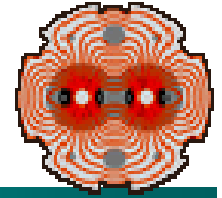


Radiation Test Facilities for the LHC

Steve Myers CERN/A&B Department



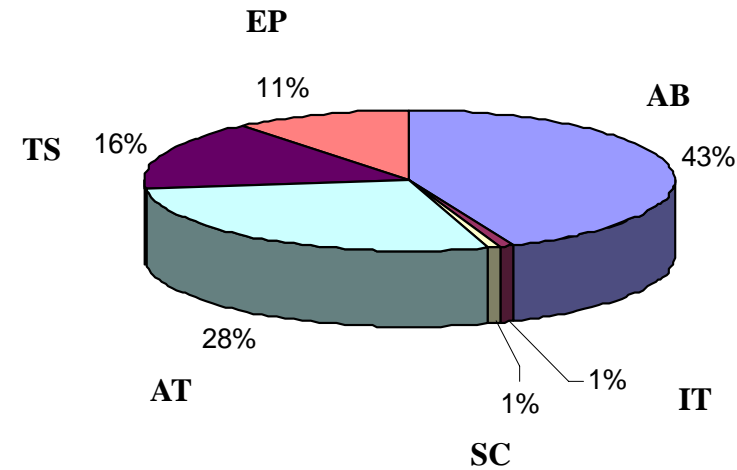
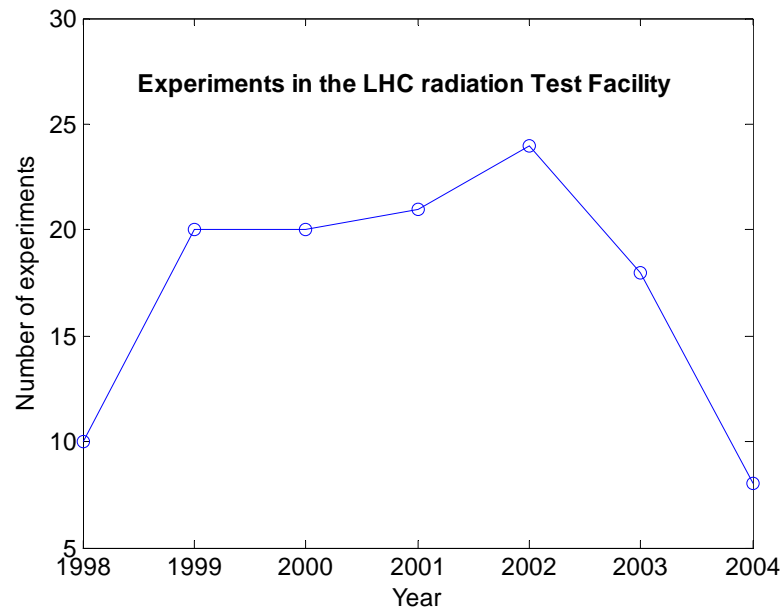
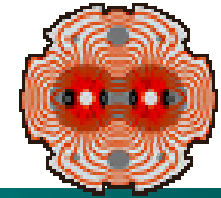
Introduction



- LHC Radiation Test Facility using SPS
 - ⌘ Closed in 2004 (see next slide)
- PSI proton radiation PIF
 - ⌘ 6-63MeV flux 10^9 protons $\text{cm}^{-2} \text{s}^{-1}$
 - ⌘ More than 95% of CERN irradiation experiments done there
- PSI proton irradiation high energy
 - ⌘ 35-250MeV, 2.5×10^8 protons $\text{cm}^{-2} \text{s}^{-1}$
- Cyclotron Research Centre, Louvain
 - ⌘ Light Ion Facility: 10-67MeV flux 10^9 protons $\text{cm}^{-2} \text{s}^{-1}$
- Svedberg Laboratory Uppsala
 - ⌘ Large area irradiation
 - ⌘ 20-180MeV: flux 1.4×10^8 protons $\text{cm}^{-2} \text{s}^{-1}$



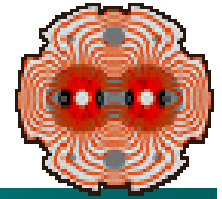
LHC Radiation test facility



- **Access restricted in 2004 : remnant dose rates very high**
- **Facility not operational in 2005 : no beam in SPS**
- **Facility definitely closed in 2006 following RP recommendations**



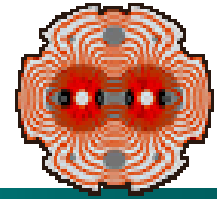
Timely



- Recently single event upsets stopped operation of CNGS prematurely
- We are now trying to repair the situation so as to run without problems in 2008
- LHC will need more irradiation experimentation with time as flux (luminosity) increases



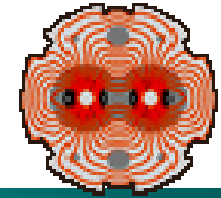
Collimators; Thermal Shocks



- Long term irradiation tests were done at BNL (US) and Kurchatov (Russia)
 - ◆ Lack of radiation lab and diagnostics at CERN
- Thermal shock tests done in TT40 (SPS)
 - ◆ 2MJ in 7us
- New test facility foreseen in TT60 for phase 2 collimators
 - ◆ Also of interest for high power target tests



Session Programme



- 08:30 Introduction (10').....Steve Myers (CERN)
- 08:40 Irradiation Facilities at the CERN PS East Hall (15')
Michael Moll (CERN) ,
Maurice Glaser (CERN)
- 08:55 Irradiation Facilities at the SPS North Experimental Area (30')
Helmut Vincke (CERN)
- 09:25 The IONISOS Co60 irradiator at Dagneux (20')Sophie Rouif (IONISOS)

- Coffee Break (09:45 ->10:15)

- 10:15 High energy proton irradiation facility at PSI (40')..... Wojtek Hajdas (PSI)
- 10:55 Proton, neutron and HI irradiation facilities at UCL (40')..... Guy Berger (UCL)
- 11:35 High Energy neutron and proton irradiation facilities at TSL (30')
Alexander Prokofiev (TSL)
- 12:05 New GIF facility - Status (10') Christoph Rembser (CERN)
- 12:15-12:45 General Discussion

I will keep speakers to their allotted times so as to allow some discussion