



H2/H4 users meeting

Starting up in Spring 2022

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H2/H4 General Information

- **Two unique experimental beam lines**
 - Magnetic spectrometers with maximum dp/p : 2%
 - Separating momenta and not particle species !
- **Available momenta : 20 – 400 GeV/c**
 - Mixed hadron or pure electron modes
 - Purity variable with momentum/intensity and (both) beam lines configuration
- **Spill duration: ~4.8 s flat-top, 1-2 spills / supercycle, ~3000 spills / day**
 - Rates @ your detector : a few hundred particles/spill – 1E7 particles /spill
 - RP and other limitations may apply
- **Very dynamic facilities**
 - Modifiable, easily accessible, and adaptable to user needs....within limits.

Contact Persons for H2 / H4

- **Responsible liaison physicist → N. Charitonidis (62102/169887)**
 - Beam composition, intensity, spot-size, PID, vacuum, Cherenkov gases, general layout possibilities, beam tuning
- **Beam line support → B. Rae (63265/167388)**
 - CESAR training, patrol rights training, beam control, file loading, beam tuning
- **In (the highly unlikely event of) our simultaneous absence :**
 - Deputy beam physicist : H2: [A. Gerbershagen](#), H4: [D. Banerjee](#)
 - BE-EA-LE Section leader : [J. Bernhard](#)
- **Technical support → See presentation of M. Lazzaroni !**
 - “I want help with transport”, “I need a special table”, “my zone has less blocks than last year and I need them”, “something is broken in the zone”

What about after hours?

- At **weekends** or **nights**, we always check our e-mails and there is a (quite) high probability to pick-up the telephone also.
- However, most of the times, the CCC can also help you tune the beam or solve most of the issues. If they fail, and if the need is imperative, they will give us a call.
- Please **first call the CCC (77500)**



Beam line & machine limitations

- **H2/H4 share the same target**
 - High-rate pure electrons in both beam lines is not possible → We have some cases this year
 - High-rate, same polarity hadrons in both lines is not possible
 - ...non-exhaustive list
 - In general *strong coupling* between the momenta of H2/H4
 - This is the reason we need to know in advance your schedule and discuss ! → This meeting but also every Thursday after the users meeting.
- **Moreover :**
 - SPS machine has its own limitations, MD's, Q-ripples etc → *May* have some impact on your beam quality
 - Especially for primary beams.
 - Proton content and spot size in low momenta (<30 GeV) beams is small (15%) and big (10 cm) in both planes
 - Not many things to be done (physics boundaries).
- **However : Many times many workarounds can be found, and many possibilities exist. Keep us involved and informed in your experiment !**

What has changed during YETS 2021/2

- **H2 :**

- Modification of the NA61 beam-line → Optimized vacuum to reduce the material budget upstream
- Vacuum optimization in PPE172 after the XTDTV → Should be convenient for everybody
- New shielding in PPE152-PSD to allow for higher ion intensities
- Ions after 4 years – tested MSN.021.027 for the 25.2 / 9.012s super cycle and seems to be stable.

- **H4:**

- PPE144 currently fully operational
- A new “pre-dump” for GIF++ to enhance muon production and disentangle (when possible) from RD51 or PPE134 operation → We use / install as usual since last year we had very good results
- For the demanding electron users → Material optimization upstream (new beam windows)

Summary

- We are looking all forward the startup in 2022 !
- Communicate with us as early as possible worries, issues, details so that we can identify and mitigate all showstoppers.

