

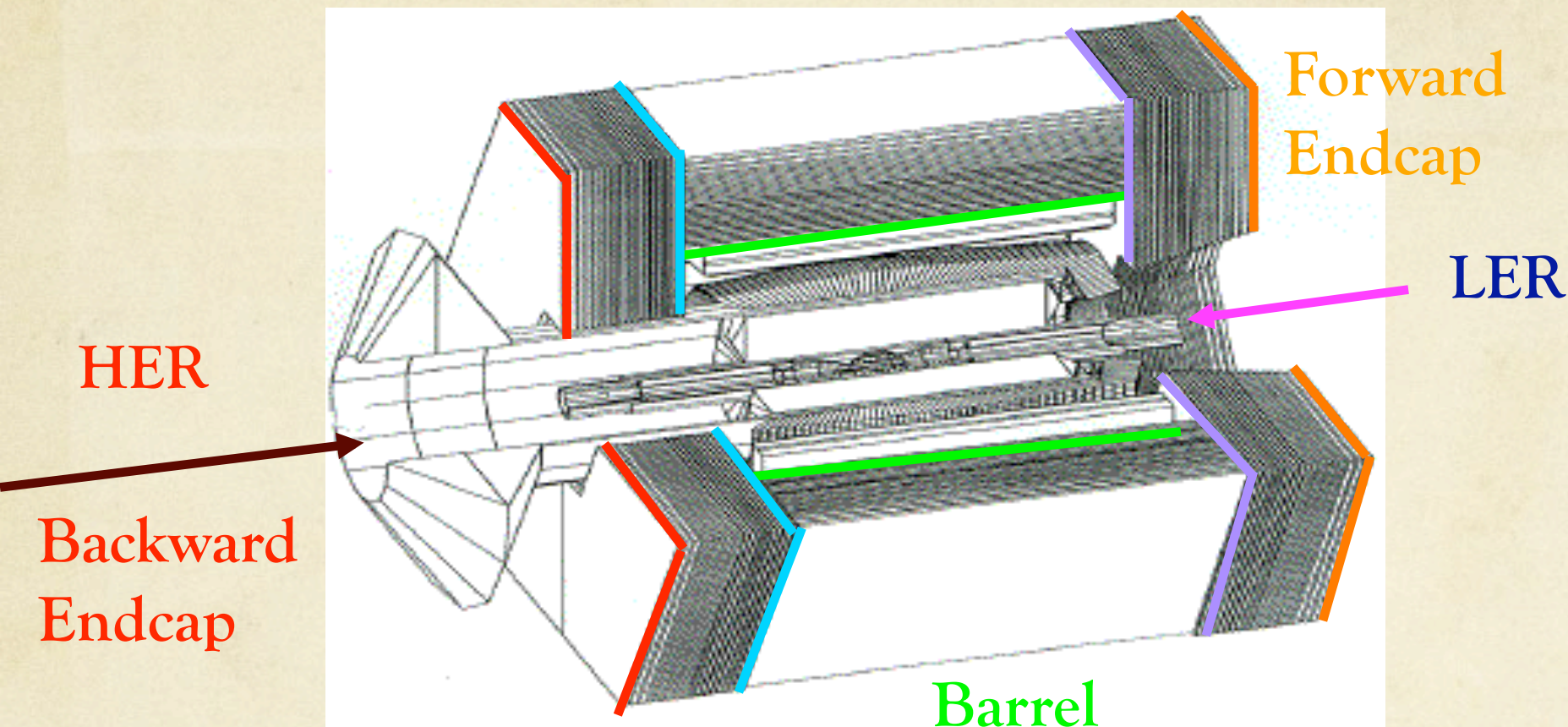


IFR Background Report

Valentina Santoro
INFN Ferrara

10/19/2011

Bkg-Meeting 19 Oct 2011



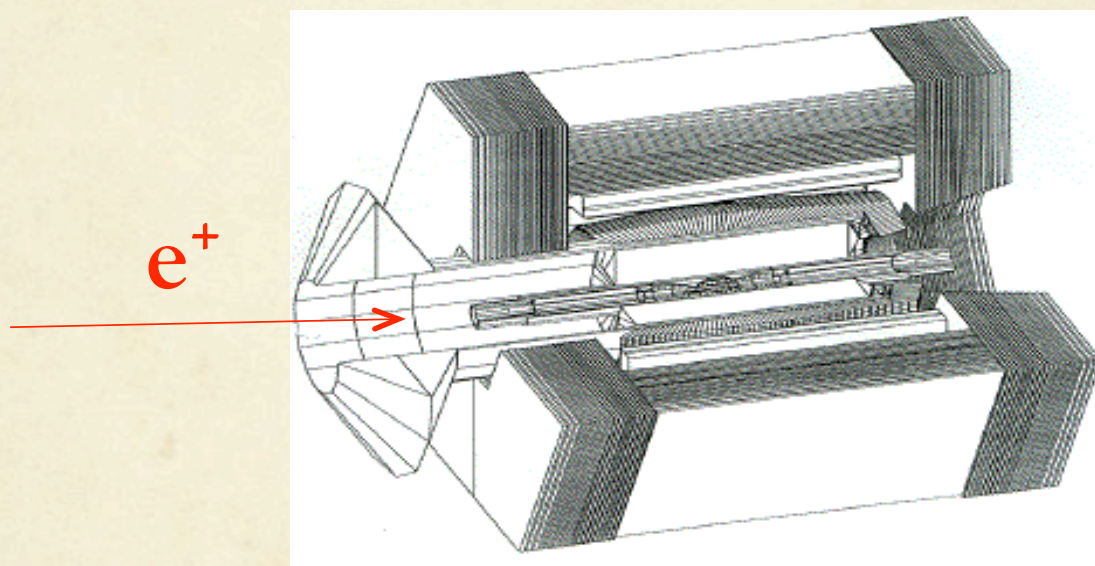
Barrel: innermost layers, mostly neutrons

FWD encaps (hottest region) : inner layer and outer layers (BEAM halo), neutrons, electron and photons

BWD encaps: inner layer and small radii

- Tousheck background
 - Detailed neutron background analysis (HER and LER)

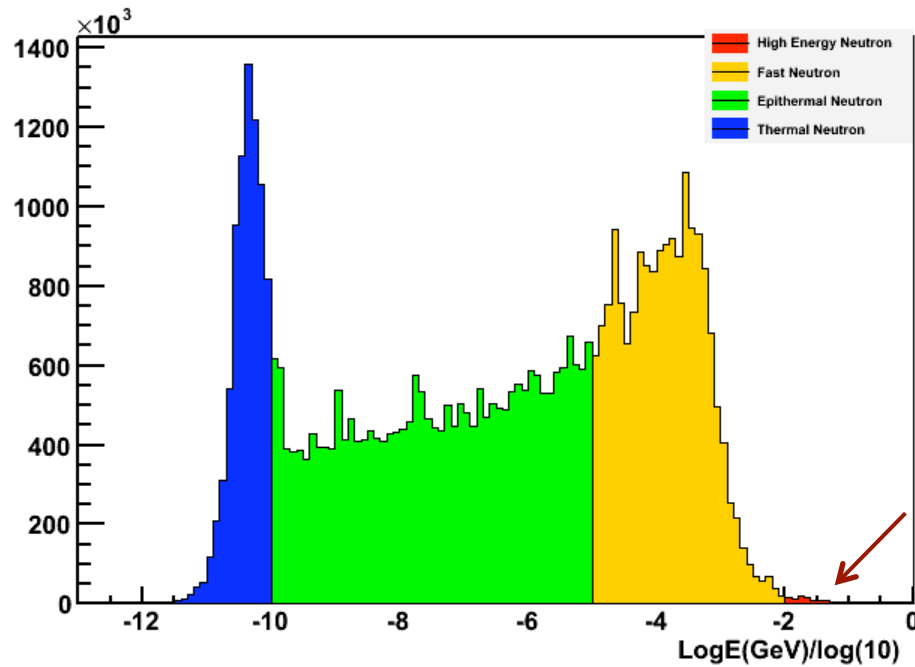
Touschek events HER



Neutron Energy Distributions for Touschek HER events

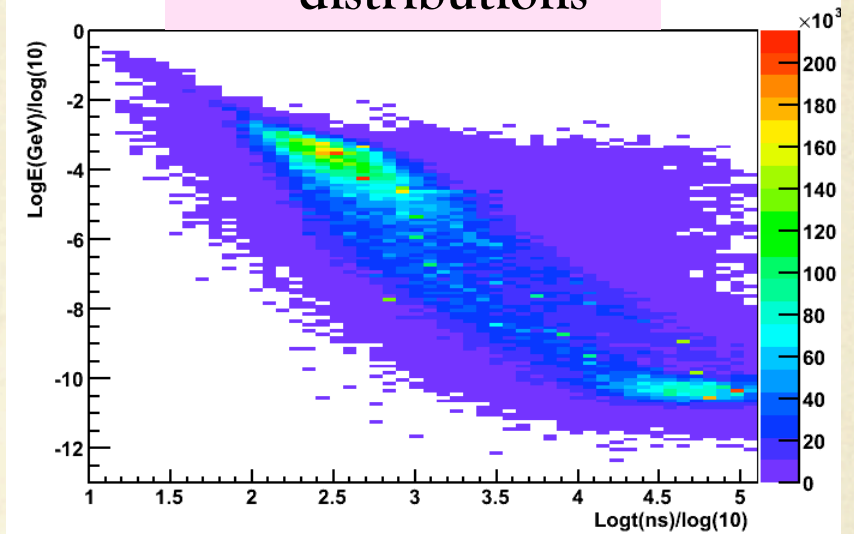


Barrel

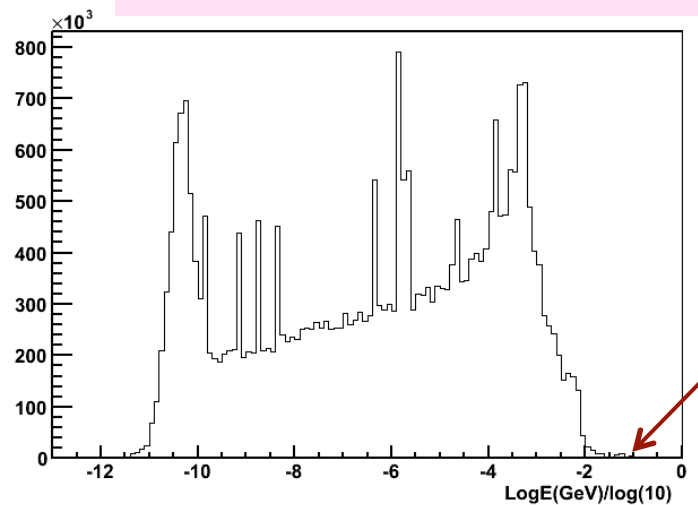


Barrel

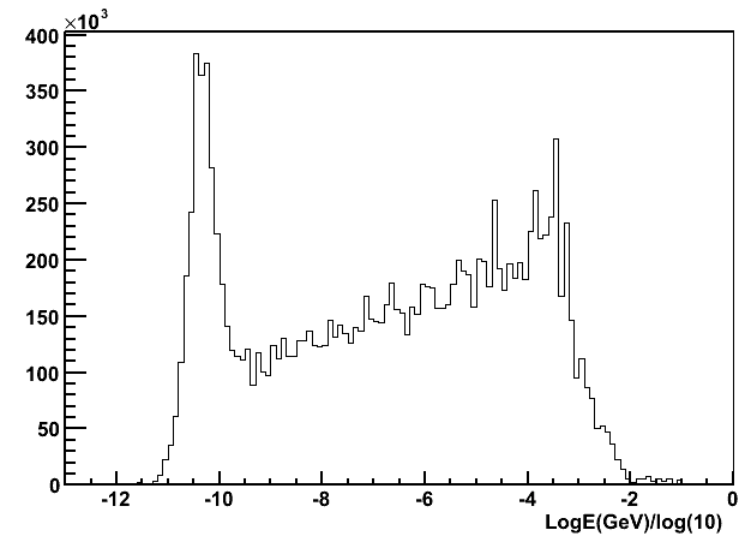
Energy vs time distributions



Backward Endcap



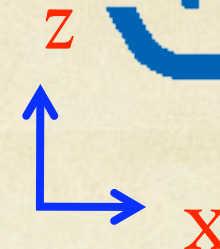
Forward Endcap



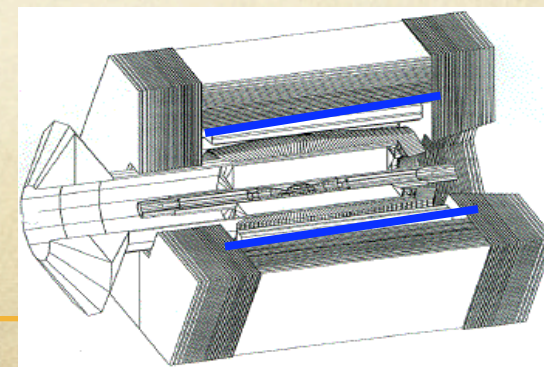
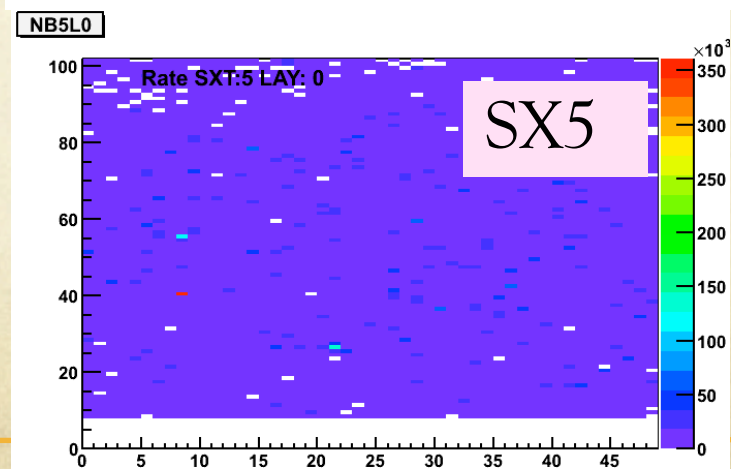
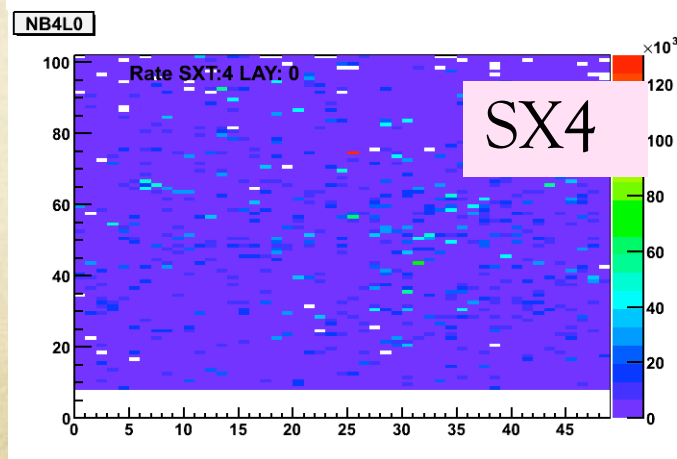
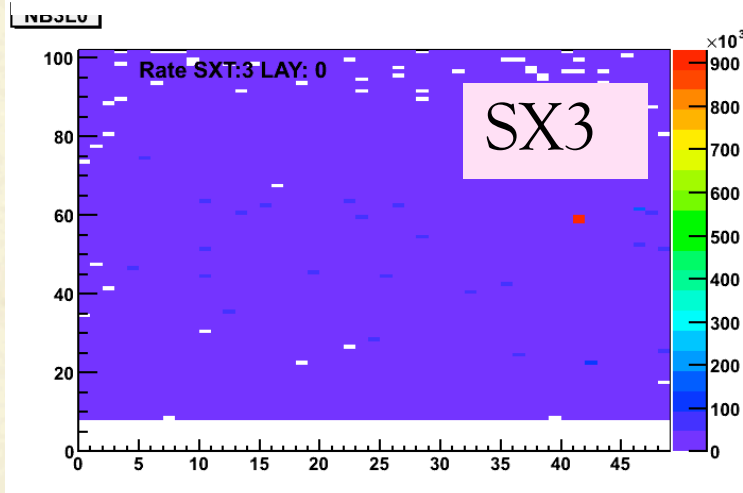
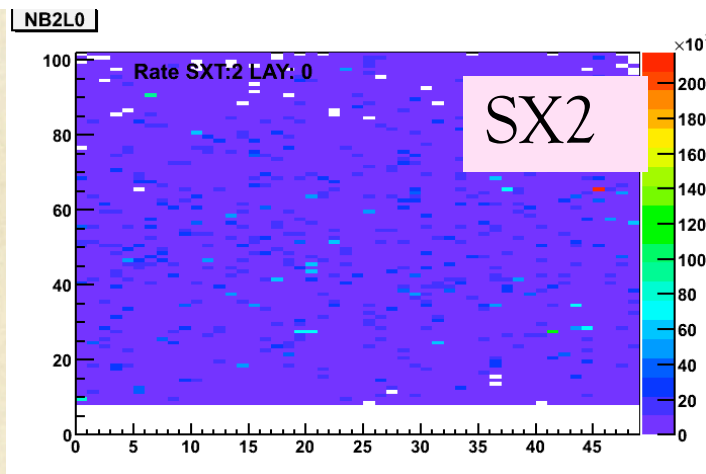
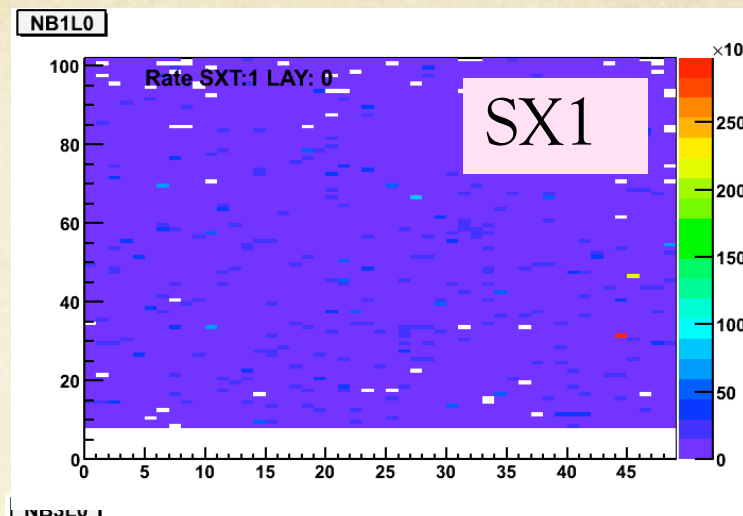
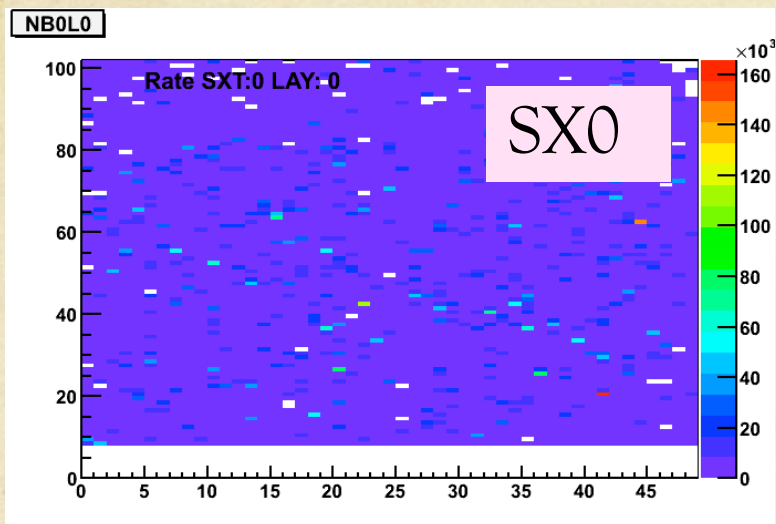
Rate for Neutrons for Touschek events Layer0: Barrel



Hz/cm²

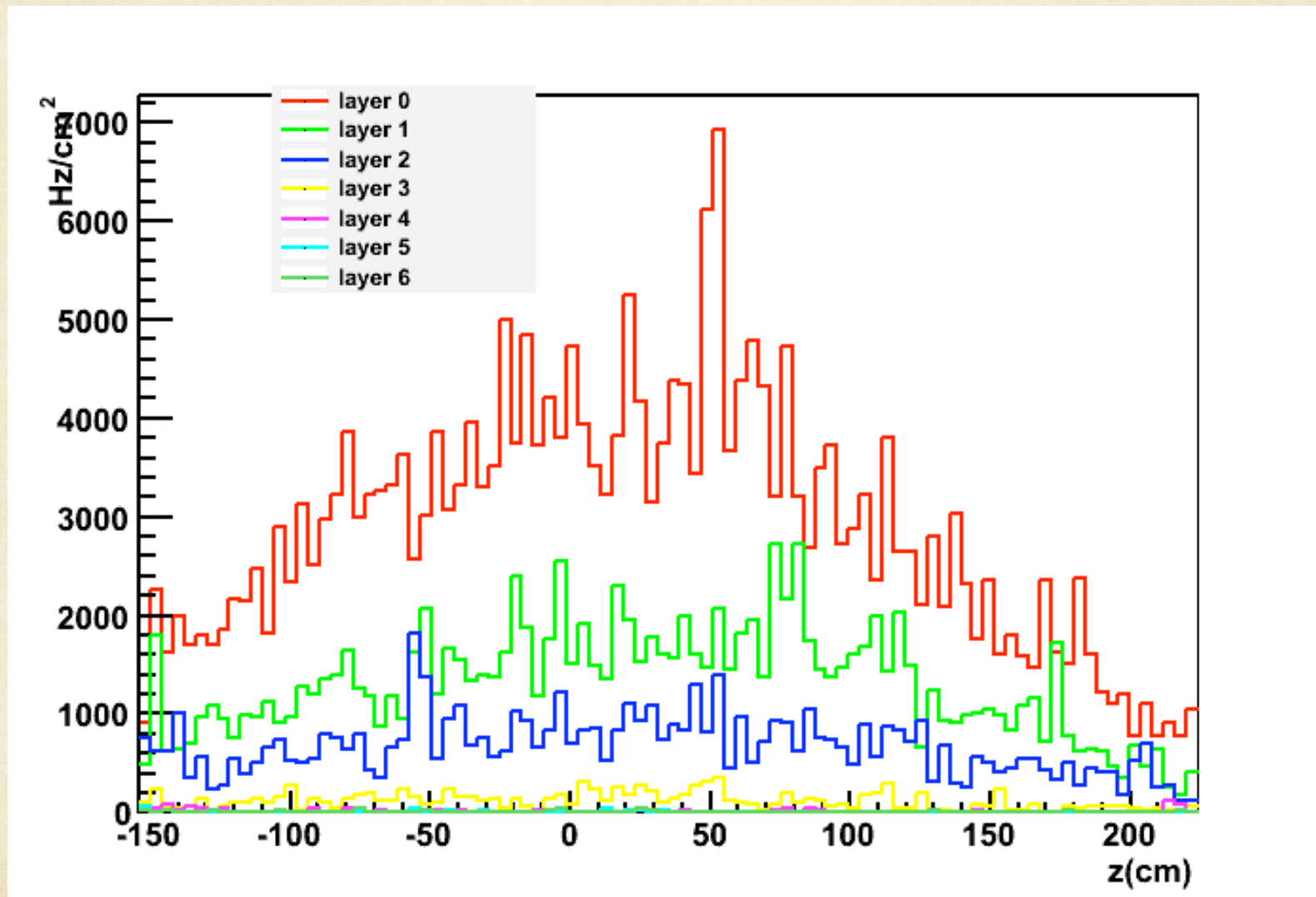


Normalized to
1MeV energy



Barrel

Rate vs Z-coordinate



Rate $\sim 3000 \text{ Hz/cm}^2$ not consistent with London 2011 Production (160 Hz/cm^2)

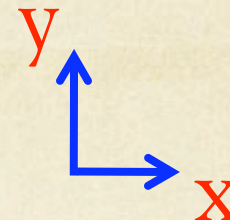
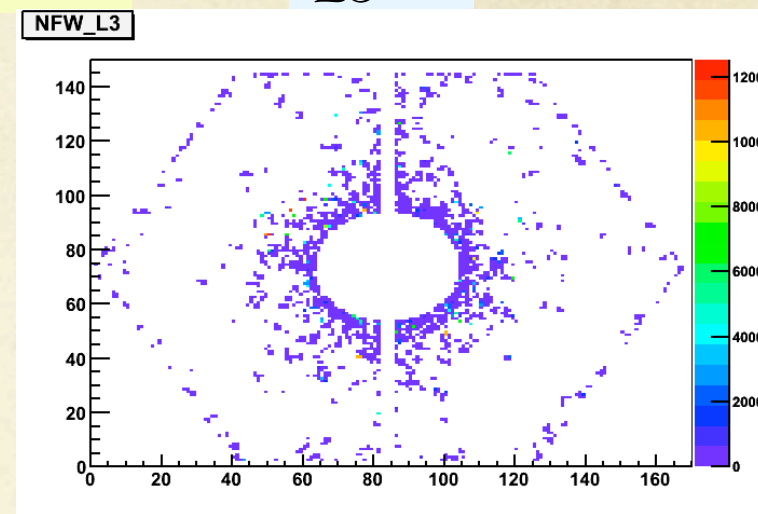
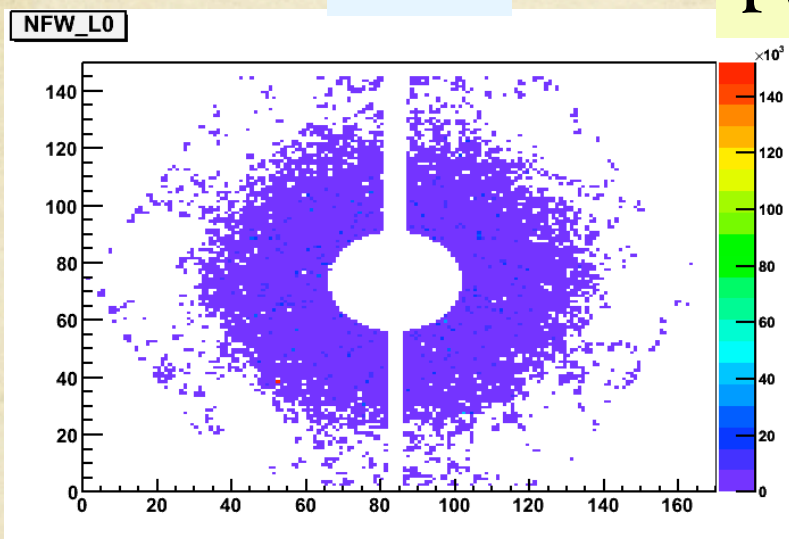
Neutrons rate: FWD Endcap Touschek events



L0

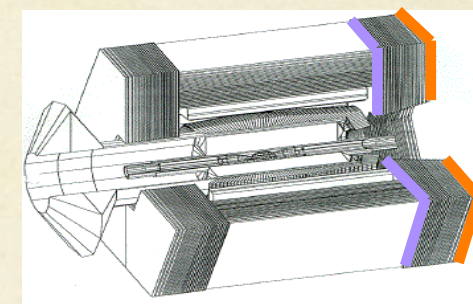
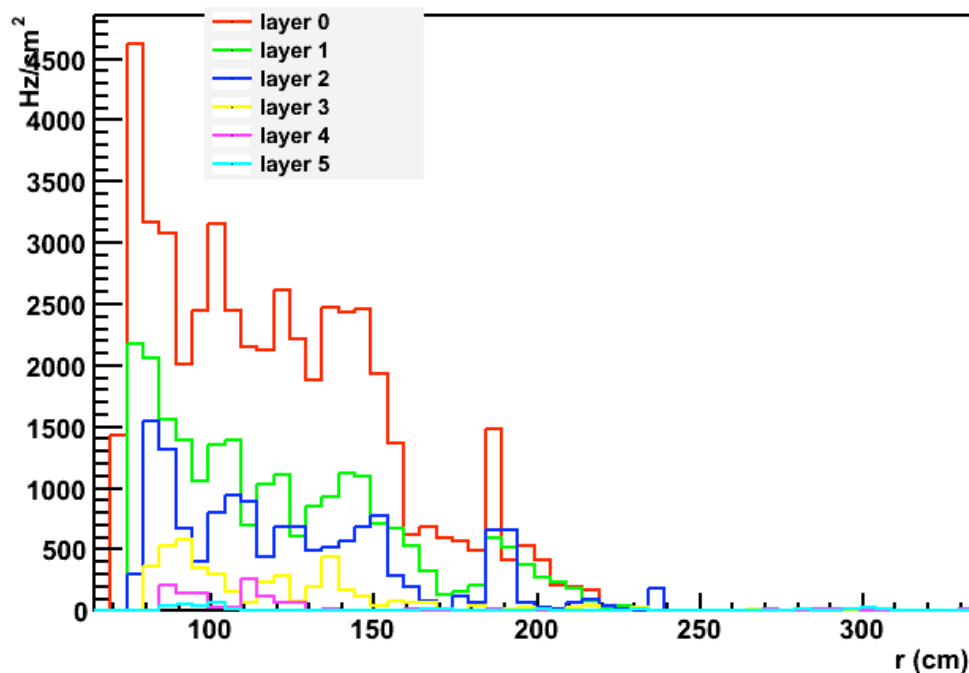
FWD ENDCAP

L3



Rate vs Radius for FWD Endcap for Different layers

RatevsRadiusNFW_L0



Normalized to
1MeV energy

Rates $\sim 4500 \text{ Hz/cm}^2$ not consistent with
London 2011 Production (1600 Hz/cm^2)

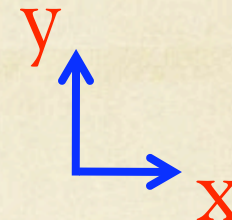
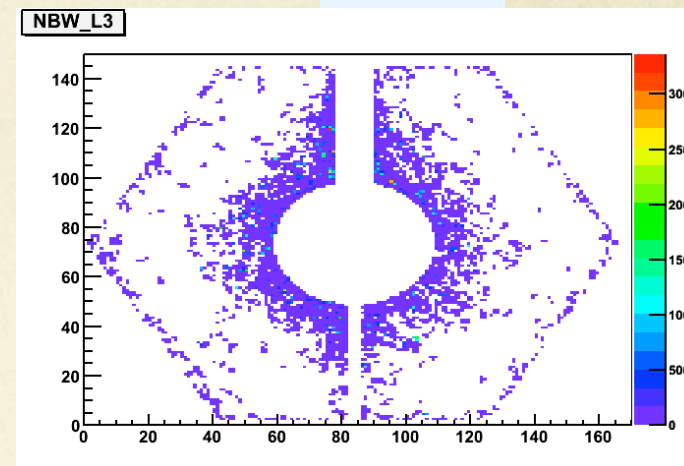
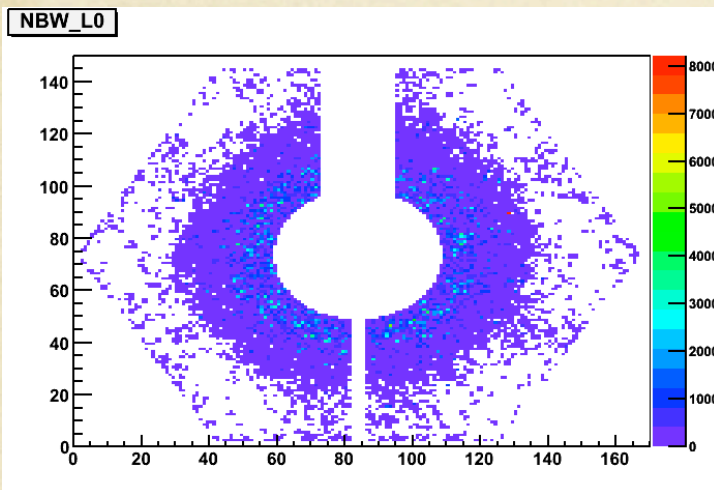
Neutrons rate: BWD Endcap Touschek events



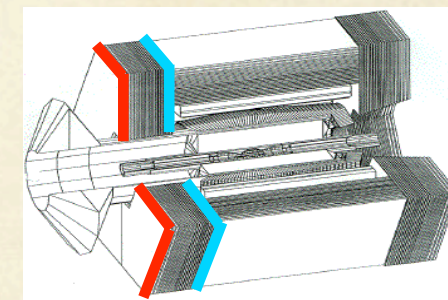
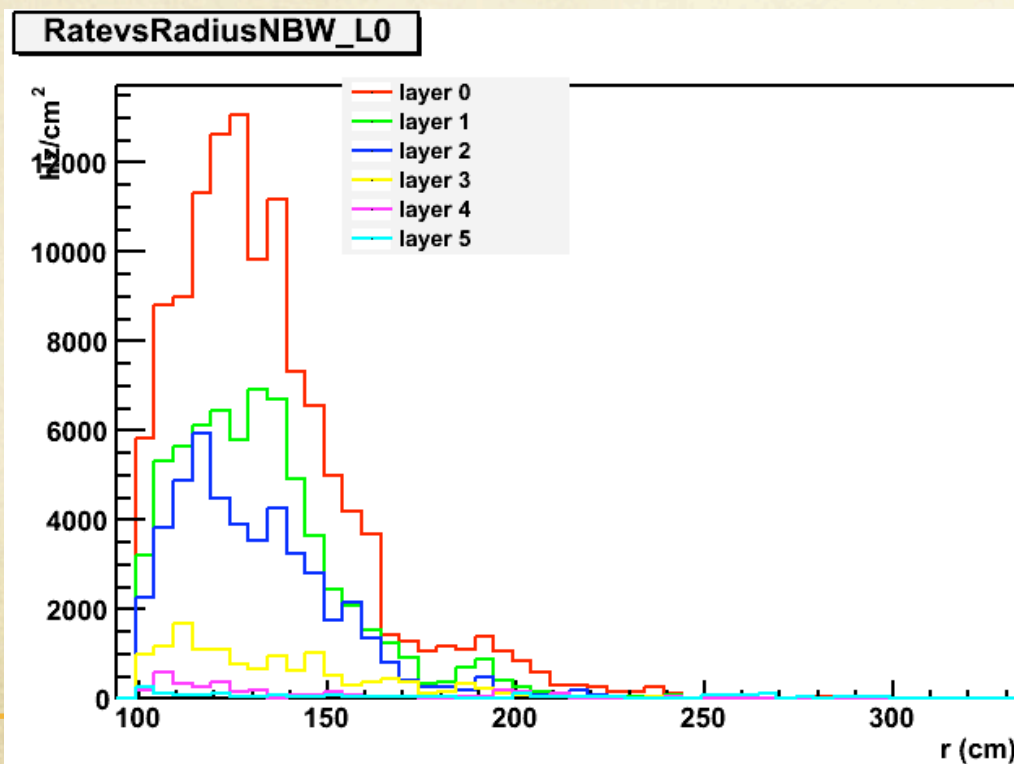
L0

BWD ENDCAP

L3

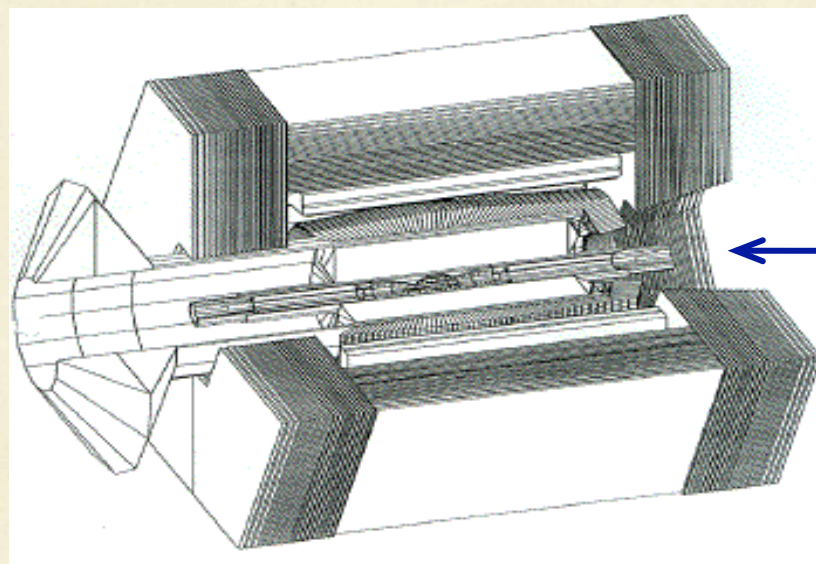


Rate vs Radius for BWD Endcap for Different layers



Normalized to
1MeV energy

Touschek events LER

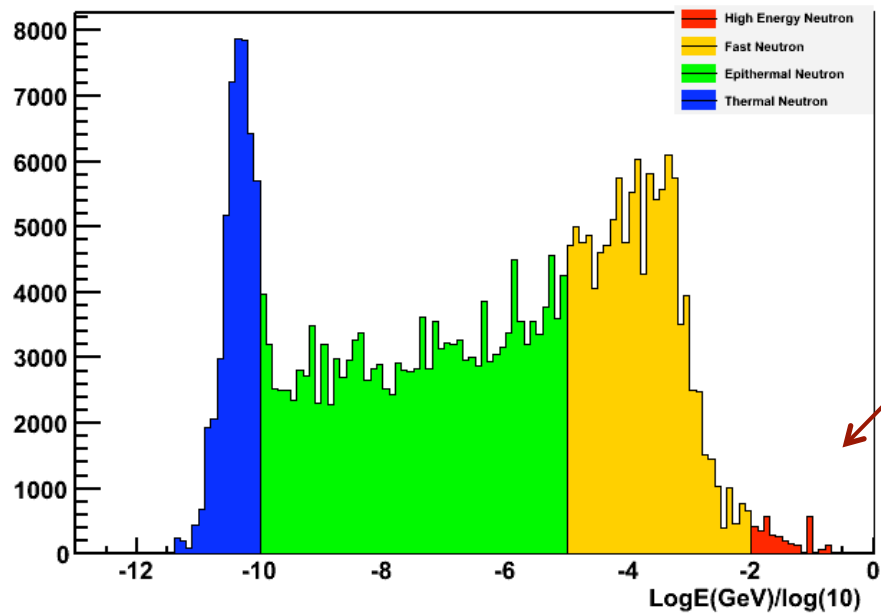


e^-

Neutron Energy Distributions for Touschek LER events

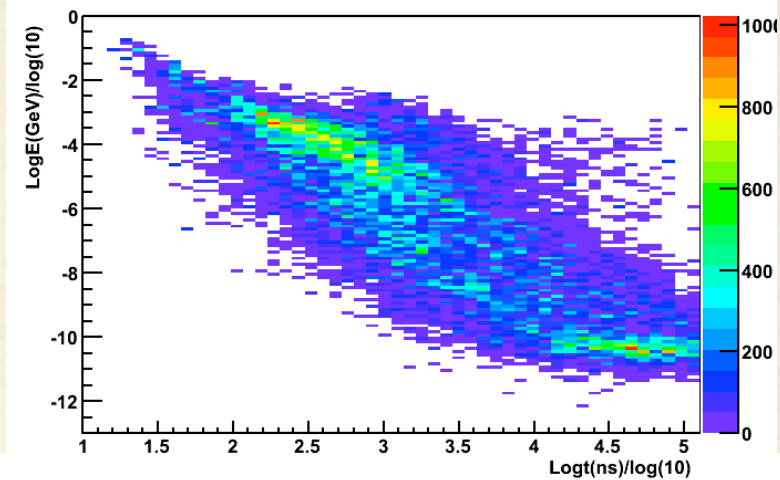


Barrel

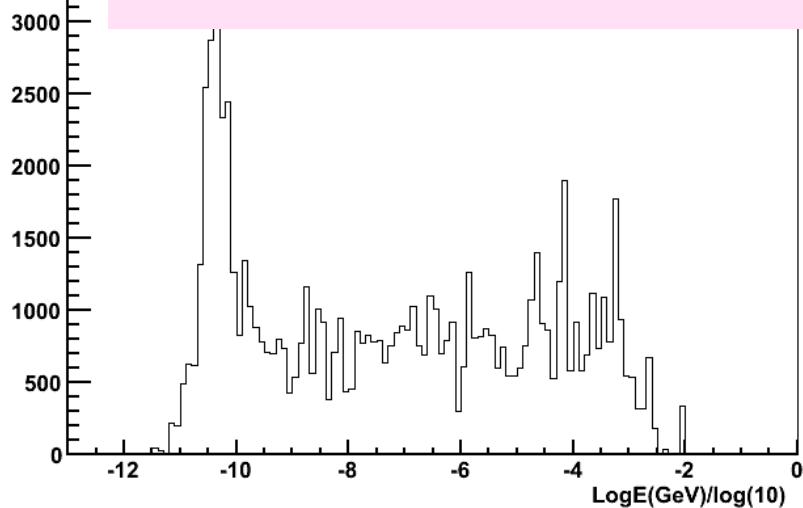


Barrel

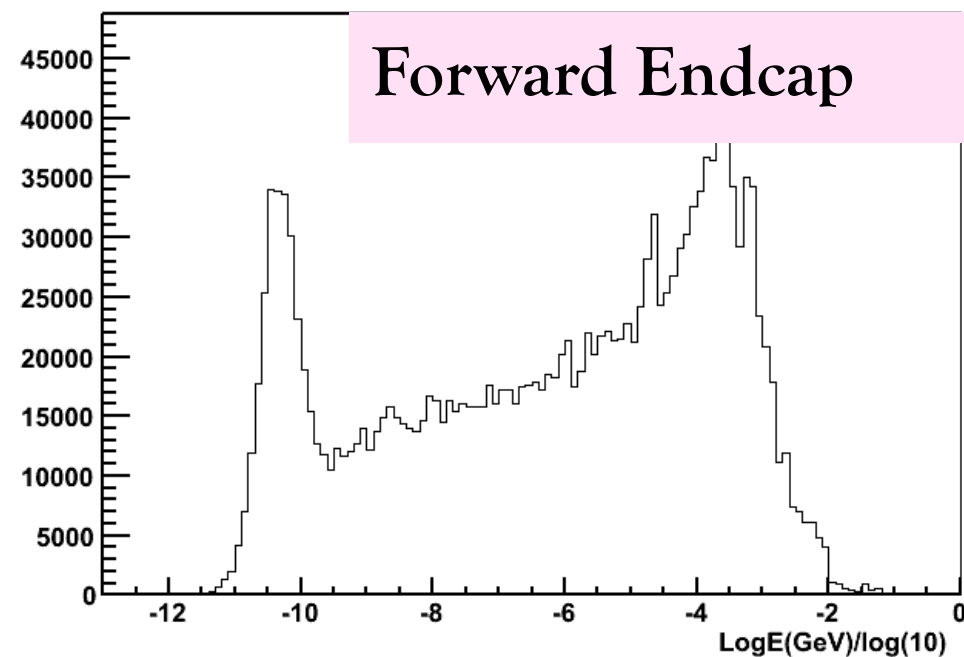
Energy vs time distributions



Backward Endcap

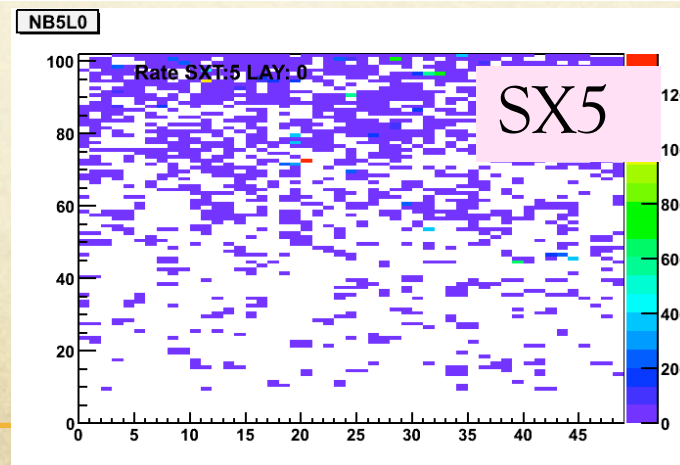
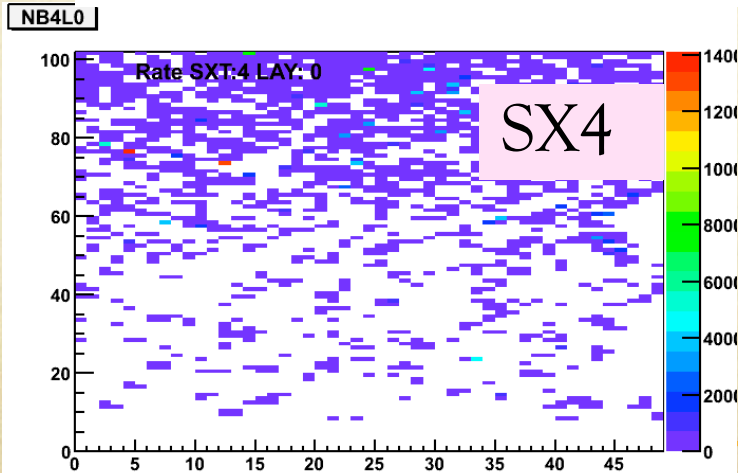
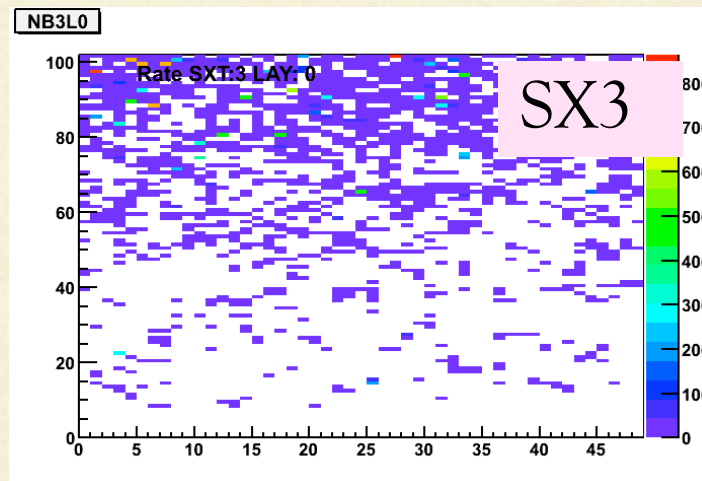
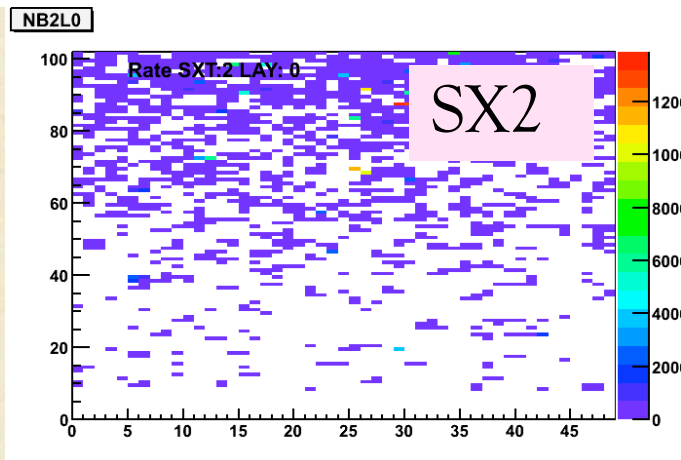
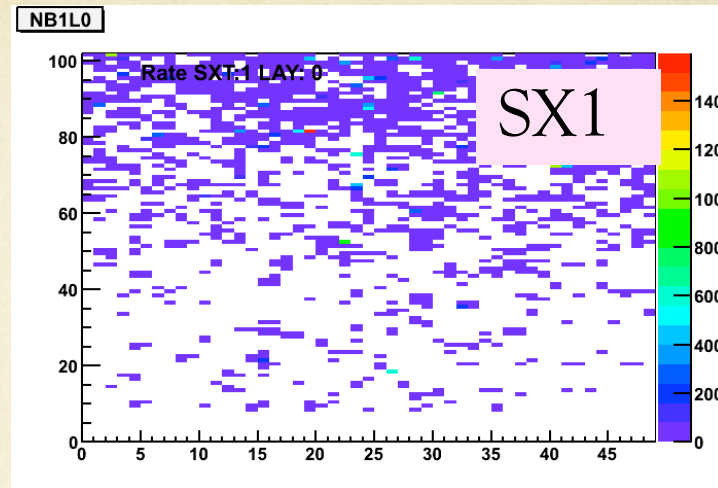
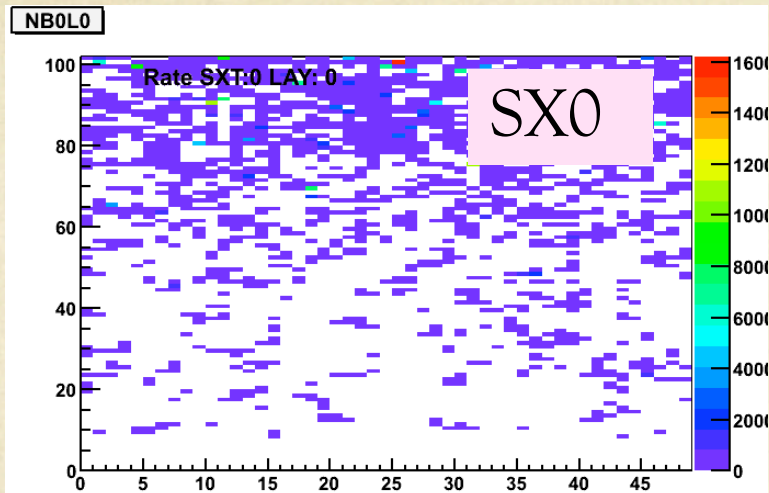
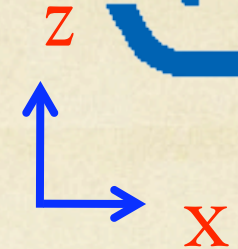


Forward Endcap

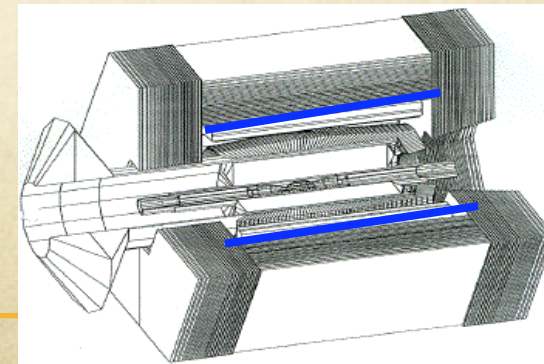


Rate for Neutrons for Touschek events Layer0: Barrel

Hz/cm²

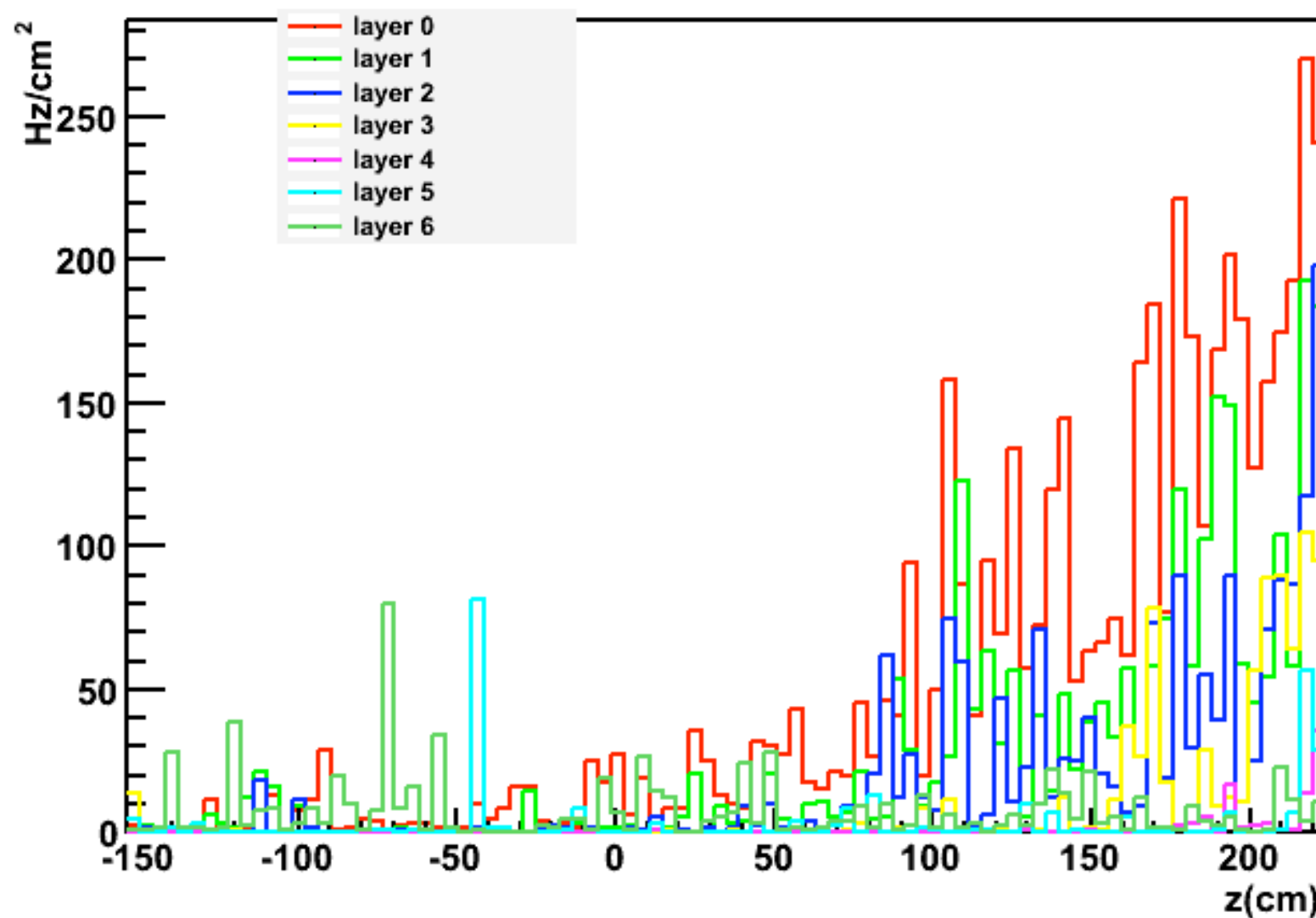


Normalized to
1MeV energy

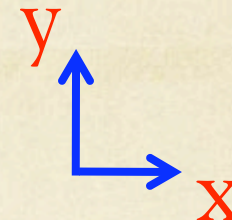


Barrel

Rate vs Z-coordinate



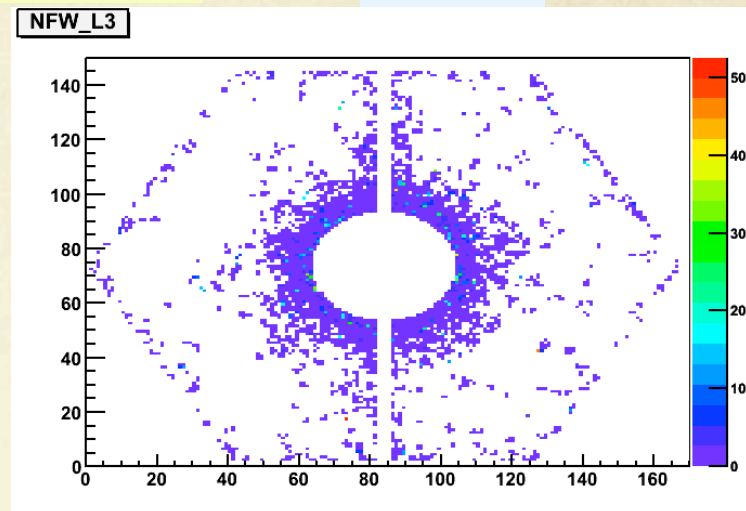
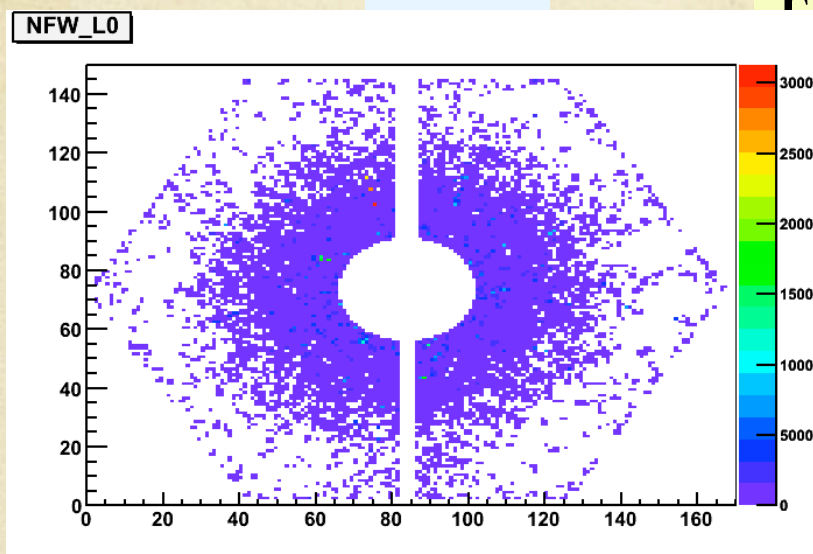
Neutrons rate: FWD Endcap Touschek events



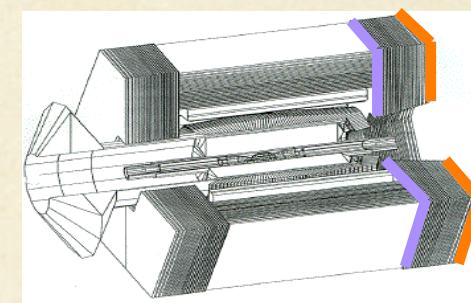
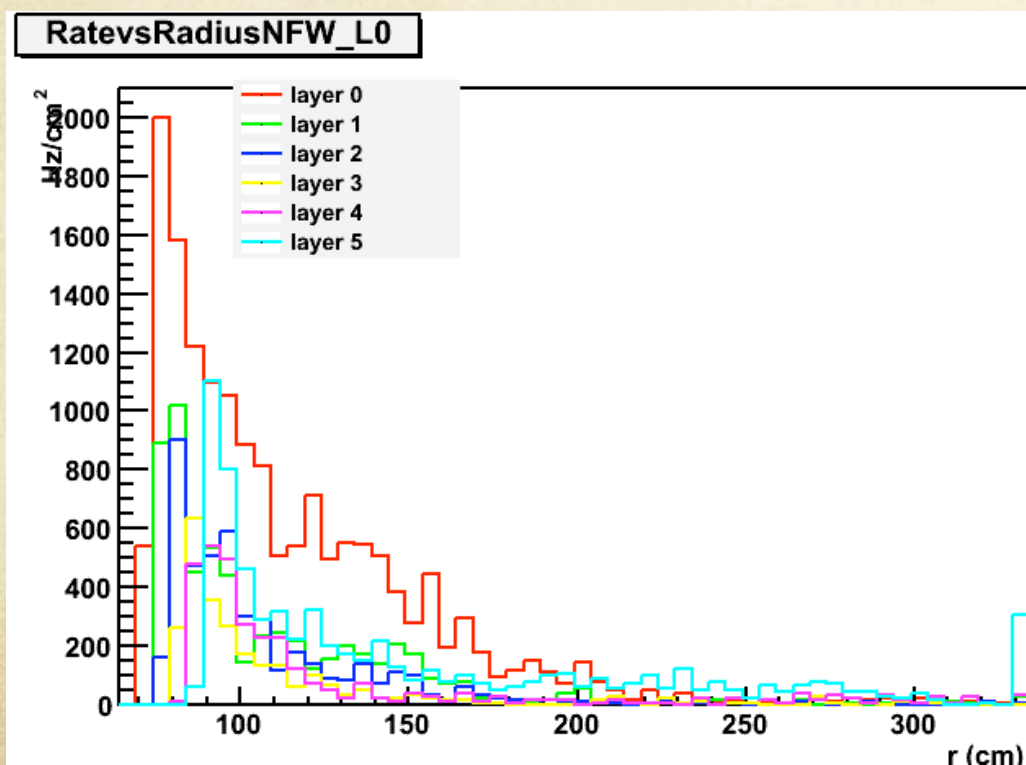
L0

FWD ENDCAP

L3



Rate vs Radius for FWD Endcap for Different layers



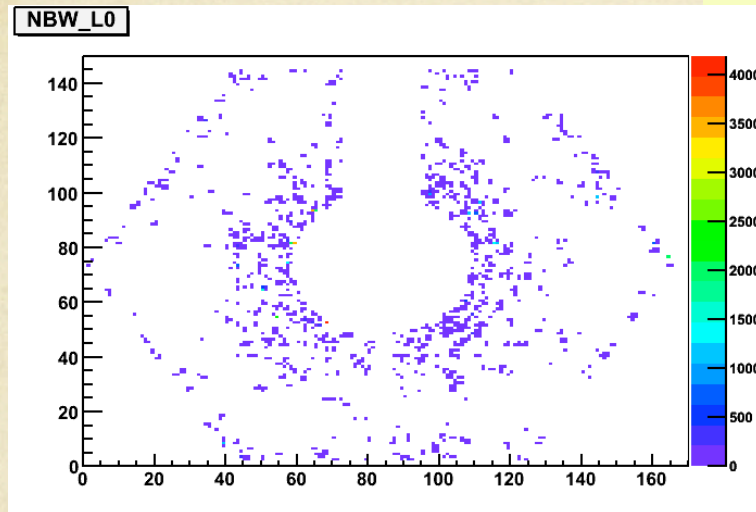
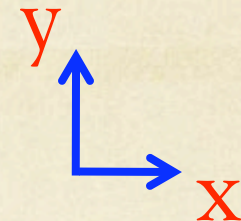
Normalized to
1MeV energy

Neutrons rate: BWD Endcap Touschek events

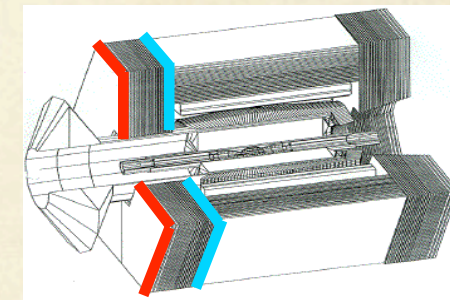
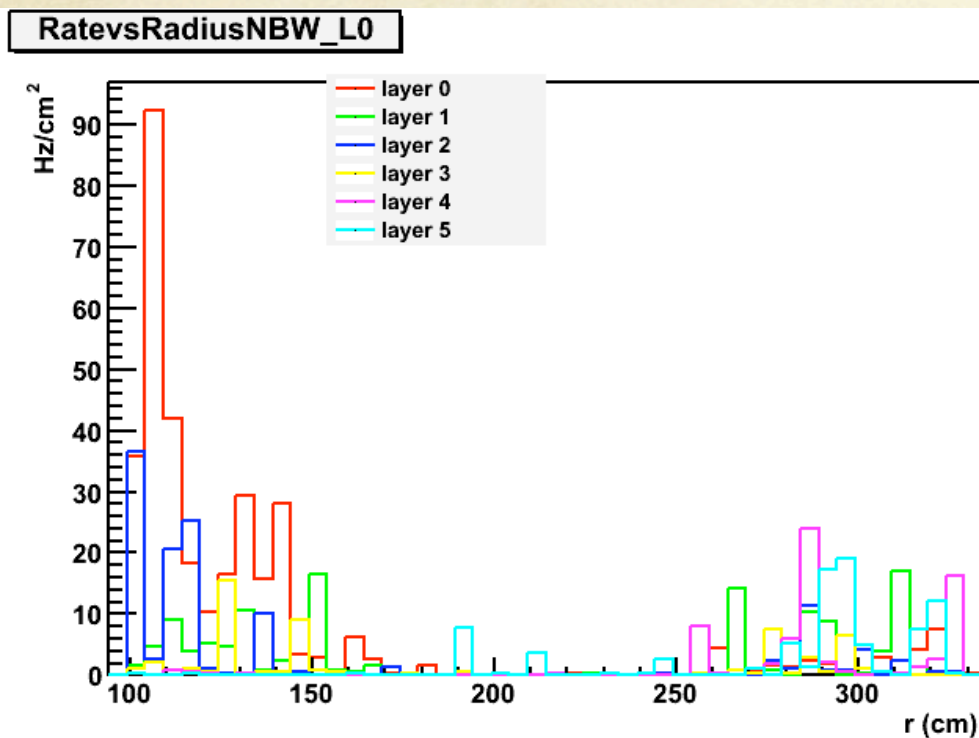


L0

BWD ENDCAP



Rate vs Radius for BWD Endcap for Different layers



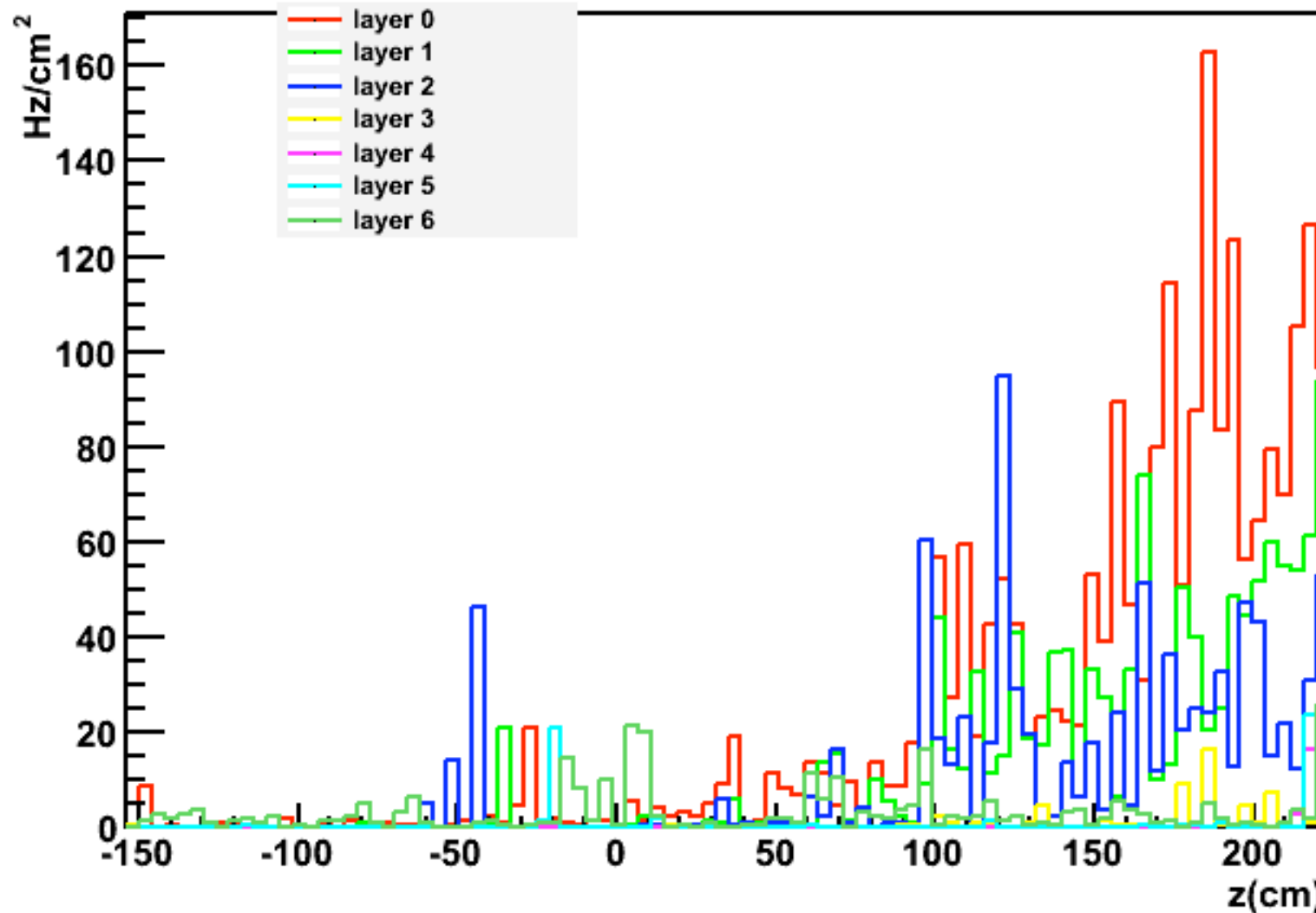
Normalized to
1MeV energy

- ✓ Touschek background studied for the HER and LER
- ✓ Results for the LER are consistent with what found in the London Production
- ✓ Result for the HER are not in agreement with the London one. Rates are too high

BACK-UP SLIDES

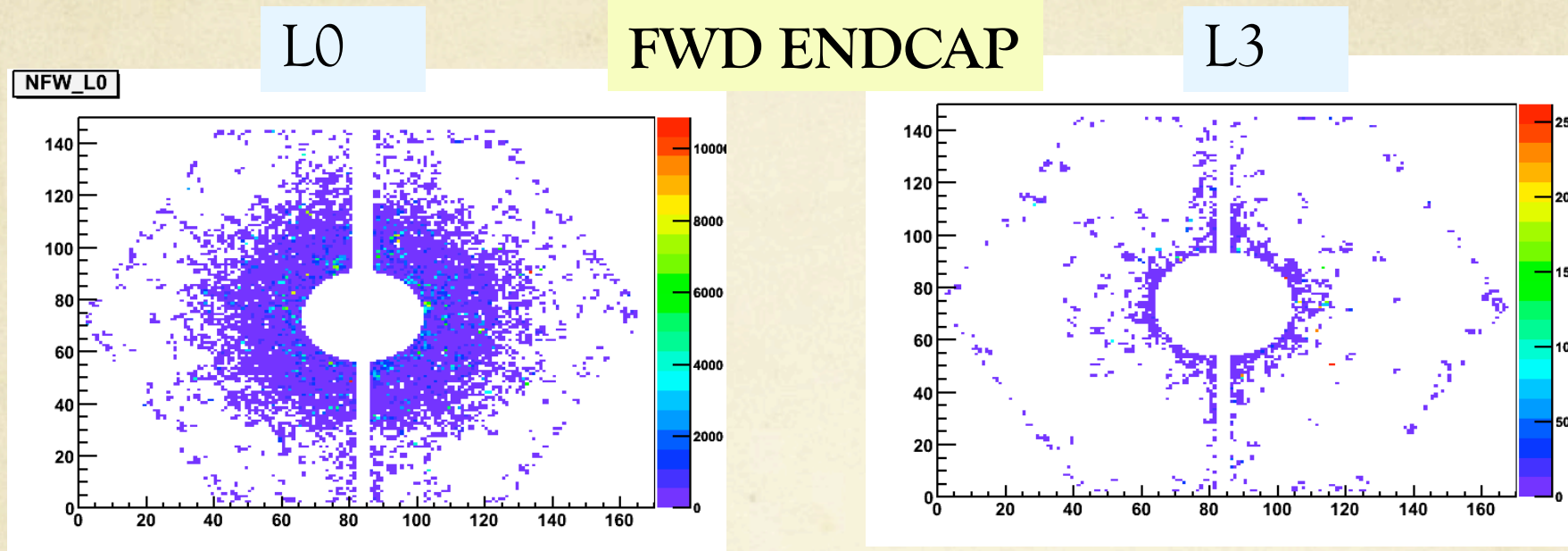
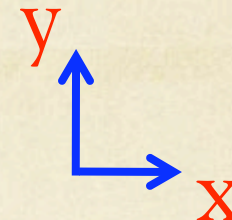
Rate vs Z-coordinate

LONDON 2011
PRODUCTION

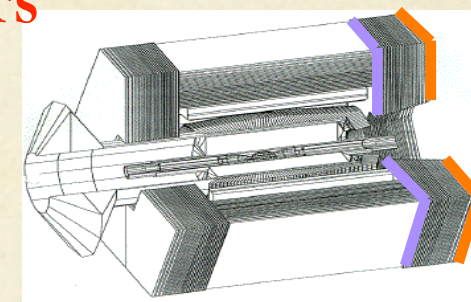
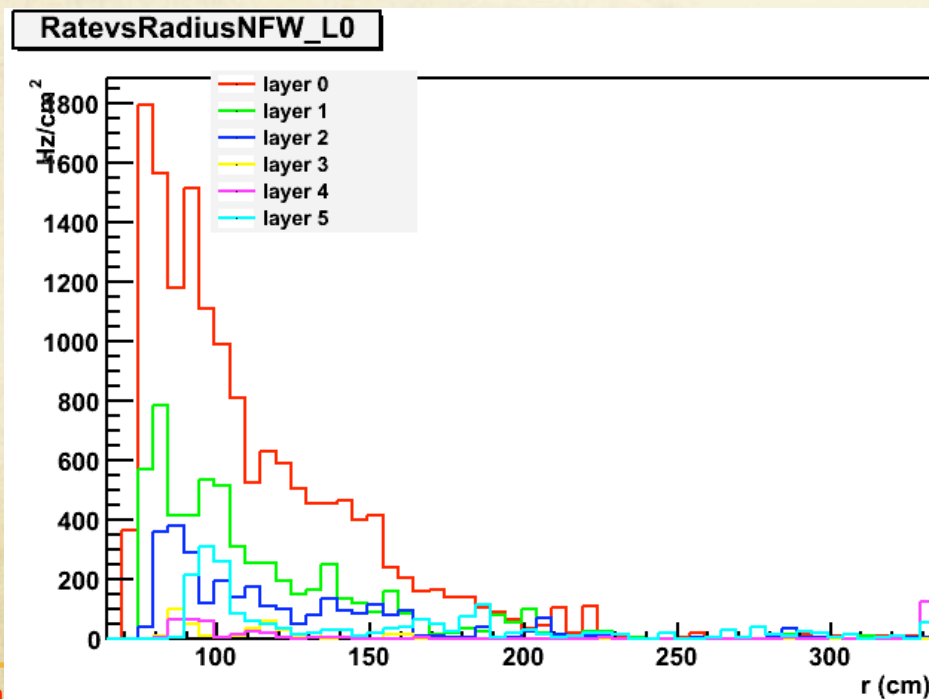


Rate of 160 Hz/cm² -> about 1x10⁹ neutrons/cm² for a year

FWD Endcap HER Touschek events



Rate vs Radius for FWD Endcap for Different layers



Normalized to
1MeV energy

LONDON 2011
PRODUCTION