

# MARS SIMULATIONS FOR BLM's

## BEAM LOSS MONITORS FOR TOTEM ROMAN POTS

- o Evaluation of the possible locations to monitor the losses on the RP stations
- o Simulated: interaction of 7 TeV proton with the inner edge of the RP
- o Resulted cascades/showers then scored at  $r = 32$  cm around D2/Q4/Q6  
→ see Richard's talk at the MIB WG, March 17 2006

***HOWEVER THIS IS ONLY PART OF THE STORY...***

## SIGNAL FROM THE LOSSES VS. P-P

- o BLM's will also register the signal due to p-p interactions in the IP
- o Formation of this signal on the TAN-D2-Q4-Q6 length will be different  
  
→ How can we ensure that we "monitor" and monitor effectively ?

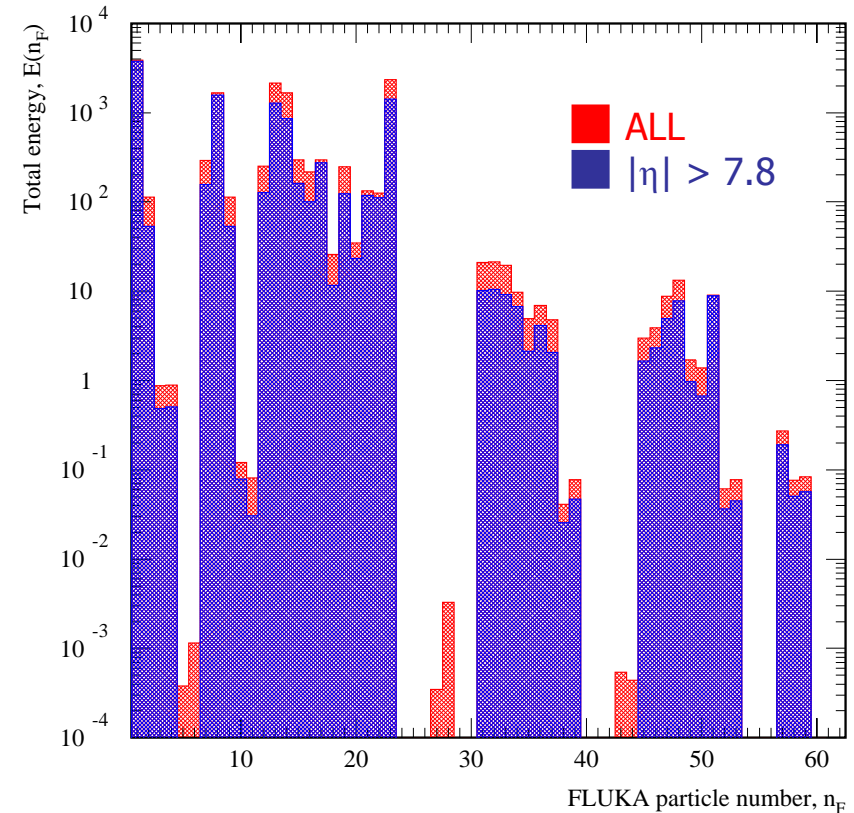
# DPMJET3 SOURCE ANALYSIS

## SIGNAL IN THE BLM'S FROM THE IP

- o Estimate the signal in BLM's from IP
- o Demonstrate that the signal from the losses  $\gg$  signal from the IP
- o BLM's positions are optimal w.r.t. the IP/losses signal ratio

## DPMJET SOURCE

- o Latest version from S.Roesler
- o Most of the energy goes into tunnel  
→ see the  $|\eta|$  cut on the plot
- o Visible number of short-living particles



***BUT: MARS CAN NOT TRANSPORT THESE PARTICLES...***

# FLUKA SIMULATIONS FOR BLM's

## DPMJET SOURCE: HOW TO USE

- o Force all short-living particles to decay at the IP → not recommended...
- o Use FLUKA to transport them to the start of Q1 (~23m from the IP)
  - exercise done: ~ 50% still survive
  - Use full FLUKA simulation till the scoring cylinder around D2/Q4/Q6 ?...

## THE BENEFITS

- o Correct use of the DPMJET source of the p-p interactions at 7 TeV
  - o Transition between DPMJET and FLUKA is smooth
  - o FLUKA geometry of the LLS5R is being prepared and tested...
- The background distributions at XRP1 can be obtained "automatically" to be used in radiation calculations and physics analysis...