News and status

Pasquale Di Nezza

The CERN Physics Beyond Colliders committee has scheduled our 30’ talk on March 25th at 4 pm

https://indico.cern.ch/event/1369776/

A rehearsal is foreseen at the PBC-WG on March 18th at 2 pm

LHCspin has been already presented a couple of times, but this is the first time we are presenting a proposal for a setup independent of LHCb

We have to present a valid proposal and prevent possible objections

Objections

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To reach rare and unique probes we need the luminosity achievable using a storage cell

It does not exist a cell surface (coating) compatible with the LHC requirements and able to prevent the atomic recombination

After Ralf's and Tarek's studies, we understood that we can have a "molecular" gas target fully recombined

The Breit-Rabi polarimeter is not able to measure this polarization, we need an "absolute polarimeter" that can be only validated and calibrated on the 7 TeV beam

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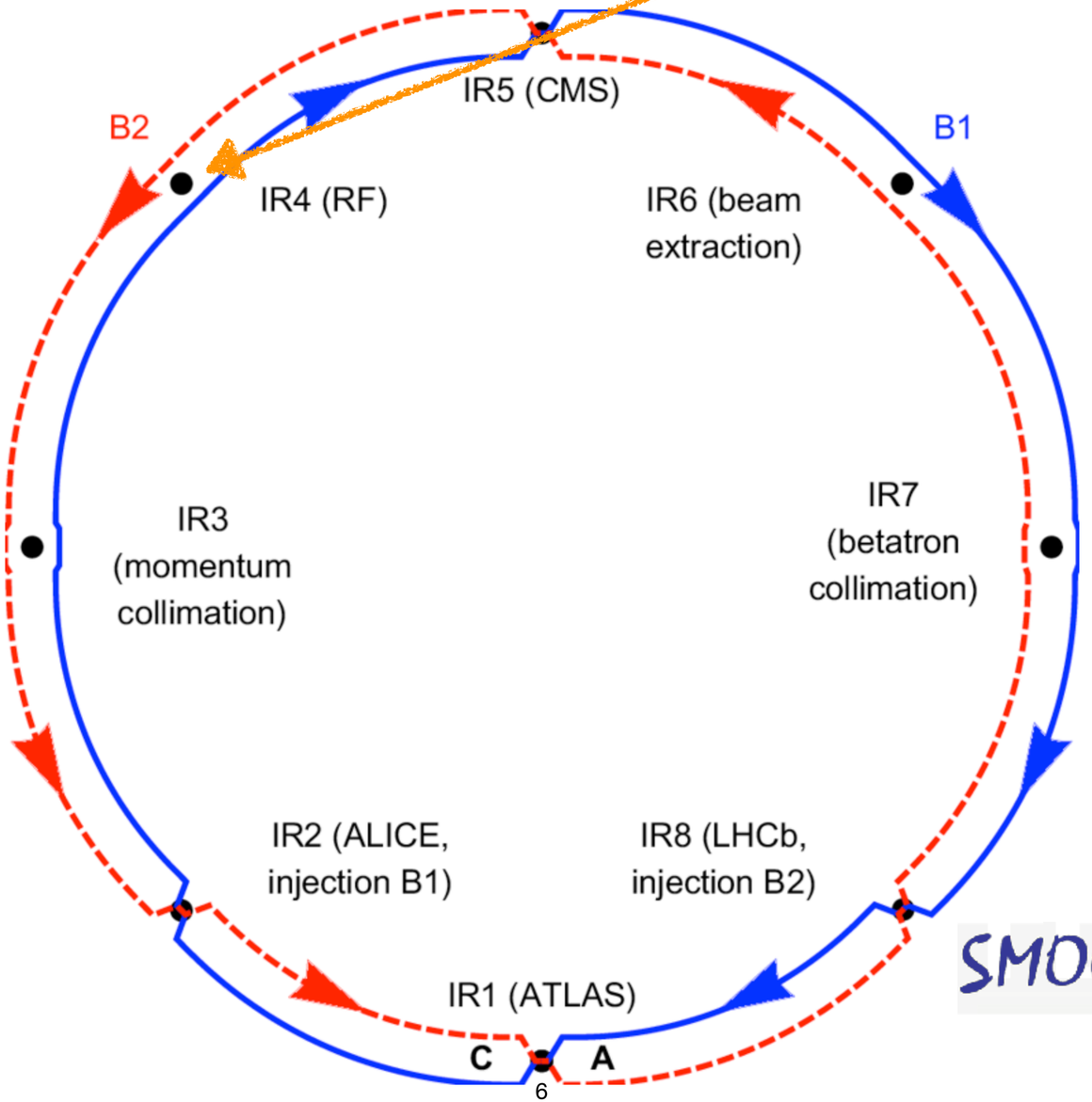
Follow-up

a complete proof-of-principle adding novel, unique and very interesting measurements can be achieved adding few basic detectors

The LHC Interaction Regions



Other possibilities:
-IR3
-IR8 just before or after LHCb (beyond the wall)

The LHC Interaction Region 4

BGV

https://indico.cern.ch/event/817655/contributions/3442649/attachments/1861615/3059737/2019_06_BGV_GasJetTarget.pdf

PHYSICAL REVIEW ACCELERATORS AND BEAMS 22, 042801 (2019)

Editors' Suggestion

Noninvasive LHC transverse beam size measurement using inelastic beam-gas interactions

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This apparatus is not used and could be replaced by LHCspin

Also the IP8 has been visited (LHCb tunnel upstream the VELO)

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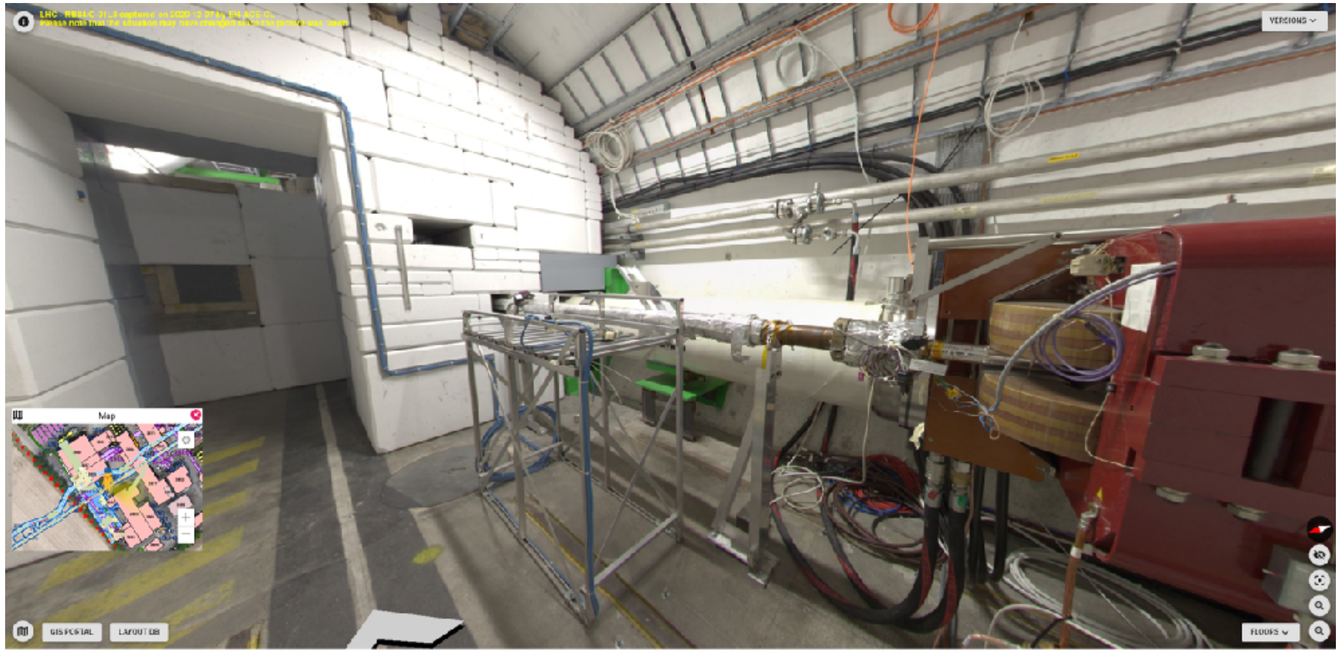

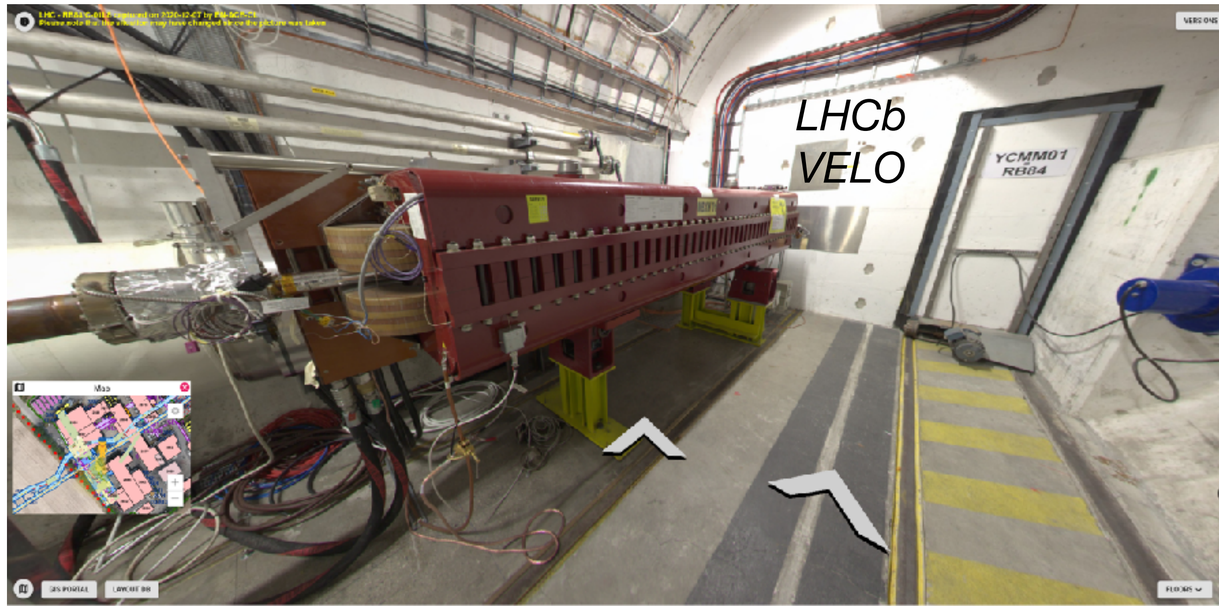

Pro:
-there is the LHCb CR and other spaces easily accessible
-this "beginning of the tunnel" could be relocated to a section of the cavern, providing easier access compared to a region within the tunnel

Contra:
-there are not all the hardware connections and crates now dedicated to the BGV
-the beta functions in that region are quite small, meaning small beams, not so convenient for combining with beam-gas vertex imaging functionality (i.e. real time emittance measurements)

Current participation

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Marco Mirazita
Marco Santimaria
Massi Ferro Luzzi
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