



Looking forward to the BGC Collaboration Meeting

Ray VENESS

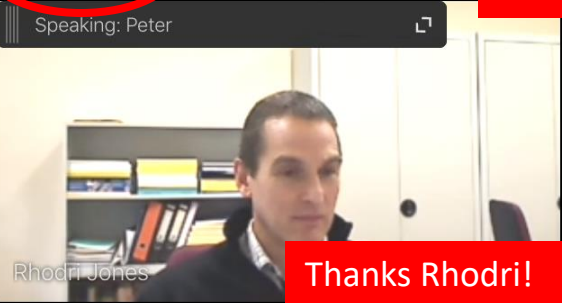


CERN, 30 and 31 March 2022

Contents

- Last meeting in December 2020
 - Review of the meeting
 - Actions agreed and progressed
- Impact of the Ukraine situation
- What we can expect from this meeting
 - Some key points for discussion and decision
- Project road map
 - December 2020
 - March 2022

Speaking: Peter



Rhodri Jones

Thanks Rhodri!



Marton Ady



Hao Zhang



Serban



Ioannis Papazoglou

Thanks Ioannis!



Chiara Pasquino



Stefano



Narender



Peter




Amir

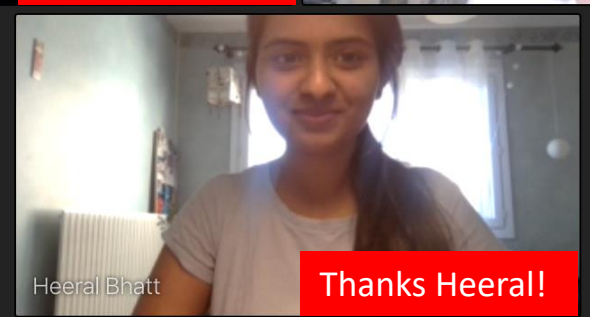
Thanks Amir!



Adriana



Gerhard PC



Heeral Bhatt

Thanks Heeral!

Carstens wonderful, but challenging, virtual escape room

youtube.com

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Stay tuned for your prizes!

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Мargarита С
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2:00:01



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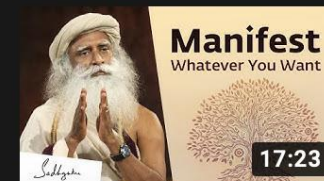
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Closing Webinar

PhilCeCNet
831 views • Streamed 1 week ago

1:56:39



Sadhguru On How to Manifest What You Really Want...

Sadhguru ✓
4.6M views • 4 months ago

17:23

Musica celtica irlandese allegra

Mac OS taskbar with various application icons including Safari, Spotlight, Mail, Messages, Photos, Music, App Store, and others.

Major milestones achieved since the last Collaboration meeting in Dece

KE3036/BE

CERN e-Lens Project

September 3, 2018

Milestone 1.1 Report

S. Udrea, P. Forck

GSI Helmholtzzentrum für Schwerionenforschung

1. INTRODUCTION

A hollow electron lens system is presently under development as part of the collimation upgrade for the high luminosity upgrade of LHC. For effective operation, a very precise alignment is necessary between the ion beam and the low energy electron beam. For the e-lens at CERN a beam diagnostics setup based on an intersecting gas sheet and the observation of beam induced fluorescence (BIF) [1,2] is under development within a collaboration between CERN, Cockcroft Institute and GSI.

This report presents the results of the investigations performed to assess:

- the expected cross-sections of the excitation processes leading to fluorescence during the interaction between a non-relativistic electron beam and a relativistic proton beam

DEVELOPMENT OF A BEAM-GAS CURTAIN PROFILE MONITOR FOR THE HIGH LUMINOSITY UPGRADE OF THE LHC

R. Veness, M. Ady, N. S. Chritin, J. Glutting, T. Marriott-Dodington, O. R. Jones, R. Kersevan, S. Mazzoni, A. Rossi, G. Schneider, CERN, Geneva, Switzerland
P. Forck, S. Udrea, GSI, Darmstadt, Germany
A. Salehilashkajani, C. P. Welsch, H. D. Zhang, Cockcroft Institute and University of Liverpool, Warrington, UK
P. Smakulski, Wrocław University of Science and Technology, Wrocław, Poland

Abstract

High luminosity upgrades to the LHC at CERN and future high-energy frontier machines will require a new generation of minimally invasive profile measurement instruments.

Production of a dense, focussed gas target allows beam-gas fluorescence to be exploited as an observable, giving an instrument suitable for installation even in regions of high magnetic field.

The instrument consists of the following main components:

- a gas generation stage consisting of a supersonic gas nozzle followed by three skimmers which select and shape the gas jet.
- an interaction chamber where the 0.45-7 TeV proton beam and 10 keV electron beam interact with the gas jet.
- an optical system for image generation



EDMS NO.	REV.	VALIDITY
2369616	0.9	DRAFT

REFERENCE : LHC-BGC-ES-0001

ACCEPTANCE CRITERIA

DELIVERY OF GAS-CURTAIN BEAM PROFILE MONITORS [BGC] FOR HL-LHC [TASK 2]

COLLABORATION BETWEEN CERN, THE COCKCROFT INSTITUTE (UK), AND LIVERPOOL UNIVERSITY (UK)

Abstract

This document summarises the criteria for accepting the deliverables associated with Task 2 (Gas-Curtain Beam Profile Monitors) of Addendum No. 3 KEXXXX to Framework Collaboration Agreement KNXXXX as part of the HL-UK2 contribution to the HL-LHC project. These deliverables are to be supplied by the Cockcroft Institute (UK) and Liverpool University (UK).

Reached the nominal required gas jet density of 2×10^{16} mol.m⁻³

- Identified in GSI Milestone Report 1.1 (2018)
- Published as a target in IBIC paper (2018)
- Specified in HL-UK2 acceptance criteria (2020)

v3 instrument delivered to CERN and pumping!

- See talks from Hao and Oliver this morning

Test stand assembly advancing well

- See talks on the status from Adriana and Ashley

We have a baseline for v4 integration into the HEL on both sides of the LHC

- See Krystian's talk this afternoon

LHC phase I installations completed – ready for beam in April (!)



Actions since the last Collaboration Meeting

- 49 actions open at the close of our last Collaboration meeting in December 2020
 - Only 8 actions still ongoing at the last review in December 2021
 - 2 completed since December (NEG tests at CI, misalignment issue)
 - 3 for the EBTS phase (**Gas selection, operating scenarios**, phosphor screen grounding)
 - 1 project management open issue (injection line pumping responsibility)
 - 2 technical issues (**v3-LHC vacuum system design**, Vantablack test samples)
- This shows the utility of our regular video calls in keeping this complex project advancing on-schedule
 - Thanks to Gerhard and Krystian for keeping us on the straight-and narrow!

Impact of the war in Ukraine on the project

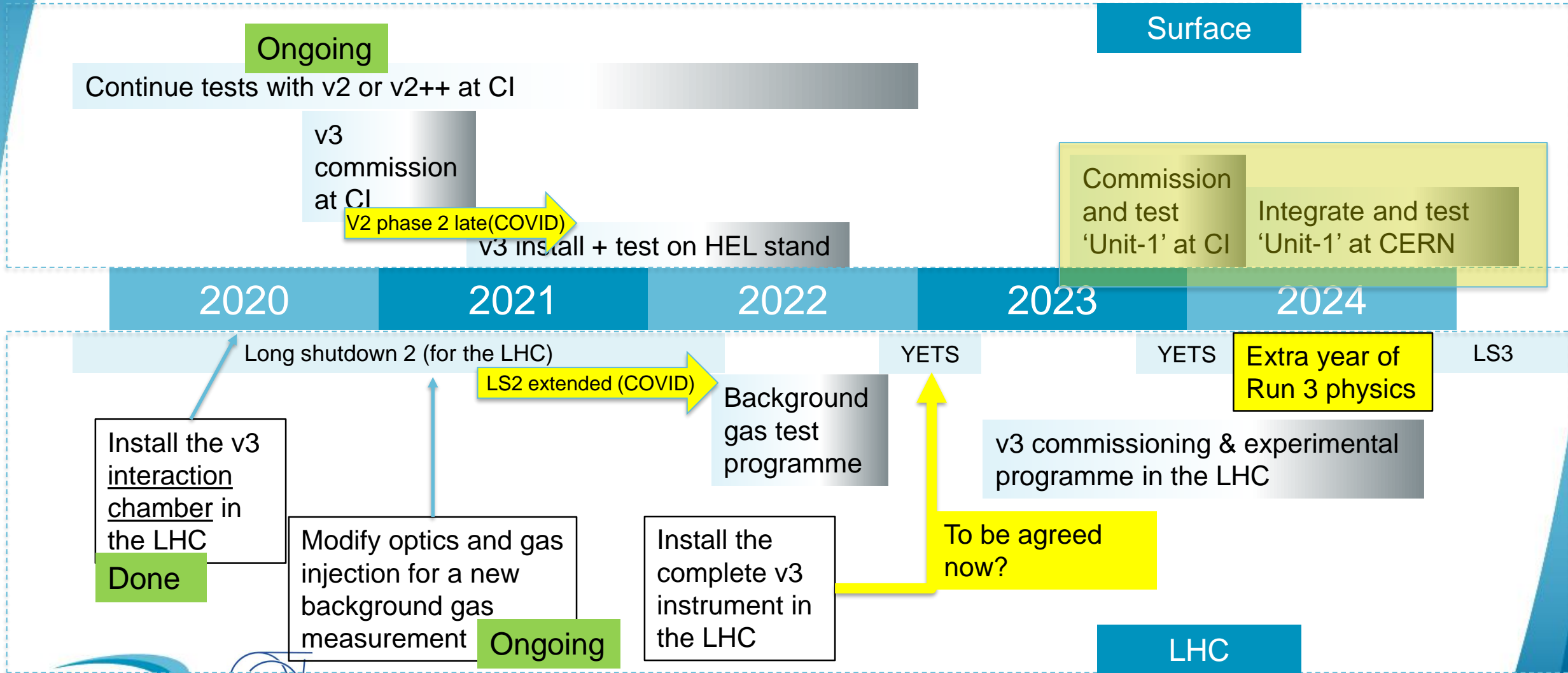
- The main magnet system for the Hollow E-lens is planned as a fully in-kind contribution from Russia
- Cooperation agreements are currently suspended
 - Further decisions will be made in the June Council meeting
- This has an immediate effect on the HEL project
- No immediate effect on the BGC (in-kind contribution via HL-UK2)
 - Long-term impact may be seen in the coming months

Statement by the Director General to CERN Personnel on Friday 25th March 2022 [excerpt]:
The CERN Council also decided that, with a view to making a decision at its Session in June 2022 on the suspension of the international cooperation agreements and the related protocols and addenda..., allowing for the participation of the Russian Federation and the Republic of Belarus, their national institutes and JINR in the CERN scientific programme, the Council will consider additional information and an action plan, and will further analyse the full consequences of such a decision.

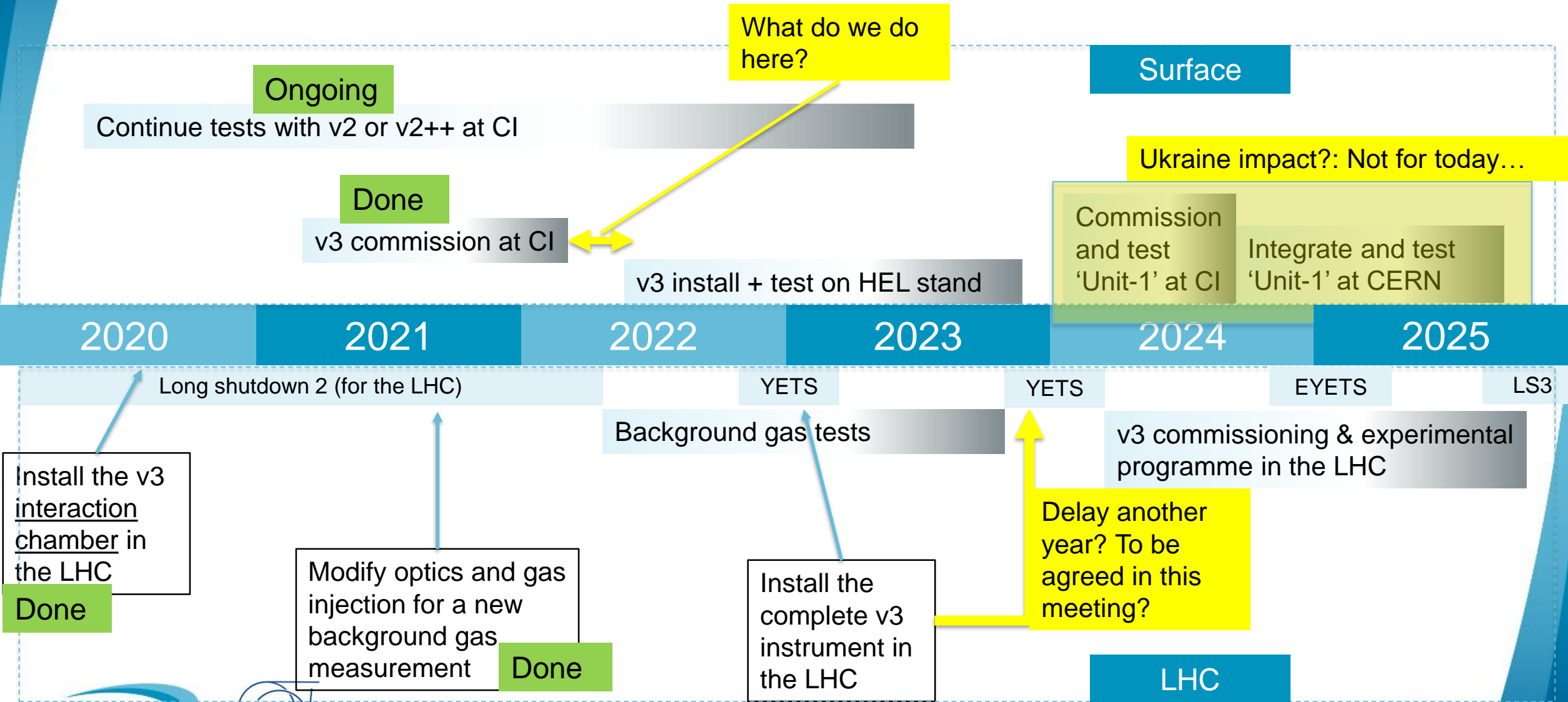
Some key discussions and decisions for this meeting

- LHC background gas fluorescence tests
 - Ondrej/Stefano presents the test programme
 - What can we learn for the BGC design from these key early tests?
 - What are the best- and worst-case scenarios (**expectation management!**)
- HEL test stand
 - Presentation of the current schedule and test programme
 - When will we put the BGC v3 on the stand? What can we do beforehand?
 - What do we need to learn from this programme and what are the limitations we should expect?
- LHC machine compatible Vacuum control system.
 - This is likely to be the critical path to installing the v3 in the LHC
 - What can we do to help VSC with their work?
 - What tests and validations will we need to make on the HEL test stand and when?

Project roadmap (December 2020)



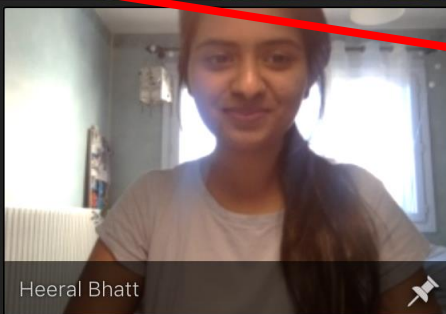
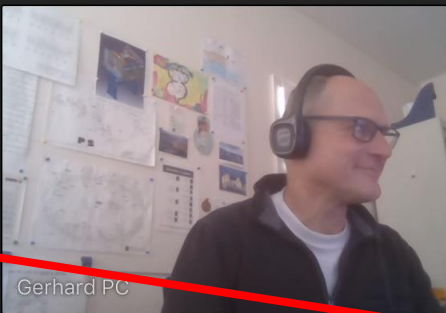
Project roadmap (March 2022)





***Looking forward to a lively meeting
and a heavy fondue tonight***





I am looking forward to the usual high level of technical discussion in this meeting...

- Carsten :-)
 - C Hear, hear!
 - Rhodri Thanks!
 - RJ
 - Amir has the same hair cut as in the picture behind him :D
 - TL Q
- Today at 2:46 PM

a small break please