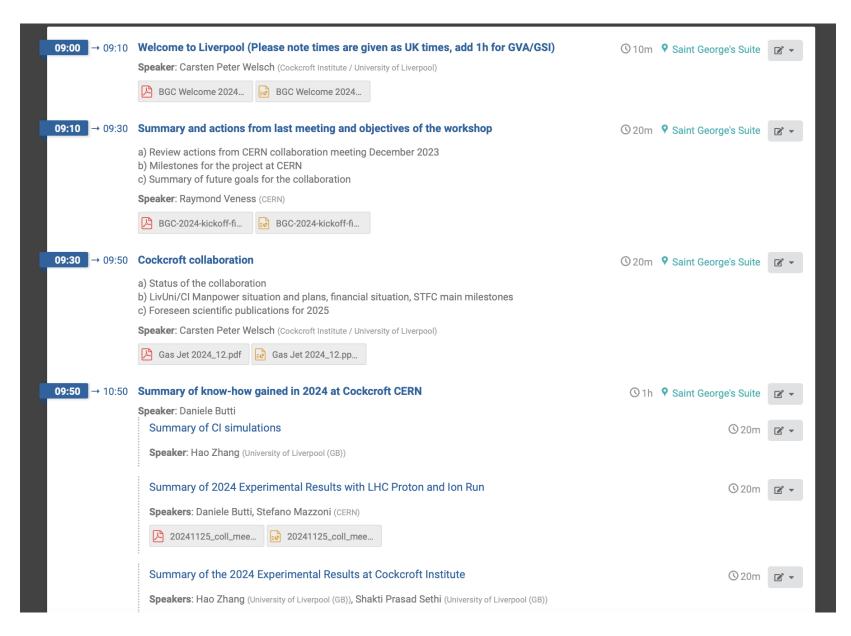


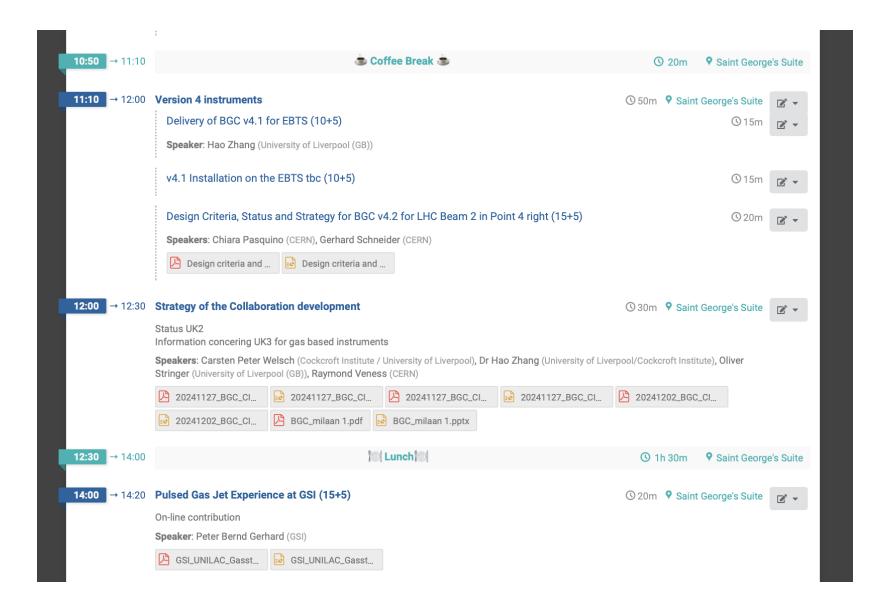
BGC Collaboration Meeting Wrap-up

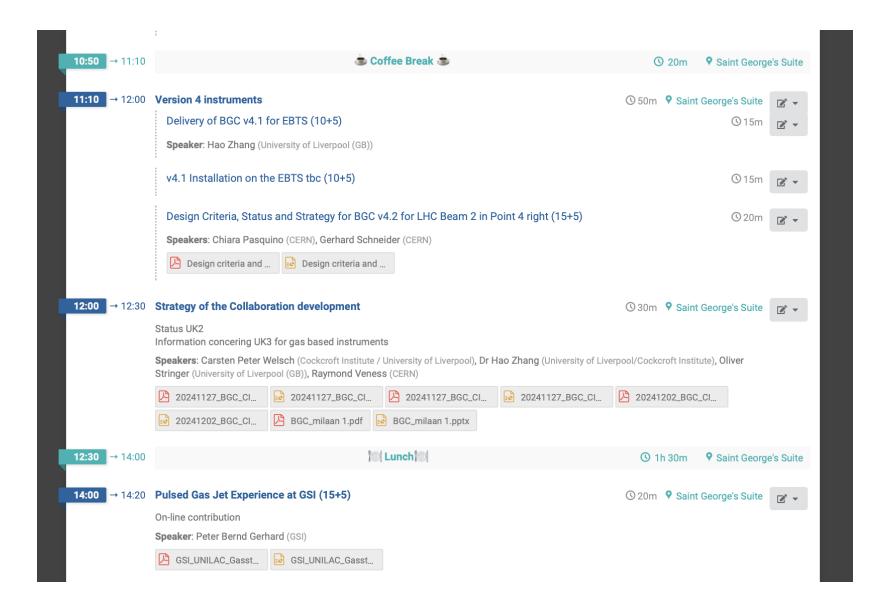
Ray VENESS



Liverpool 2-3 December 2024







Scientific specification:

- What instrument do we want for the LHC? Precision instrument, on-line monitor, halo monitor or 'all'?
 - 'Accurate' profile instrument for absolute measurements
 - 'Complete' beam size instrument for ions with on-line capability
 - Halo capability needs some resources and time to demonstrate feasibility with outcome unclear for now. Can we do any more preliminary estimates before the halo review on 18/12. However, will need physics runs in 2025 and perhaps 2026.
 - Engineering for halo is principally resources and time
 - Profile (protons and ions) are mutually compatible. Halo is (probably) a different set-up, but TBC depending on skimmer gas density measurements
- What is the best gas? N₂ or Ne? Does this depend on the above question?
 - There is a scientific interest in using N2, for comparison with the SPS tests, but this justification should be written down

Technical specification

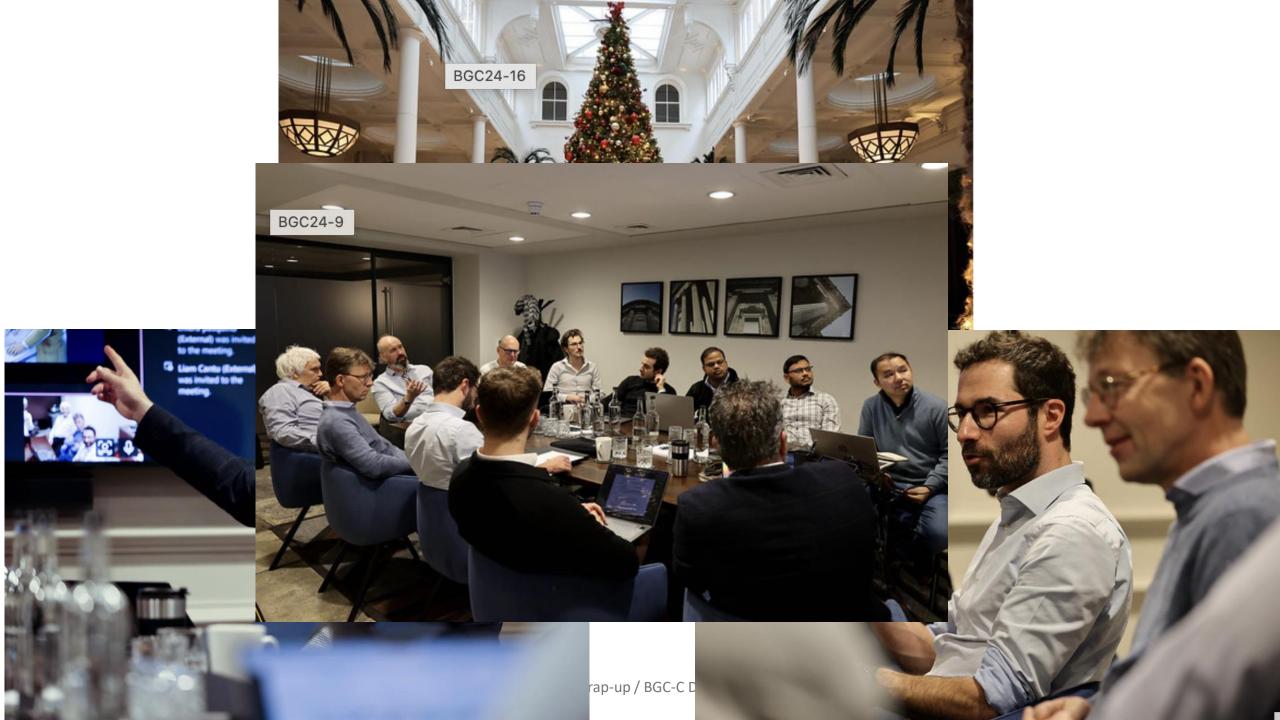
- What are we able to build for the LHC with the <u>space</u>, <u>time</u> and <u>resources</u> available?
 - Time and resources still need to be confirmed, but going in right direction with strong support within CERN and STFC
 - I think we can assume that this will happen.
 - We need to keep pushing, both for the physics case in the LHC as well as for funding.
 This is a task for all of us!
- Do we need to compromise on the scientific spec (e.g., 45°, location...)
 - Seems that there are 2 possible options with 90° or 45° rotation (with a second optical line) and either is achievable with some work
 - Reconsider 4L or 4R location for services
 - This is looking much more feasible than previously thought

Funding

- We need to identify all the cost components (not necessarily the actual number) needed to have our preferred v4 designs on both LHC beamlines
 - Gerhard listed hardware costs. We did not discuss in detail –we need to make sure this list is complete
 - Need to add manpower: design, R&D (instrument design, simulation)
- We need to assign these to our different possible resource sources
 - HL-UK(2-3), BI LS3 budgets, HL-WP13 envelope for profile and halo measurements
 - Add additional costs for LS3 delay to this list

Other actions from the meeting

- Make a list of prospective papers along with content (Hao)
 - Chase up the part-completed papers, also in the Friday meeting (Hao)
- Prepare a list of content for HL-UK3 (Ray, Carsten)
- Agree strategy for funding of HL-UK3 (Ray, Carsten)
- Extend the duration of the CERN collaboration with CI (Ray)
- Check the lifetime of the all-metal gas valves (Gerhard)
- Use the EBTS instrument to test gas density with the new, alternative skimmers on-order (Hao)
- Agree specification then propose technical solutions for a moveable gas jet for halo (Stefano, Gerhard)
- Consider design of a custom lens system and see potential improvements (Serban)
- What are the next 'targets' for improving the performance of the instrument? Halo in a higher intensity region? Integration time (why? For Ions?), other? (CERN)







Thank you all for your participation, excellent presentations and discussions

Wishing you a safe trip home and a healthy and happy end of the year