





# LHC Injectors Upgrade days 2019

13 – 15 February, 2019  
Hotel Royal Plaza, Montreux (CH)

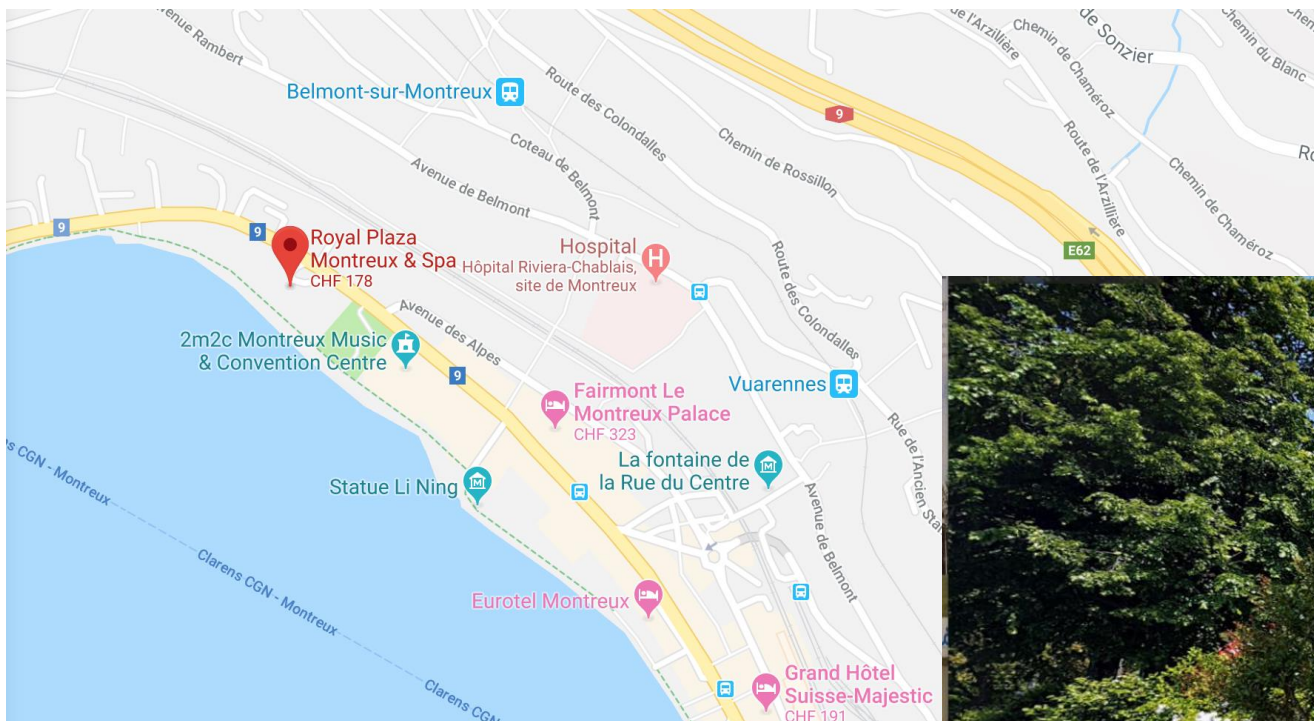
# Venue



LHC Injectors Upgrade

**LIU days, 13 – 15 February, 2019**

Logistical support: L. Mainoli and H. Martinet





# S1: LIU beam performance

(Giovanni + Heiko)

- Present HL-LHC target and sensitivity of integrated performance reach to variations in LIU delivered parameters – analyse alternative production schemes
- Wrap-up LIU beam performance reach – baseline and mitigation scenarios for both protons and ions
- Summarise conclusions from run 2 MD and operation in 2018, in context of LIU parameters and performance – including mitigations for risk items
- Identify beam performance related activities for 2019-2020 (LS2) – data analysis, simulations, code development ...
- List LIU beam measurements needed during run3 (in collaboration with S3)
- List hardware related improvements postponed to post LS2 and performance impact
- List any items needing upgrade that were missed from LIU

# S2: LS2 system readiness and shutdown execution

(Julie + Brennan)



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- List RFI dates for LIU equipment in the context of machine installation planning: Presentation of the preparation planning with present status (delivery, assembly, vacuum acceptance tests, pre-tests, etc... up to readiness for installation)
- Identify critical delivery path items (or already late) and discuss mitigation
- Review readiness prospects for selected highest risk/impact systems (incl. IST)
- List known NCs or variation from specified equipment performance, and impact
- Present status of related general safety documentation and identify outstanding items + status of electrical conformity following pre-visit with HSE
- Present risk analysis of LIU planning (preparation + installation) with mitigation (with agreed methodology)
- Overview of spares for startup





# S3: LIU hardware and beam commissioning

(Verena + Alex)

- Activity organisation and responsibilities
- Review IST, requirements and identify potential risks with mitigations, in context of LS2 and restart planning (in collaboration with S2)
- HW commissioning: status of plans, risks, mitigations, resource conflicts, requirements
  - Services, signals, controls, applications, procedures, check-lists...
- Beam commissioning: timeline, milestones, documentation for beam permit, pre-LS2 beam performance recovery and LIU beam commissioning plans, requirements
  - Settings management, on-line monitoring, tools, applications



# Schedule – Day 1

15h00 – 15h30 – Welcome coffee

15h30 – 17h00 – **Session 1 LIU beam performance (1.5h)**

17h00 – 17h30 – Leg stretch

17h30 – 19h00 – **Session 1 LIU beam performance (1.5h)**

20h00 – Dinner



# Schedule – Day 2

8h30 – 10h00 – **Session 1 LIU beam performance** (1.5h)

10h00 – 10h30 – Coffee break

10:30 – 12h00 – **Session 2 LS2 system readiness and shutdown execution** (1.5h)

12h00 – 13h30 – Lunch

13h30 – 15h00 – **Session 2 LS2 system readiness and shutdown execution** (1.5h)

15h00 – 15h30 – Coffee break

15h30 – 17h00 – **Session 2 LS2 system readiness and shutdown execution** (1.5h)

17h30 – 18h45 – Leg stretch + 1h reserved buffer

19h00 – Aperitif

20h00 – Dinner







# Schedule – Day 3

8h30 – 10h30 – **Session 3 LIU hardware and beam commissioning (2h)**

10h30 – 11h00 – Coffee break

11h00 – 13h00 – **Session 3 LIU hardware and beam commissioning (2h)**

13h00 – 14h00 – Lunch

14h00 – END



# First session proposals in one week time



## LIU Beam Performance meeting



Thursday 15 Nov 2018, 09:00 → 10:00 Europe/Zurich

865-1-D17 (CERN)

**Description** **Scope:** Concise reports of the recent beam dynamics findings having an impact on the most relevant LIU items and performance reach.

Reminder: Short progress reports are expected, together with potential issues. Attendance is restricted. This is not a Forum for detailed discussions amongst experts, which should continue to take place in the dedicated Beam Dynamics meetings.

- |              |         |   |       |  |
|--------------|---------|---|-------|--|
| <b>09:00</b> | → 09:05 | <b>Matters arising</b>  | 🕒 5m  |  |
|              |         | <b>Speaker:</b> Malika Meddahi (CERN)                           |       |  |
| <b>09:05</b> | → 09:20 | <b>Session on Beam Performance</b>                              | 🕒 15m |  |
|              |         | <b>Speakers:</b> Giovanni Rumolo (CERN), Heiko Damerau (CERN)   |       |  |
| <b>09:20</b> | → 09:35 | <b>Session on LS2</b>   | 🕒 15m |  |
|              |         | <b>Speakers:</b> Brennan Goddard (CERN), Julie Coupard (CERN)   |       |  |
| <b>09:35</b> | → 09:50 | <b>Session on HW and beam commissioning</b>                     | 🕒 15m |  |
|              |         | <b>Speakers:</b> Alexander Huschauer (CERN), Verena Kain (CERN) |       |  |
| <b>09:50</b> | → 10:00 | <b>AOB</b>  | 🕒 10m |  |

