

FOM Report – Wk. 40

TI supervisors

Jean-Baptiste Lallement (Linac4)

Gian Piero Di Giovanni (PSB)

Erwin Siesling (ISOLDE)

Rolf Wegner (Linac3)

Michele Bozzolan (LEIR)

Ruben Garcia Alia (PS)

Michael Bacak, Paolo Milazzo (n_ToF)

Nikos Charitonidis (East and North Areas)

Bruno Dupuy (AD/ELENA)

Giulia Papotti (SPS)

Michele Bergamaschi (AWAKE)

Helga Timko (LHC)

Pierre Korysko (CLEAR)

Alberto Rodriguez (FOM)

Approval minutes FOM Wk. 39 and open actions:

- Date: 01.10.2024.
- [Hyperlink here](#)
- Minutes prepared by Emiliano Piselli. Thank you very much!
- Open actions:
 - None
- Approval of the minutes. Any objection?

Summary of the Reports from the Accelerators and Facilities:

TI	TI supervisors
Wk. 40	<p>Busy week with a lot of events affecting the technical infrastructure.</p> <ul style="list-style-type: none">▪ Electrical glitches (01.10): Impact on all accelerators (-8 % for 60 ms at 06:44 and -16 % for 70 ms at 08:23).▪ Fault in cooling station (01.10) in RR13. Faulty relay found. Will be replaced during the YETS.▪ Unable to restart the LHC (02.10) due to an interlock from the TED in TI8. Piquet forced the TED with the Ok of the DSO. Afterwards, the piquet calibrated the end stop switch.▪ Short circuit on a FEC (02.10). Circuit breaker tripped and stopped the cryo in LHC4. FEC repaired after BE/CEM intervention.▪ Local power cut of cooling in SU6 (02.10) during preventive maintenance of the emergency generator in LHC6. Fortunately, no impact in cryo. Installation quickly restarted.▪ LHC beam dumped (03.10) due to wrong manipulation during the maintenance on a PAD in point 1. Zora informed and stopped the intervention.▪ Problem with the loudspeaker system in the SPS (05.10). Piquet unable to solve the problem. With the agreement of the DSO, a temporary procedure to enter the machine in the presence of the fire brigade was put in place. SPS could continue operations.

Summary of the Reports from the Accelerators and Facilities:

LINAC4	99.7 %	MC: Jean-Baptiste Lallement → Jose-Luis Sanchez
Wk. 40	<ul style="list-style-type: none">▪ Excellent week with no major fault and almost perfect availability.▪ Source and LEPT retuned parasitically on 04.10.	
Issues:	<ul style="list-style-type: none">▪ Two RFQ breakdowns. Automatic recovery mode (~8m).▪ Wrong cavity settings sent after an MD on PSB on 03.10 (~15m).	

Summary of the Reports from the Accelerators and Facilities:

PSB	PS: 95.6%	ISOLDE: 95.6 %	MC: Gian Piero Di Giovanni → Jean-Francois Comblin
Wk. 40	<ul style="list-style-type: none"> ▪ Good week with most of the downtime associated to a fault of POPS-B. ▪ Preparation of the 1.7 GeV proton beam to GPS started. PSB can accelerate and extract ~3.2E13 ppp to the dump with losses under control (i.e. comparable to the ones from the operational 1.4 GeV beam). ▪ PSB water refill ~10 days since the last one. Stable water leak. 		
Issues:	<ul style="list-style-type: none"> ▪ Fault of POPS-B on 30.09 (~6.5h): <ul style="list-style-type: none"> ▪ Source: IGBT fault on the MPS-B which connected to the load of BR23.MPS (internal PSB rings). ▪ After investigation, piquet decided to switch to hot spare (MPS-C). The spare didn't run because it had been left with a test configuration. Procedure to change back the configuration was not available. Experts had to be called. ▪ Follow-up actions: Develop a procedure to test the converters at low voltage in case of IGBT fault, copy in the building and electronic format. ▪ Trip of power converter (BTY.QDE209) due to electrical glitch (01.10). Delay of the beam delivery to GPS (~11m). ▪ Several other short interruptions/trips/resets (BE4.KFA14L1, BE.BSW15L4, switch of the BT.BHZ10 in monopolar/bipolar mode for PS access). 		
Wk. 41+	<ul style="list-style-type: none"> ▪ Interventions (in the shadow of other stops): Visual inspection of the BR.QDE11 water leak by TE/MS (~1.5h). Replacement of EN/CV sensor (~2h). 		

Summary of the Reports from the Accelerators and Facilities:

ISOLDE	GPS/HRS + REX/HIE-ISOLDE: 96 - 99 %	MS: Erwin Siesling → Miguel Lozano
Wk. 40	<ul style="list-style-type: none"> ▪ GPS + REX/HIE-ISOLDE: End of IS478 physics ($^{212, 214}\text{Ra}^{54+}$ to Miniball) on 02.10. ▪ REX/HIE-ISOLDE: Stable beam ($^{20}\text{Ne}^{7+}$ at 7.5 MeV/u) to the ISS on 02-03.10 ▪ HRS + REX/HIE-ISOLDE: Preparation for physics at the ISS experimental station (IS757: $^{38}\text{K}^{13+}$ at 7.5 MeV/u). started on 03.10. MEDICIS target irradiation in parallel. 	
Issues:	<ul style="list-style-type: none"> ▪ Trip of the GPS line heating (01.10). ▪ Noise spikes in acquisition of vacuum gauge in the user side of XT02. Valve closed due to interlock. Electronics replaced. Filter in place until the end of the experiment. Investigation on the source of the noise after experiment is completed. ▪ Fixed phone in the ISOLDE control room not operational. Removed from database. New phone installed. ▪ Tape in tape station broken. Intervention planned for 09.10. 	
Wk. 41	<ul style="list-style-type: none"> ▪ HRS + REX/HIE-ISOLDE: End of physics at the ISS experimental station (IS757: $^{38}\text{K}^{13+}$ at 7.5 MeV/u) on 08.10. ▪ REX/HIE-ISOLDE: Stable beam ($^{12}\text{C}^{4+}$ at 7.0 MeV/u) to SEC (09-10.10). ▪ HRS: Target installation on 09.10. Setup and physics on ISOLTRAP/IDS starting on 11.10. ▪ GPS: Preparation of for physics ($^9\text{Li}^{3+}$ at 7.0 MeV/u to SEC). Protons at 1.7 GeV will be requested. 	

➤ ISOLDE Physics

Summary of the Reports from the Accelerators and Facilities:

Linac3	99.9 %	Rolf Wegner → Giulia Bellodi
Wk. 40	<ul style="list-style-type: none">▪ Very good week for Linac3 with continuous production of a 30-35 uA lead beam.▪ CANopen board of the Sairem2 microwave generator installed and tested.▪ Stripping foil exchange (30.09).	
Issues:	<ul style="list-style-type: none">▪ Loss of RF permit after LSA update on 02.10 (~10m).▪ Noise from the Sairem1 microwave generator since 03.10. A switch back to Sairem2 is foreseen.	
Wk. 41+	<ul style="list-style-type: none">▪ Beam stop for oven refill (08.10): Intervention planned to start at ~06:00. Beam expected to be back in the afternoon/evening.	

Summary of the Reports from the Accelerators and Facilities:

LEIR	MS: Michele Bozzolan → Theo Argyropoulos
Wk. 40	<ul style="list-style-type: none">▪ Very good availability with extracted intensity well above LIU ($>10E10$) after stripping the foil exchange 30.09.▪ Beam delivered to SPS for ion commissioning.▪ Upgraded ToF application, using injection line trajectory pickups, measures injected beam energy.▪ Required specific RF setting for capture by the LLRF expert.▪ MDs: resonance compensation, space charge studies in the PS with LEIR operating at harmonic 1.
Issues:	<ul style="list-style-type: none">▪ A few trips of the power converter for ER.QFN2040 quad.
Wk. 41	<ul style="list-style-type: none">▪ Keep high machine performance.▪ Cross-check ToF energy measurements with Schottky monitor.▪ Continue working on resonance compensation, ML, optics.

Summary of the Reports from the Accelerators and Facilities:

PS	SPS: 94.7 % AD/ELENA: 94.7 %	n_ToF: 94.7 % EA T8: 94.7 %	EA T9: 94.7 % EA N: 94.7 %	MC: Ruben Garcia Alia → Alexandre Lasheen
Wk. 40:	<ul style="list-style-type: none"> ▪ Several checks on AD trajectories and satellites. ▪ TOF trigger beam timing alignment. ▪ Important progress on commissioning of ions to East Area. 			
Issues:	<ul style="list-style-type: none"> ▪ Issue with amplifier of C10-86 RF cavity: <ul style="list-style-type: none"> • Access on 05.10 to replace it. Replacement unit didn't work. • C10-11 being used instead. No active spare for the 10 MHz cavities. • Spare needs to be repaired and installed asap. ▪ Occasional issue with C80-08 RF cavity. Due to faulty contact/termination on synchronization module. Solved by experts. ▪ Ion beams for the LHC: Observed a 23-bucket delay with respect to SPS. Not operational impact. But, not yet understood. 			
Wk. 41:	<ul style="list-style-type: none"> ▪ Intervention (08.10 08:30-10:10): Amplifier replacement for C10-86. Email sent to the FOM mailing list yesterday. ▪ Intervention (~1h): Not urgent. Investigation of issue with F16.BPM211. 			

Summary of the Reports from the Accelerators and Facilities:

n_ToF	Michael Bacak, Paolo Milazzo
Wk. 40	<ul style="list-style-type: none">▪ Smooth data taking in all experimental areas:<ul style="list-style-type: none">• EAR1: 12C(n, lcp) measurement.• EAR2: 40K(n, p), 40K(n, α) measurements.• NEAR: Activation measurements.
Issues	<ul style="list-style-type: none">▪ No major issues.
Wk. 41	<ul style="list-style-type: none">▪ Beam stop on 08.10 between 09:00 and 17:00:<ul style="list-style-type: none">• Installation of a new experimental set-up in EAR1 for a detector test: A telescope for the measurement of energy of recoil protons by means of the time-of-flight technique (Re-TOF) will be mounted in parallel with the set-up dedicated to the 12C(n, lcp) study.▪ Data taking on:<ul style="list-style-type: none">• EAR1: 12C(n, lcp) measurement + Re-TOF.• EAR2: 40K(n, p), 40K(n, α) measurements.• NEAR: Diamond detector.

Summary of the Reports from the Accelerators and Facilities:

East Area	T8: 94.8 %	T9: 94.8 %	T10: 94.8 %	T11: 98.1 %	Nikos Charitonidis → Laurence Nevay
Wk. 40	<ul style="list-style-type: none"> ▪ T09: Good operation. ▪ T10: Good operation. ▪ T11: Good operation. 				
Issues:	<ul style="list-style-type: none"> ▪ T10: Inefficiency found in T10.XCET043 Cherenkov Detector (low pressure). Being investigated. 				
Wk. 41	<ul style="list-style-type: none"> ▪ T09: STRAW Tracker → WCTE. ▪ T10: Alice RICH / Gamma MeV → Alice Muon ID. ▪ T11: CLOUD continues. 				

➤ East Area Physics

Summary of the Reports from the Accelerators and Facilities:

AD / ELENA

AD: 97.3 %

ELENA: 97.3 %

MS: Bruno Dupuy → Pierre Freyermuth

Wk. 40

Very quiet week with very good performance on both AD and ELENA.

- During the week, several cycles showed very poor efficiency on the first flattop. One of the stochastic cooling HF relays may not stick correctly. The investigation continues, into this random fault.
- Restore the Injection timing for DI.BHZ6024 and DI.BHZ6025 to continuous mode.
- Losses on the injection plateau were compensated by bump adjusting on QH and QV.
- Filter on BCT9053 removed resulting in a more accurate signal.
- Physics with H- at GBar (03-04.10).

Issues:

- **Issue with power converter (DHZ2913) in AD (30.10).** Power converter does not follow requested current. First-line intervention needed.
- Power glitches (01.10) caused several **trips on DR.QUAD power supply and C10-26 cavity.**
- **Loss of communication** with CFC-193-RISEG1 (04.10) and CFC-193-RISEG3 (01.10) power converters. Solved by First line after local reboot of the crates.
- **Multiple trips of the ELENA injection kicker (03.10).** Due to the adjustment made to the minimum voltage of the energy storage system between PBars and Hminus cycles. Settings were reverted to their initial values.

Summary of the Reports from the Accelerators and Facilities:

SPS	LHC: 99.2%	NA: 93 %	AWAKE: 98.3 %	MC: Giulia Papotti → Pablo Arrutia
Wk. 40:	<ul style="list-style-type: none">▪ LHC: Beams for fills and the last day of the MD block 4 delivered as requested.▪ Beams for physics delivered to the North Area and to AWAKE.▪ MKP strength increased. Corresponding orbit bump reduction applied and checked. Settings copied to all users (injection bump, MKP kick strength, MKP kick delay).▪ Ion commissioning (14 inj. cycle): Beams slip stacked brought to the flat top.▪ Dedicated MD on LIU beams on 4x48b 2.2-2.3E11 ppb.▪ Parallel MD on PS2SPS transfer completed. MD cycle prepared with Q20 in H plane and Q26 in V plane.			
Issues:	<ul style="list-style-type: none">▪ Issues with T18 TED beam stoppers (02,05-10). End-switch discrepancy didn't allow access. Intervention by ZORA and CEM piquets. Status check added to access preparation sequence while waiting for solution.▪ Issue with the SPS Sound System (BIW + Fire Alarm + Intercom):<ul style="list-style-type: none">• System is not working. Piquet/expert couldn't find the source of the problem.• Fire brigade will need to enter the machine with experts if an access is needed.• Waiting for specialists from DEF and EN-AA to find the root cause.			
Wk. 41+:	<ul style="list-style-type: none">▪ Dedicated ion commissioning on Thursday.▪ Dedicated MD on Wednesday and parallel MDs.▪ Schedule change (tbc): LHC MD5 beam preparation (from 15.10 to 14.10), short parallel MD (from 14.10 to wk. 45).			

Summary of the Reports from the Accelerators and Facilities:

North Area	H2: 93 % H4: 93 %	H6: 93 % H8: 93 %	K12: 93 % M2: 93 %	Nikos Charitonidis → Laurence Nevay
Wk. 40	<ul style="list-style-type: none"> ▪ H2, H4, H6, H8, M2, P42/K12: Good operation 			
Issues:	<ul style="list-style-type: none"> ▪ M2: Potentiometer of XCMH.X0610752 collimator exchanged on 02.10. Performing well. ▪ H2: Issue with the collimator 021045 right jaw stuck. Intervention in TCC2 at the beginning of the ion run probably needed. 			
Wk. 41	<ul style="list-style-type: none"> ▪ H2: LHCB ECAL continues. ▪ H4: SND continues. ▪ H6: RADICAL → ATLAS AFP ToF ▪ H8: ATLAS TileCal / BI XBPF → ATS XCET / STI. ▪ M2: MUonE → AMBER. ▪ P42/K12: Continuation of NA62 run. 			

Summary of the Reports from the Accelerators and Facilities:

AWAKE	Michele Bergamaschi → Michele Bergamaschi
Wk. 40	<p>First week of the AWAKE run 5:</p> <ul style="list-style-type: none"> ▪ Mon: Plasma and proton checks. Access in the afternoon to modify some diagnostics at the same time of LHC MD at injection (would mean limited beam to AWAKE). ▪ Tue: Acceleration studies at plasma density 1E14 1/cc. ▪ Wed: Access calibration of PLD during ion commissioning in the SPS. ▪ Thu: Access to fix problem with the spectrometer during long parallel MD in the SPS. ▪ Fri: Acceleration studies at plasma density 7E14 1/cc. ▪ Sat: Acceleration studies at plasma density 7E14 1/cc. ▪ Sun: Acceleration studies at plasma density 7E14 1/cc.
Issues:	<ul style="list-style-type: none"> ▪ Issue with spectrometer misaligned. Found on 30.09. Fixed on 03.10.
Wk. 41	<ul style="list-style-type: none"> ▪ Continuation of AWAKE Run 5.

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
SPS extractions to AWAKE	546	1477	Ion commissioning	Long parallel MD	884	946	915
Hours of beam to AWAKE	3.6	9.8			7.4	6.2	5.6
Hours requested	5	11			9.5	8.5	8

Summary of the Reports from the Accelerators and Facilities:

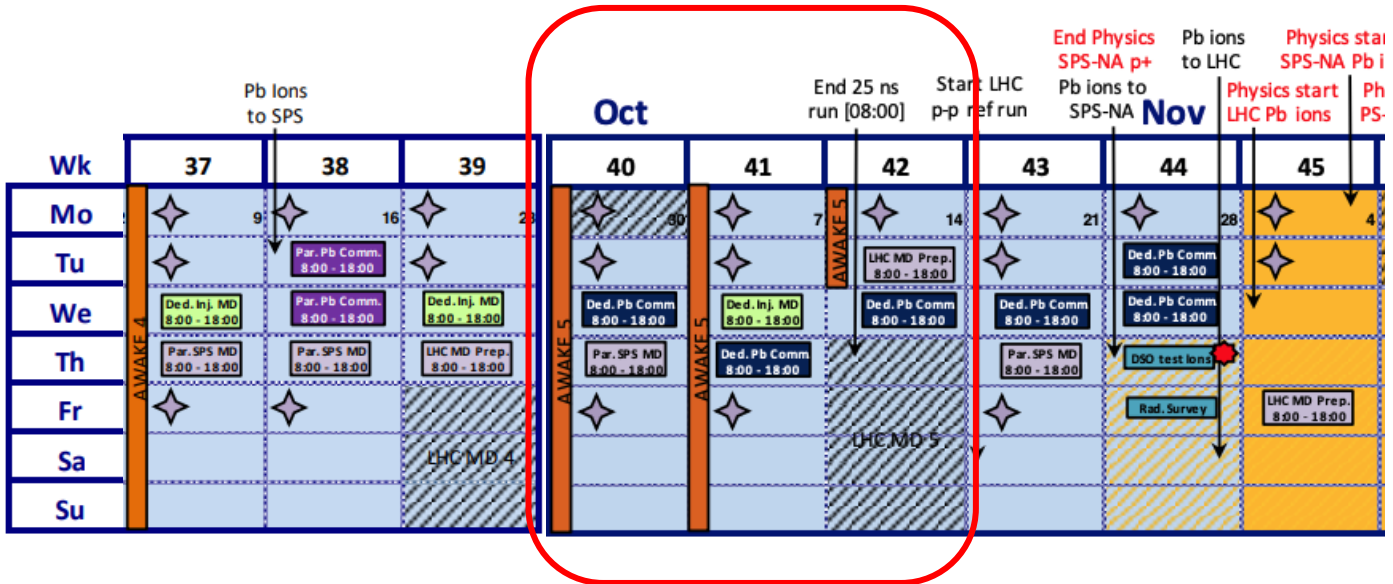
LHC	Availability: 81 %	Stable beam: 41 %	MC: Helga Timko → Mirko Pojer / Enrico Bravin
Wk. 40	<ul style="list-style-type: none"> ▪ MD block #4 (27-30.09): Good availability in general. But last MD affected by POPS-B issue. ▪ VIP visit and recovery (01.10): Difficult recovery. ▪ Luminosity production (since 02.10): multiple early beam dumps. ▪ Two fills for pp reference run (03.10). ▪ Access (04.10 morning): Emulsion replacement of FASER/SND. Smooth recovery afterwards. 		
Issues:	<ul style="list-style-type: none"> ▪ Recovery from VIP visit: Several accesses needed. <ul style="list-style-type: none"> • Loss of steps in motor for TCP.B6L7.B1 collimator. • Lost communication with two vacuum gauges. • Trip of quench extraction resistor (DQRs) in RR13 (relay shunted). • Trip of RQ6.L8B1 due to a damaged aux power supply. • Issues with TI8 TED beam stoppers. End-switch discrepancy didn't allow access. ▪ Several early beam dumps due to: RF trips, BLM probably trigger by a spark in the electronics, wrong manipulation during maintenance of the diesel generator in point 6 and maintenance of access system in point 1. ▪ Other issues: problem with the QPS of RB.A81, electrical issue in point 4. 		
Wk. 41	<ul style="list-style-type: none"> ▪ Physics production for the coming 10 days before the MD block #5. 		

Summary of the Reports from the Accelerators and Facilities:

CLEAR	Pierre Korysko
Wk. 40	<ul style="list-style-type: none">▪ Machine development and studies.
Issues	<ul style="list-style-type: none">▪ No major issues
Wk. 41	Week dedicated to two experiments: <ul style="list-style-type: none">▪ Passive Streaking for Temporal Diagnostics together with BE/ABP.▪ Fiber Beam Loss Monitor Studies together with SY/BI.

Short-term Injectors Schedule Outlook:

➤ Version 2.1 prepared by Rende (EDMS: [2872566](#)).



Last week:

- **LHC MD block 4 completed** on 30.09. Generally good availability. Last day affected by issue with POPS-B
- **Continuation of the commissioning of ion injector chain.** Dedicated ion commissioning day in SPS (02.10).

This week:

- **First week of AWAKE Run 5.**
- **Continuation of the commissioning of ion injector chain.** Dedicated ion commissioning day in SPS (10.10). Refill of the oven of the source for Linac3 (08.10).

Next few weeks:

- Last days of AWAKE Run 5.
- LHC MD block #5.