Status of the CASTOR Project

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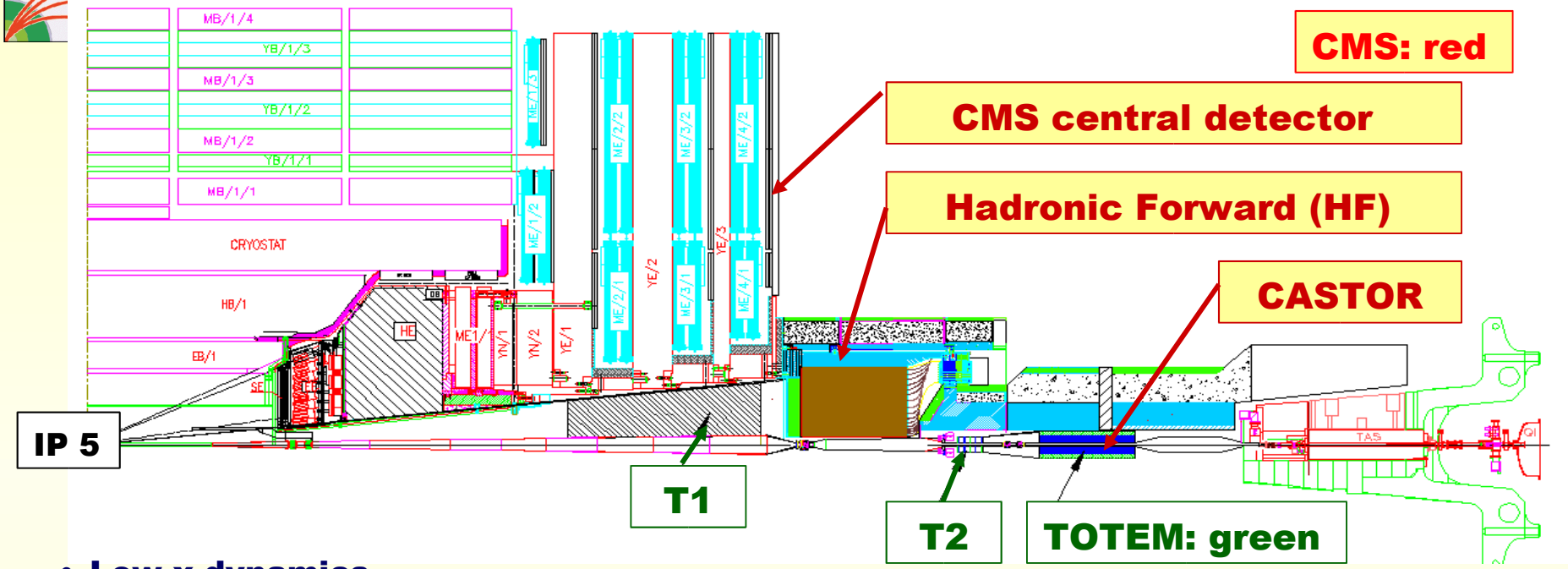
+ Peter Göttlicher (electronics)
+ several colleagues from Russian Institutes

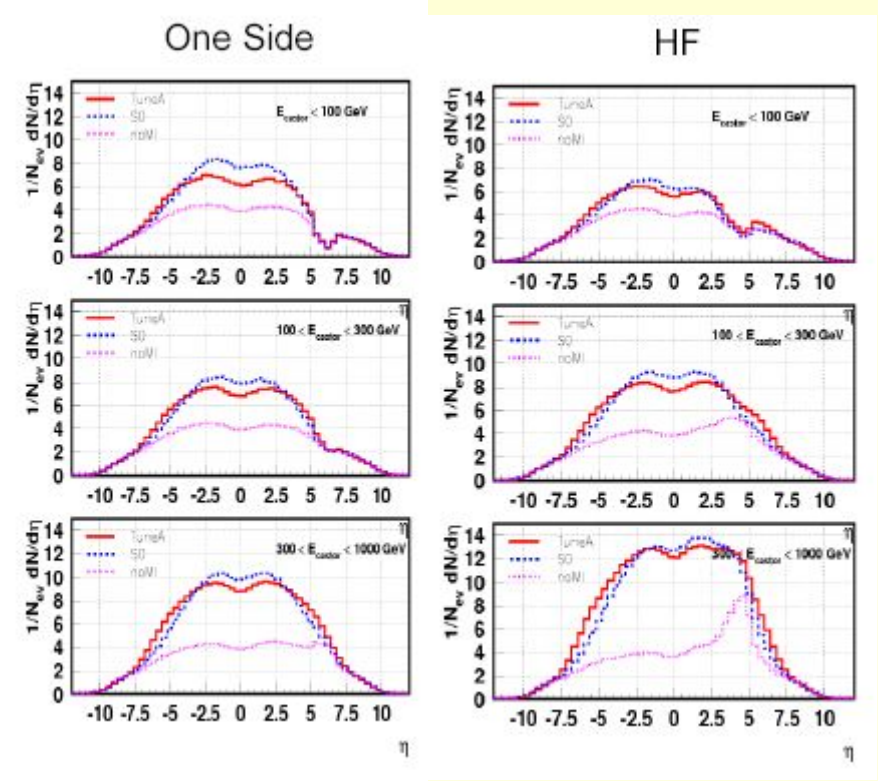
- What is CASTOR ?
- Recent Steps
- Near Future
- Problems

Forward Region around CMS IP



- **Low-x dynamics**
  - **Parton saturation, BFKL/CCFM dynamics, proton structure, multi-parton scattering & underlying event.**
- **Hard diffraction**
  - **(.... long list of physics topics, CASTOR as veto for rapidity gaps in low lumi phase)**
- **Measurements for cosmic ray data analysis**
  - **Forward energy and particle flows, minimum bias event structure**
- **Two-photon interactions and peripheral collisions**
- **QED processes to determine the luminosity to O(1%),e.g. pp pp ee and pp pp μμ**
- **Forward physics in pA and AA collisions**
- **New forward physics phenomena (Centauro's, Strangelets.**

More Generator Studies done



Niladri Sen: (1st years master thesis)

- **triggering on one CASTOR side can differentiate between different tunes** (confirm HJ)
- **triggering on HF does not work so good.**
- **95% of the events have energy deposition in CASTOR** (generator level (!) with dead material in front it might be even more)

Lev Khein: particles spread over 3 to 4 phi segments (16)

important results for the choice of electronics

need to measure in the very early LHC phase to prevent pile-up !

Recent Steps

- had two workshops with the CMS management (esp. Guido) in mid of February and mid of May **CASTOR is now approved baseline detector**
- present funding only (almost) enough for one side, several applications still under way from US, DESY(HRJRG) and CERN (EU)
- Pre-prototype was produced at DESY and transported for the CMS week to CERN

now used for studies of the assembly, construction & electronics

Near Future

- **Beam Test of a prototype end of August:**
  - **several people will go for the preparation starting 23.7. (KB,IK,PG)**
  - **several people will participate in data taking (20.8.-3.9) (KB,AC,HJ,IK)**
  - **participate in analysis**
- **EDR on 4. October**
  - **document to be prepared by David & Kerstin (&Apostolos)**
  - **latest date for a decision on electronics**

Electronics

Due to low funding concentrate on already developed electronics:

- **HCAL:**
  - **readout within one BX would be best,**
  - **but HCAL group is searching their spares and not really willing to give some to CASTOR.**
- **ECAL:**
  - **pulse shaping needs about 200ns 8 BX danger of pile-up already at very low luminosities**
  - **complicated levels for Front-End not so safe as HCAL**
  - **but might give some spares (maybe ....)**

need to specify clearly the physics needs and clear arguments why HCAL is preferable

Problems

Most probable these are the usual problems for a hardware project:

- **missing funding,**
- **missing manpower (question of new Russian participants)**
- **very tight schedule**

Most important bottleneck is the electronics.

Share the general difficulties :

- **need a room at CERN (office & hostel)**
- **need transportation at CERN (test beam measurements…)**