

FOM Report – Wk. 39

TI supervisors

Piotr Skowronski (Linac4)

Foteini Asvesta (PSB)

Lefteris Fadakis (ISOLDE)

Richard Scrivens (Linac3)

Theodoros Argyropoulos (LEIR)

Ewen Maclean (PS)

Michael Bacak, Paolo Milazzo (n_ToF)

Johannes Bernhard (East and North Areas)

Lajos Bojtar (AD/ELENA)

Arthur Spierer (SPS)

Michele Bergamaschi (AWAKE)

Helga Timko (LHC)

Pierre Korysko (CLEAR)

Alberto Rodriguez (FOM)

Approval minutes FOM Wk. 38 and open actions:

- Date: 24.09.2024.
- [Hyperlink here](#)
- Minutes prepared by Marlene Turner. 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. 39	<p>Rather quiet week in TI. Few pollution alarms due to rain mostly.</p> <ul style="list-style-type: none">▪ Access problem in AD hall (23.09). Caused by an update of the access system.▪ Interlock of the primary water-cooling circuit for the PSB (29.09). Caused by a faulty low-level water sensor. Temperature increased and affected several systems. Analog reading was Ok. Piquet restarted the system.

Summary of the Reports from the Accelerators and Facilities:

LINAC4	99.7 %	MC: Piotr Skowronski → Jean-Baptiste Lallement
Wk. 39	▪ Excellent week with almost perfect availability.	
Issues:	▪ Central timing reset on 23.09 (~22m). ▪ Three quick equipment resets (~6m).	

Summary of the Reports from the Accelerators and Facilities:

PSB	PS: 98.9 %	ISOLDE: 98.9 %	MC: Foteini Asvesta → Gian Piero Di Giovanni
Wk. 39	▪ Very good week for providing beam to downstream machines and facilities. All LHC MD4 block beams prepared and tested in advance.		
Issues:	<ul style="list-style-type: none">▪ Central timing reset on 23.09: POPS-B off to protect the equipment (~20m).▪ Interlock of the primary water-cooling circuit on 29.09 (~1h15m). Caused by a faulty low-level water sensor. Temperature increased and several RF cavities in fault. POPS-B off to reduce thermal load. Sensor was last replaced 1.5 yrs ago. Signal masked until sensor is replaced in the shadow of another intervention.▪ Several other short interruptions/resets (2xBR2.XNO816L1, 2xBI2.QDE60 & BE4.KFA14L1).▪ Fault of POPS-B on 30.09 (~7h). More information next week.		

Summary of the Reports from the Accelerators and Facilities:

ISOLDE	GPS + REX/HIE-ISOLDE: 96 %	MS: Lefteris Fadakis → Erwin Siesling
Wk. 39	<ul style="list-style-type: none">▪ GPS + REX/HIE-ISOLDE: Target (#874) installation on 24.09. Low-energy and linac setup. Physics (IS748: $^{212, 214}\text{Ra}^{54+}$ at 4.5 MeV/u to Miniball) starting on 27.09.▪ HRS: Target (#868) installation on 23.09 and TISD physics on 23-26.09. Target (#875) installation on 26.09. Initial setup.	
Issues:	<ul style="list-style-type: none">▪ Issues with two Faraday cups. YCA0.BFC.0900 not completely retracted. Fixed by SY-BI. YHRS.BFC.3000 partially blocking the beam. Removed and replaced by blank flange by BI, VSC and RP teams.▪ Trip of several circuit breakers (29.09) affecting several vacuum controllers.▪ Trip of the line heating power supply for the GPS target.▪ Problem closing the HRS Faraday cage in the target zone. Access by SY-STI needed.	
Wk. 40	<ul style="list-style-type: none">▪ GPS + REX/HIE-ISOLDE: Continuation of physics ($^{212, 214}\text{Ra}^{54+}$ to Miniball) until 02.10.▪ HRS + REX/HIE-ISOLDE: Preparation for physics at the ISS experimental station (IS757: $^{38}\text{K}^{13+}$ at 7.5 MeV/u). Physics scheduled to start on 04.10. MEDICIS target irradiation.	

Summary of the Reports from the Accelerators and Facilities:

Linac3	Richard Scrivens → Rolf Wegner
Wk. 39	<ul style="list-style-type: none">▪ Beam delivery to LEIR for commissioning of the ion injector chain.▪ Test of a time-of-flight system using a BPM together with SY-BI. Excellent resolution.▪ Second oven ramped up.
Issues:	<ul style="list-style-type: none">▪ Beam stop for diagnostics of the SAIREM2 microwave generator (25.09). New spare part being delivered. Can be installed without a stop.
Wk. 40+	<ul style="list-style-type: none">▪ Stripper foil exchanged (30.09).▪ Fourth week of oven operations. Refill needed. Propose date: 08.10.

Summary of the Reports from the Accelerators and Facilities:

LEIR	MS: Theodoros Argyropoulos → Michele Bozzolan
Wk. 39	<ul style="list-style-type: none">▪ Good performance of NOMINAL cycle. Most of the time above the LIU target. Typical extraction values of $\sim 9E10$ charges and high transmission through TLs and PS.▪ High performance even with a degraded stripping foil thanks to the regular optimization scans (mainly Ramp and Debunch cavities in LINAC3).▪ Work on first turn measurements.▪ MDs: Beam lifetime after intentionally degraded the vacuum quality, optics, resonance compensation, calibrating the energy distribution of the incoming pulse from Linac3 using ToF measurements, Schottky signals and revolution frequency measurements.
Issues:	<ul style="list-style-type: none">▪ Trips of magnet (ER.QFN2040 and ER.QTF20). Fixed with a simple reset▪ Trips of the RF cavity. PLC FESA class reboot by expert in the beginning of the week. EPC piquet also needed to reset the power converter.▪ Issue with the communication of the extraction kickers (ER.KFH34). Solved by the expert after rebooting the class.
Wk. 40	<ul style="list-style-type: none">▪ Adapt LEIR parameters to the new stripping foil.▪ Keep monitoring and improving the beam quality of the NOMINAL and EARLY cycles.▪ Provide good beam quality for beam commissioning/MDs in the PS and for the slip-staking beam commissioning in the SPS.▪ MDs: resonance compensation, optics, ML optimization, ToF measurements...

Summary of the Reports from the Accelerators and Facilities:

PS	SPS: 96.9 % AD/ELENA: 96.8 %	n_ToF: 97.2 % EA T8: 97.2 %	EA T9: 97.2 % EA N: 97.2 %	MC: Ewen Maclean → Ruben Garcia Alia
Wk. 39:	<p>Excellent availability until Friday when two accesses were needed.</p> <ul style="list-style-type: none"> ▪ AD: Drift in nominal orbit in TT2 observed. Losses in TT2 line significantly reduced after restearing with no reduction of the antiproton production. ▪ BCMS: Small adjustment in working point to reduce tails. Waiting for LHC feedback. ▪ TOF: Setup of double TOF cycle continued. Optics measurements at extraction performed to check beta-beat due to the kick-enhancement (QKE) pulse. ▪ Ions: A lot of work on improving the setups for East. Big improvement in transmission extraction efficiency and spill linearity. Cycles with 1 and 0.5 GeV/u in good shape. Work for lower energy cycles started. ▪ Several MDs completed. 			
Issues:	<ul style="list-style-type: none"> ▪ Problem with gap relay in C10-76 RF cavities (26.09). Two accesses on 27.09 needed to solve the problem. ▪ Water cooling issue on F16.BHZ167 power converter on 26.09 (~40m with beams only to East Area). Solved by piquet by increasing water flow to power supply. ▪ Erratic bad pulses of individual KFA71 kicker modules. Degraded operation on 25.09 morning. Investigated by SY-ABT. Issue with cable found. Situation improved. ▪ Noise spikes in wire scanners acquisition. Investigation ongoing. 			
Wk. 40+:	<ul style="list-style-type: none"> ▪ 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. 39	<ul style="list-style-type: none">▪ Installation of a new experimental set-up in EAR1 on 23.09.▪ 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. 40	<ul style="list-style-type: none">▪ Beam stop on 02.10 between 08:00 and 16:00:<ul style="list-style-type: none">• A new sample support to hold more boron carbide (B4C) filters will be installed in the NEAR station.• A second 40K sample freshly produced at PSI at higher enrichment may be installed.▪ Data taking on:<ul style="list-style-type: none">• EAR1: 12C(n, lcp) measurement.• EAR2: 40K(n, p), 40K(n, α) measurements.• NEAR: Activation measurements.

Summary of the Reports from the Accelerators and Facilities:

East Area	T8: 98.1 %	T9: 98.1 %	T10: 98.1 %	T11: 98.1 %	Johannes Bernhard → Nikos Charitonidis
Wk. 39	<ul style="list-style-type: none"> ▪ T09: Good operation. ▪ T10: Good operation. New method developed with BL4S using Cherenkov Detectors (XCETs) for muon beam momentum measurement and muon beam purity assessment. ▪ T11: Good operation. 				
Issues:	<ul style="list-style-type: none"> ▪ T10: Inefficiency found in T10.XCET043 Cherenkov Detector (low pressure). Being investigated. 				
Wk. 40	<ul style="list-style-type: none"> ▪ T09: NANOCAL → Straw Tracker. ▪ T10: ALICE RICH / RE7 Gamma MeV continue. ▪ T11: CLOUD continues. 				

➤ East Area Physics

Summary of the Reports from the Accelerators and Facilities:

AD / ELENA	AD:	ELENA:	MS: Lajos Bojtar → Bruno Dupuy
Wk. 39	<p>Calm week with a few problems.</p> <ul style="list-style-type: none">▪ MD (25.09):<ul style="list-style-type: none">• Aperture measurements at AD injection energy.• Attempt to deploy new B train software. No success. Will be tried later.• Single bunch PS AD beam studies to investigate the effect of the emittance on the pbar production.• Investigation of the effect of the PS supercycle composition on the pbar production. No correlation found.▪ ASACUSA1 started to take beam.▪ New filter was installed on DI.BCT6052 resulting in a more accurate signal integration.▪ Beam steering in TT2 to minimize losses done by the PS crew. Losses are lower now.		
Issues:	<ul style="list-style-type: none">▪ Trips of the DR.QUAD power converter. First line had to be called.▪ Solenoid of the AD electron cooling solenoid went off (27.09). First line had to be called.▪ Occasional instabilities in DR.BHZTR51.52 power converter. Problem went away by itself.		

Summary of the Reports from the Accelerators and Facilities:

SPS	LHC: 98.8%	NA: 94.5 %	MC: Arthur Spierer → Giulia Papotti
Wk. 39:	Very good week with high availability and beams to the NA and LHC. <ul style="list-style-type: none">▪ LHC: Beam for fills delivered as requested. Beams for the MD block 4 prepared on 26.09 and delivered with no issues except for the last one when they had problems extracting 4xpilots with the desired emittance.▪ North Area: Stable conditions. Although the 50 Hz noise correction was unstable at the beginning of the week. Experts improved it for the second part of the week.▪ MDs: The MD program went according to plan. Setting up of high intensity beams for short parallel MDs impacted the NA due to beam losses. Space charge tune shift for studies with ions, beam phase loop studies, TT20 optics measurements, next generation hysteresis compensation.▪ Reboot of the central timing system on 23.09.▪ Intervention on cavity 3 by SY-RF on 24.09 (~1h15m). Intervention to fix a PLC for the mains by EN-EL in the shadow.		
Issues:	<ul style="list-style-type: none">▪ Trips of cavity 1 and 2 (~50m).▪ Issue with power converter (QNL2105.M) to North area (~50m).		
Wk. 40:	<ul style="list-style-type: none">▪ Start of AWAKE run 5.▪ Dedicated ion commissioning on Wed.▪ Short parallel MDs on Mon, Tue and Fri. Long parallel MD on Thu.		

Summary of the Reports from the Accelerators and Facilities:

North Area	H2: 93.5 % H4: 93.5 %	H6: 93.5 % H8: 93.5 %	K12: 93.5 % M2: 93.5 %	Johannes Bernhard → Nikos Charitonidis
Wk. 39	<ul style="list-style-type: none"> ▪ H2, H4, H6, H8, P42/K12: Good operation. ▪ M2: Good operation. Electron and muon beams checked for MUonE. 			
Issues:	<ul style="list-style-type: none"> ▪ M2: Issue with the potentiometer of collimator (XCMH.X0610752). Jaw inspected (25.09) and fixed at the desired position to prevent any further movement. Access needed during Pb commissioning on 02.10 to replace the potentiometer. 			
Wk. 40	<ul style="list-style-type: none"> ▪ H2: LHCB ECAL continues. ▪ H4: GIF++ / DRD1 → SND. ▪ H6: EP PIXEL / ALICE ITS3 / ATLAS ITK PIXEL → RADICAL. ▪ H8: ATLAS TileCal continues. ▪ M2: MUonE → AMBER. ▪ P42/K12: Continuation of NA62 run. ▪ Access during Pb commissioning on 02.10: Installation of new potentiometer for XCMH.X0610752 collimator (~ 0.5-1h). 			

Summary of the Reports from the Accelerators and Facilities:

AWAKE	Michele Bergamaschi → Michele Bergamaschi
Wk. 39	<ul style="list-style-type: none">▪ Visits in preparation of the future AWAKE dismantling.▪ Removal of filters for plasma light diagnostics and replacement of a camera.
Issues:	<ul style="list-style-type: none">▪ No issues.
Wk. 40	<ul style="list-style-type: none">▪ Start of AWAKE Run 5.

Summary of the Reports from the Accelerators and Facilities:

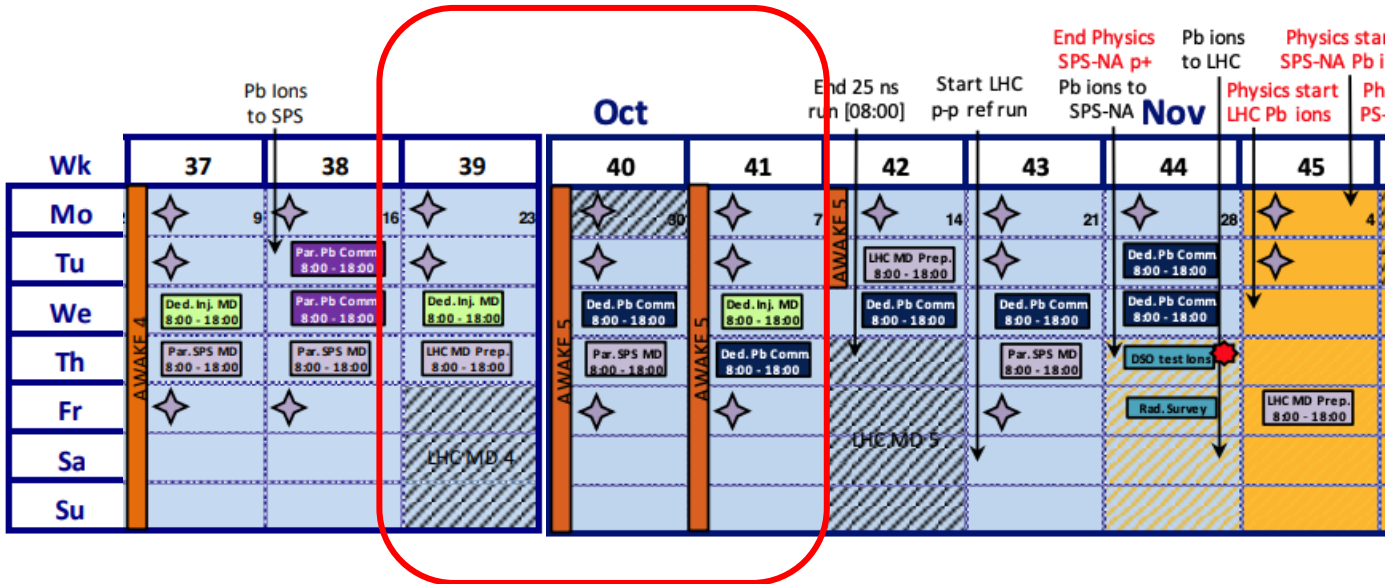
LHC	Availability: 72.9 %	Stable beam: 5.4 %	MC: Helga Timko → Mirko Pojer
Wk. 39	<ul style="list-style-type: none">▪ Successful repair of cold compressor in point 8 (23-25.09): Fill on 25.09 at ~18:00.▪ Luminosity production (26.09): Two accesses at the beginning of the day and three relatively short fills due to several issues. Additional fill before the MD block started.▪ MD block #4 (27-30.09): Good availability on Friday. Excellent during the weekend.		
Issues:	<ul style="list-style-type: none">▪ Repair of cold compressor in point 8 (23.09): Mon: Machine open for access. Compressor could not be restarted. Switched to spare one. Night shift cancelled. Long list of access requests cleared. Tue: Successful repair. Original configuration restored. Night shift cancelled. Wed: Cool-down completed at 18:00. Recovery from the access.▪ Successful repair of CMS muon chamber (23.09).▪ Two accesses (26.09): UA23 to repair water circuit fault. Point 6 to rearm a circuit breaker.▪ Short fills (26.09) due to: Faulty power supply (BETS PK55) and blown fuse replaced (MKD.KB1). Water cooling fault reset (RQ10.L8). Power converter trip (RF M2B2).▪ LTIM settings issue blocking injection (27.09).▪ Intermittent issues with the AC dipole B1H.		
Wk. 40	<ul style="list-style-type: none">▪ End of MD block #4 on Monday night. VIP visits and recovery on Tuesday.▪ Access on Friday morning for the FASE/SND emulsion exchange.▪ Physics production interleaved with pp reference run commissioning activities with protons to prepare for the ion run.		

Summary of the Reports from the Accelerators and Facilities:

CLEAR	Pierre Korysko
Wk. 39	<ul style="list-style-type: none">▪ Diamond detector test for dose delivery studies.
Issues	<ul style="list-style-type: none">▪ No major issues
Wk. 40	<ul style="list-style-type: none">▪ MD week.

Short-term Injectors Schedule Outlook:

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



Last week:

- LHC MD block 4.
- **Continuation of the commissioning of ion injector chain.**

This week:

- End of LHC MD block 4.
- **First week of AWAKE Run 5.**

Next few weeks:

- Continuation of AWAKE Run 5.