

DCH Background versus Beam Current

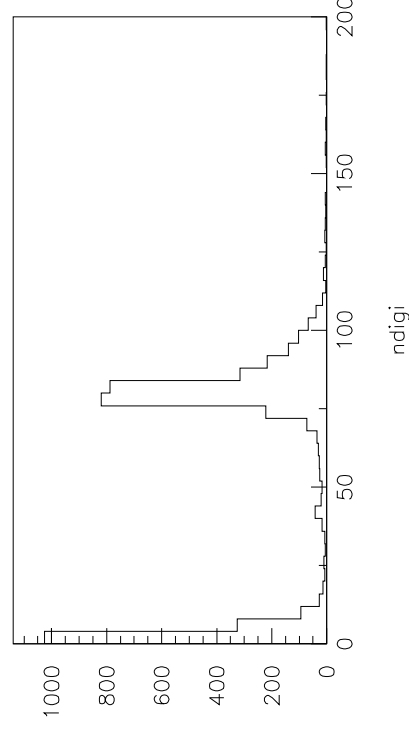
- **Motivation:**
 - Fix the amount of Background to be used in the following study of the DCH performances at high luminosity.
- **Strategy:**
 - Extrapolate the Number of Digs/event to the foreseen beam currents using the dedicated Background runs.
- **Background Sources:**
 - Single Beam Interaction: **Single Beam runs**
 - Beam-Beam Interaction: **Two Beam Background runs** (after the subtraction of the two single beam contributions)
 - Electronic Noise: **no Beam run**
- Use of random trigger only to remove the physics events in the two beams runs (to be done...)

DCH Background

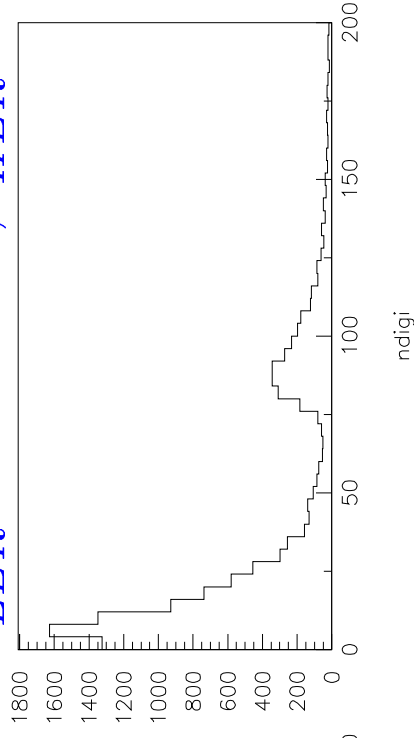
Very Preliminary Results-1

- The distribution of the Number of Digits shows an \sim exponential behaviour and a peak (~ 80): Cosmics?

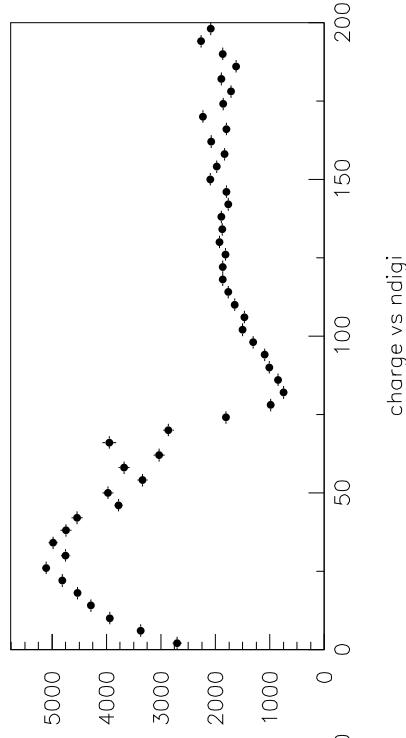
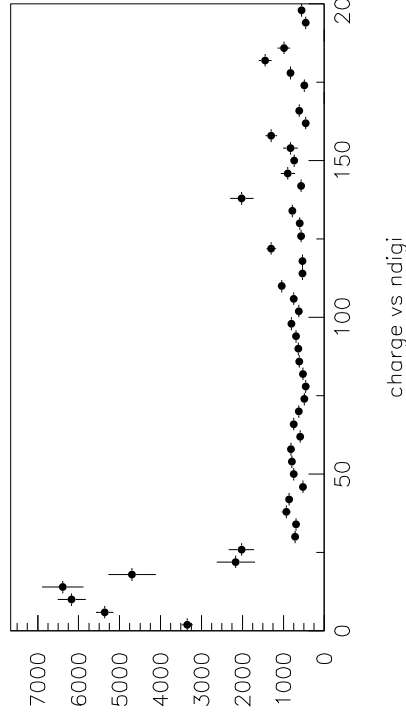
- No Current



- $I_{LER} = 1190 \text{ mA}, I_{HER} = 0$



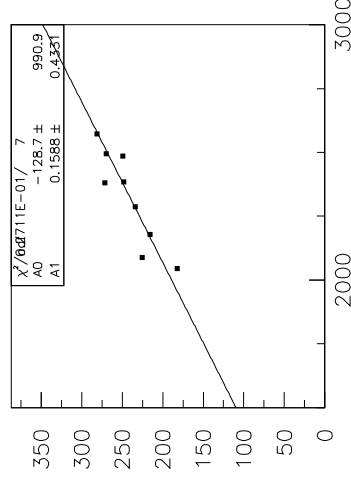
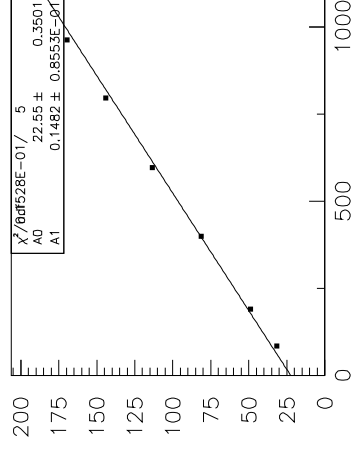
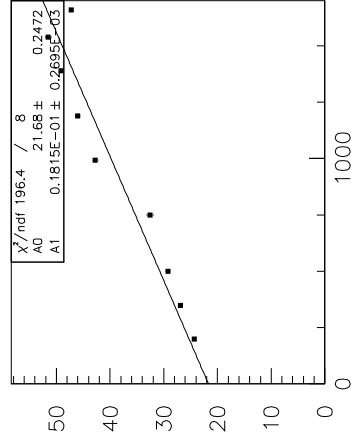
- Average Charge vs Ndigits:



DCH Background

Very Preliminary Results-2

- Average Number of Digis versus I (included "cosmics")
- I_{LER} scan I_{HER} scan $I_{LER} + I_{HER}$ scan



- Add the Trigger Informations to the DchOprNtuple to subtract the Cosmics and the Physics events (two beam runs)

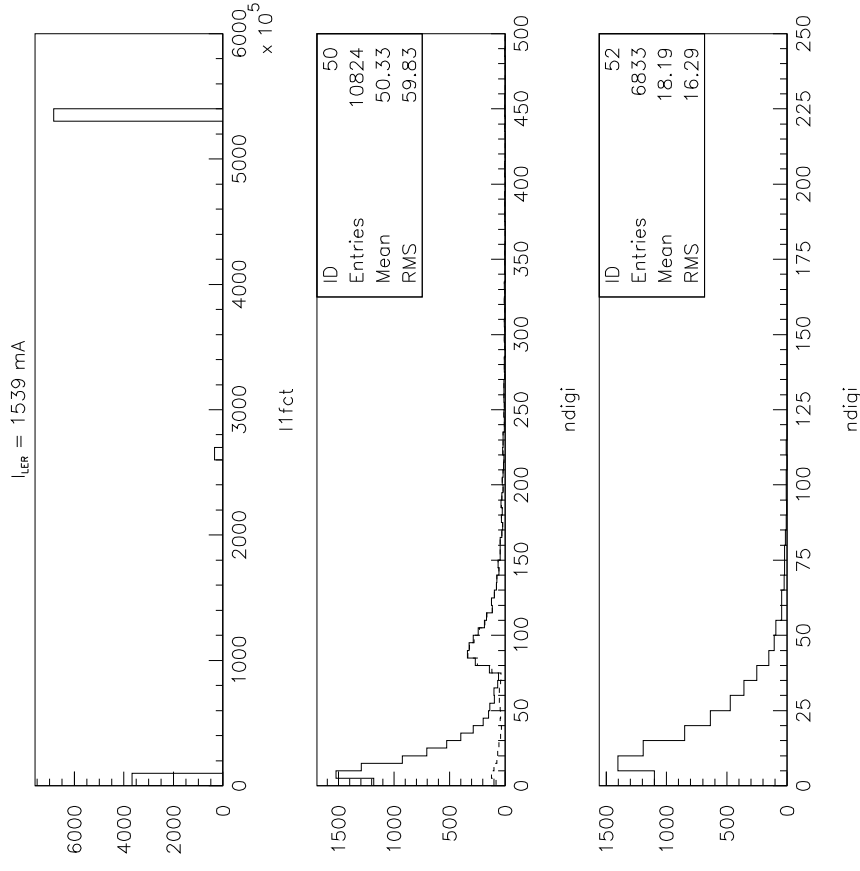
DCH Background

May 6, 2002

Matteo Zancan, Mario Posocco, Martino Margoni

Very Preliminary Results-3

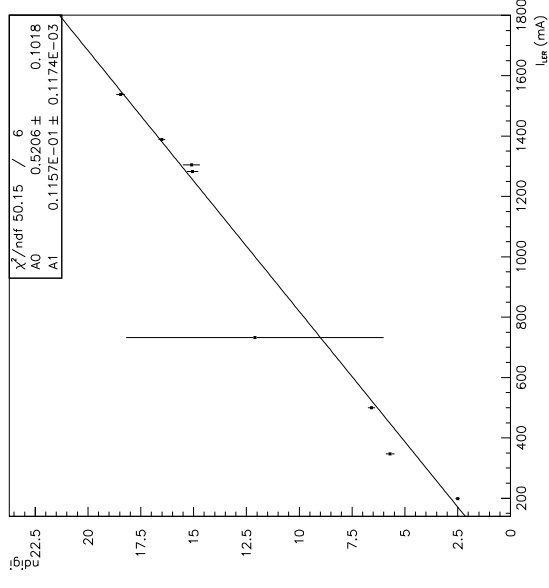
- Using trigger informations to remove cosmics:



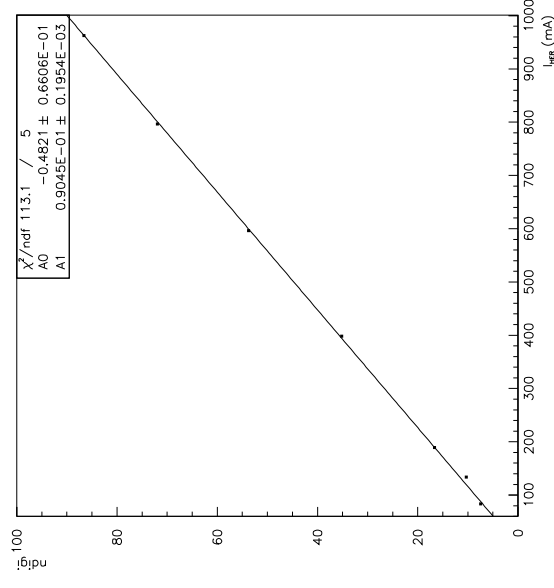
DCH Background

Very Preliminary Results-4

- I_{LER} scan:



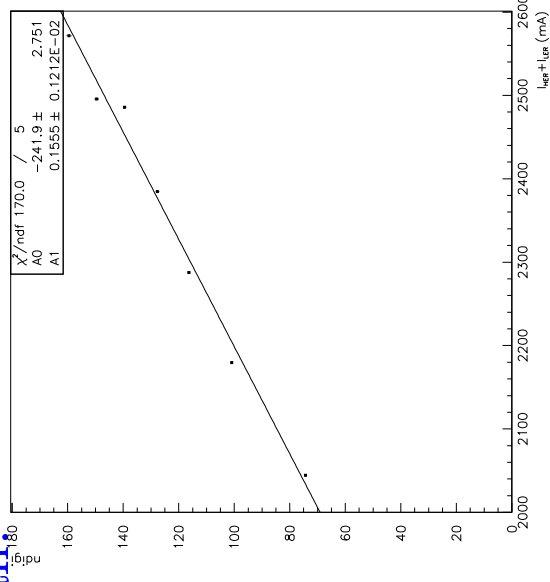
- I_{HER} scan:



DCH Background

Very Preliminary Results-5

- $I_{LER} + I_{HER}$ scan:



- Next Steps:
 - Extrapolation to high luminosity of the different Background Sources.
 - Use of MC sample and Background files to study the DCH performances with increasing luminosity.

DCH Background

May 6, 2002

Matteo Zancan, Mario Posocco, Martino Margoni