

Minutes of BGV meeting #2, 07/12/2012

Agenda page:

<https://indico.cern.ch/conferenceDisplay.py?confId=219140>

❖ Plamen's talk

- Generation of beam-gas Monte-Carlo events is now possible for any target and any beam energy (Hijing requires minimum beam-energy of 10 GeV)
- Hijing average charged particle multiplicity and multiplicity distributions in a fair agreement with Pythia and with expectations based on previous measurements (in the 80's)
- Studied fraction of good events and PV resolution for two possible detector layouts:
 - heavier target gas \Rightarrow larger fraction of good events AND lower pressure / less background
- Identification of optimal detector layout impeded by the large number of free parameters
 - we must imperatively fix R_{pipe} and β to reduce the phase space and progress with the detector layout optimization
- Bernd: propose location with a given minimum R_{pipe} and β values

❖ Massi's talk

- Drafted preliminary specs for gas target
- TE-VSC: feed back on possible designs according to preliminary specs
- Studied possible gas targets: due to the very low fraction of good events, H_2 is not so attractive. CO_2 (or alike) is best option?
- Vacuum chamber exit window must be thin enough for multiple scattering to be negligible
 - Plamen: check reasonable limits on material (however, depend on the required detector resolution)
- Plamen/Massi: estimate particle fluence due to beam-gas interactions (allows to check effect of surrounding BI devices, see below)
- Idea to use a single target for both beams: to be discussed
- The gas target is a critical point: its installation needs to be planned carefully, taking into account the LHC opening/closing schedule, and it should be the "final" target, to be used by the final detector too

❖ Mariusz's talk

- Compared the options to modify existing BGI vac. chamber, or to install a new one in a different location
- Decision: construction of new chamber and installation in different location, independent of BGIs. Chamber, support and gas injection system are priority, the rest can be added later

❖ Bernd's talk

- Considering possible location in IR4 for installation of the BGV chamber + detector
- From technical drawings it seem that there are several possible locations, with $\beta_x \approx \beta_y \approx 200 - 300$ m
- Before deciding on a particular place, a careful check should be made which BI devices can suffer from radiation induced by beam-gas interactions
- Will try to arrange a visit to IR4 (underground) for physical check-out after 17 Dec (preparation for the visit?)
- ECR: it was proposed to make two "ECRs", one urgent to reserve the space in the rings and a second one later to describe the integration of the device into the LHC

❖ AOB

- Central BGV information web page: Plamen to check with Jean-Jacques if the BI web allows easy creation/editing of such a web page
- Alternative is CERN twiki
- Plamen: setup collaborative web page; advertise indico links of meetings (all BGV meetings are accessible by going "UP" to category in indico)
- Next meeting: 16 January 2013, 10:00 – 12:30