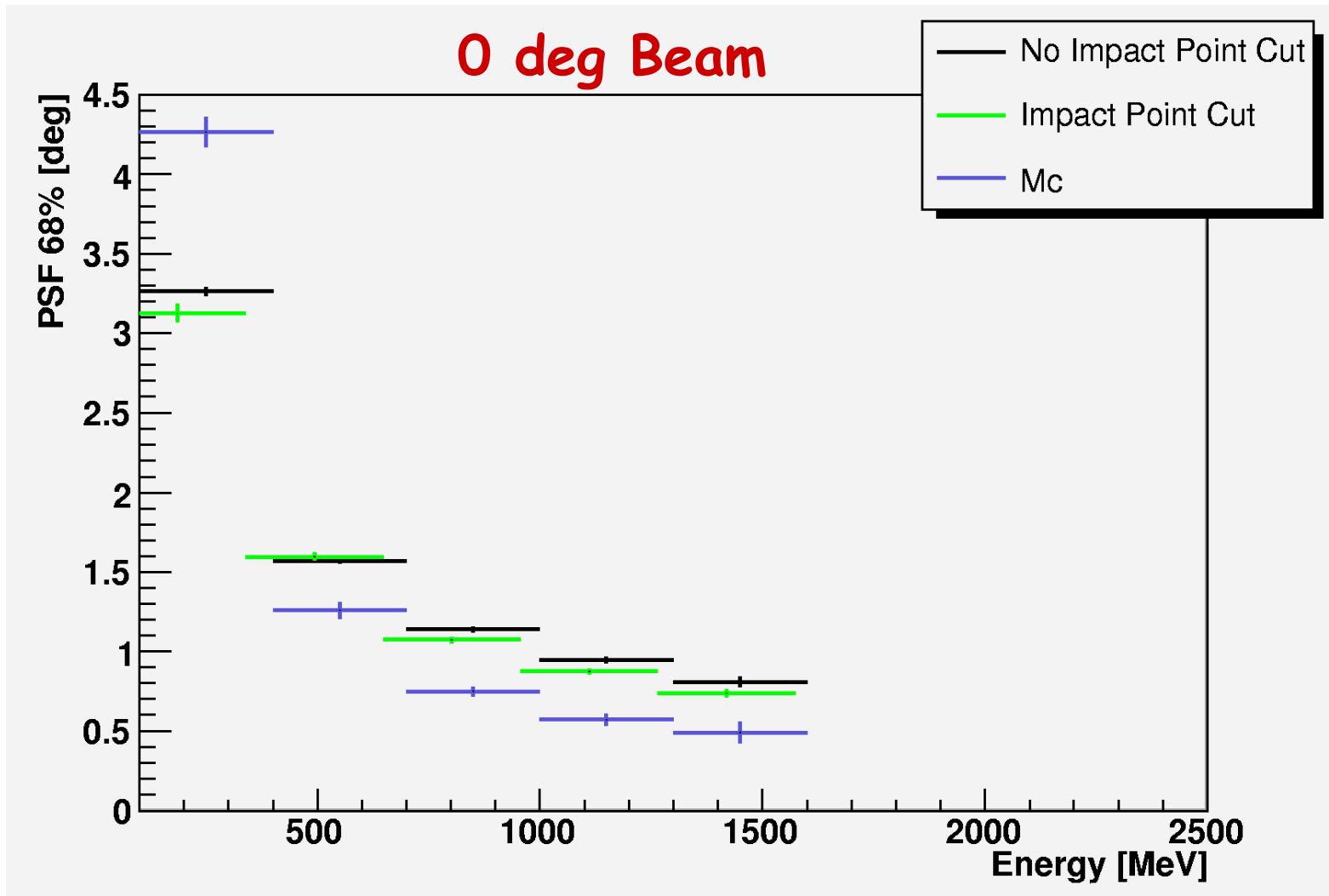
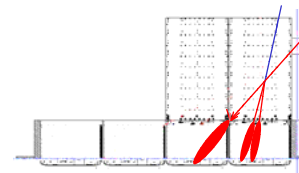


### 48 deg Beam



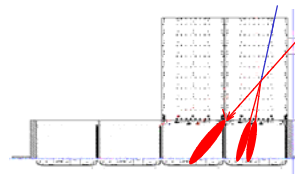


# Impact Point Cut





# Conclusions



- Basic Distributions and Events selection
  - Some distributions show differences wrt  $M_c$
  - Differences and Event Selections have to be investigated much further
- Tagged Photons PSF
  - Difference between Beam data and  $M_c$  to be understood
  - Optimal events selection and geometrical cuts have to be studied and understood
- FullBrems PSF
  - Show agreement with Tagged Photons but not with  $M_c$
  - Optimal events selection and geometrical cuts have to be studied and understood