FOM Report – Wk. 44

TI supervisors
Piotr Skowronski (Linac4)
Gian Piero Di Giovanni (PSB)
Miguel Lozano (ISOLDE)
Giulia Bellodi (Linac3)
Michele Bozzolan (LEIR)
Ewan Maclean (PS)
Laurette Ponce (AD)
Giovanni Zevi Della Porta (AWAKE)
Alexander Malyzhenkov (CLEAR)
Alberto Rodriguez (FOM)

Approval minutes FOM wk. 43 and open actions:

- Date: 31.10.2023.
- Hyperlink here
- 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. 44:	▪ Not major events affecting the operational machines to report. Several fire brigade interventions because of flooding due to the heavy rain. ▪ Increased number of calls due to the start of the YETS.

- Questions, comments, anything to add?

Summary of the Reports from the Accelerators and Facilities:

LINAC4	96.6 %	MC: Piotr Skowronski → Jose Luis Sanchez
Wk. 44	▪ High-intensity MD successfully completed on 30-31.10. ▪ RP survey on 31.10 at 12:00.	
Issues:	▪ Trips of pre-chopper on 02.11 (~4.5h) due to a missing cable connection interlock. Root of the problem difficult to find. Interlock finally bypassed since it was thought to be related to a failing microswitch and not an unplugged cable.	
Wk. 45	▪ Continue delivering beam for physics at AD/ELENA.	

PSB	PS: 96.6 %	MC: Gian Piero Di Giovanni → Gian Piero Di Giovanni
Wk. 44	Busy week even if most of the machines have stopped taking protons. ▪ Access on 30.10: no water leak in BI.BSW. Leak rate in BR.QFO11 slightly higher (90 ml/min now, 85 ml/min two weeks ago). ▪ High-intensity MD (30-31.10): first 1.5 days injecting high-current beams into PSB, the last 0.5 days impedance studies with the matched kicker termination in R2. ▪ RP survey on 31.10 at 12:00. ▪ Several low-intensity MDs through the week. ▪ Preparation of cycles for RF ISTs which will be performed at the end of the proton run.	
Issues:	▪ Short trips of R2 extraction kicker 01.11 (~25m). Quick reset. ▪ R1 recombination kicker trip on 04.11 (~10m degraded mode without beam in R1). ▪ Reboot of the FEC for BI1.KSW needed on 05.11 (~15m).	
Wk. 45+	▪ Continue delivering beam for physics at AD/ELENA.	

Summary of the Reports from the Accelerators and Facilities:

ISOLDE	GPS + REX/HIE-ISOLDE: 94 %	MS: Miguel Lozano → Simon Mataguez
Wk. 44	▪ First week of winter physics. ▪ GPS + REX/HIE-ISOLDE: Very challenging post-accelerated beam $^{7}Be^{4+}$ at 11MeV/u to ISS (IS692). • Linac setup using a $^{14}N^{7+}$ beam. Unstable SRF cavities in CM4. Phased to redistribute the gradient. • Low energy setup using $^{7}Li^{3+}$ first and $^{7}Be^{4+}$ later. • Radioactive beam to users since 01.11. ▪ HRS: Target installation (#826) in preparation for physics in wk. 45.	
Issues	▪ Unstable SRF cavities in CM4. Phased to redistribute the gradient (31.10). ▪ Saturation of REX-TRAP due to ^{7}Li contamination in top of ^{7}Be. Lower after a few days. Difficult setup. ▪ Drift on REXTRAP injection (02.11). Machine supervisor called and corrected injection. ▪ Problems restarting SRF cavities in CM3 after they tripped (~4h48m). Difficulties diagnosing the problem and finding the right expert. Issue reoccurred on 06.11. ▪ RILIS laser interventions: dye change and burnt amplifier cell. Intervention by expert needed (~3h). ▪ Trips of SRF cavities (~2h). ▪ FEC for REX timing and HRS separator magnets had to be restarted.	
Wk. 45	▪ REX/HIE-ISOLDE: End of IS692 on 06.11. Tests SRF cavities, REX-TRAP and cryo. Machine warm up. ▪ GPS: ^{7}Be collection in GLM (06.11). Target (#845) installation (07.11). Setup and physics with ^{110m}Ag at GLM (IS682) starting on 08.11. ▪ HRS: Setup and physics using RaF^{+} molecular beams at CRIS (IS663) starting on 07.11.	

➢ ISOLDE Physics

Summary of the Reports from the Accelerators and Facilities:

LINAC3	100 %	MS: Giulia Bellodi → Rolf Wegner

Wk. 44:	▪ Lead beam for physics in East Area (until 01.11 at ~08:00). Stable 33 euA out of the linac.
	▪ Reference measurements with lead.
	▪ Switched to oxygen beam production later on 01.11:
	  ▪ New beam permit released.
	  ▪ Source Charge State Distribution (CSD) measurements.
	  ▪ RF longitudinal scans and transverse beam measurements.	

Wk. 45:	▪ Continuation of RF scans in the IH, ramping and debuncher cavities (06-07.11). ▪ Optimization of the transfer line settings (08.11). ▪ Delivery of oxygen beam to LEIR starting on 09.11.	

LEIR	100 %	MS: Michele Bozzolan
Wk. 44:	▪ Lead beam for physics in East Area (until 01.11 at ~08:00). ▪ RP reference measurements taken with lead ions before switching to oxygen.	
Wk. 45:	▪ Preparation for the oxygen ions.	

Summary of the Reports from the Accelerators and Facilities:

PS	AD: 91.9 %	EA T8: 98.8 %	MC: Ewan Maclean → Alex Huschauer
Wk. 44:	▪ RP survey on 31.10 at 12:00. Replacement of the C10-56 amplifier in the shadow. ▪ CHIMERA continued taking beam until 01.11. Multiple energy scans. ▪ AD restarted taking protons since 31.10 at ~ 18:00. ▪ Several low energy, low intensity MDs (01-03.11).		
Issues:	▪ Issue when playing only ION T8 cycles since none exceeded 800 G threshold to trigger programmed/measured B comparison, causing POPS to go to standby. ▪ Issue trimming energy for CHIMERA cycles as TT2/10 BHZ were off and original chimera cycle inherited hierarchy from STFION. New manual energy trim procedure needed. ▪ Trip of C10-46 cavity. Could not be reset right away. Two attempts to replace amplifier. Problem thought to be in the fan of the amplifier assembly. Will need a longer intervention or YETS to solve. For now, running without 10 MHz spares. ▪ Multiple trips of C10-11 during the week. ▪ Issue with C10-76 and B-train on 06.11.		
Wk. 45:	▪ Continue delivering beam for physics at AD/ELENA.		

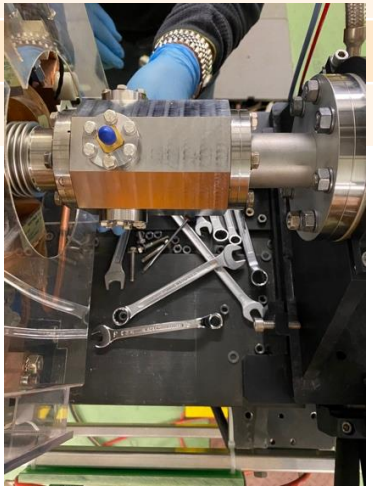
Summary of the Reports from the Accelerators and Facilities:

AD/ELENA	AD: 92 %	ELENA: 92 %	MS: Laurette Ponce → Bertrand Lefort
Wk. 44	First week of the Physics extension. ▪ Access in AD target for inspection of the magnetic horn (31.10). Missing screws observed as well as electrical sparking traces in the inner conductor. Horn will need to be exchanged during the YETS. In the meantime, continue operation at reduce voltage leading to 20 % less injected pbars in AD. ▪ First beam to ASACUSA1 over the week-end.		
Issues	▪ Increased collector voltage by 50V in the AD e-cooler to stop vacuum spikes. ▪ Transmission degradation between AD and ELENA (02.11). Deceleration efficiency in ELENA down to ~ 50 %. Trajectory at extraction in AD changed for unknown reasons. Managed to get back to > 90 % deceleration efficiency after retuning the LNI line. ▪ Problem turning on the fast deflector (LNE06.DFHE38) between the ASACUSA2 and ASACUSA1 lines. Expert intervention needed to start the deflector.		
Wk. 45+	▪ Continuation of the physics campaign with antiprotons until 13.11. ▪ H^- beam from ELENA to GBAR until 15.12.		

AWAKE	Giovanni Zevi Della Porta
Wk. 44	▪ Start of SPS work in TAG41. ▪ Magnet patrol. ▪ Preparation for laser-plasma experiments in TCC4.
Wk. 45+	▪ Laser-plasma experiments in TCC4.

Summary of the Reports from the Accelerators and Facilities:

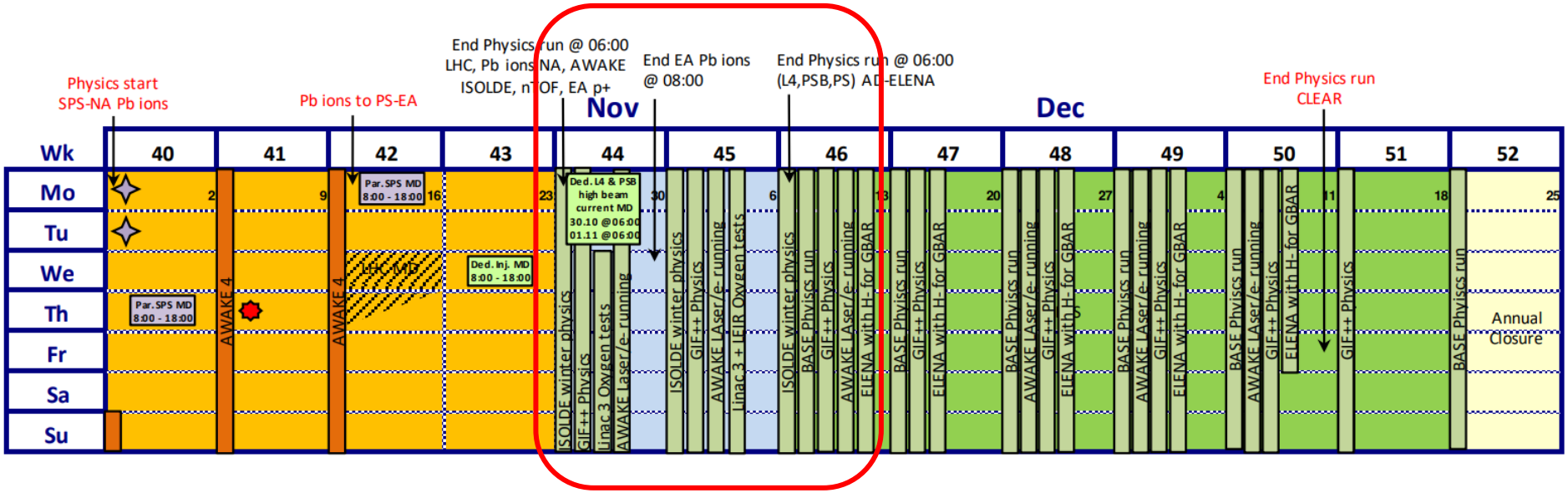
CLEAR	Alexander Malyzhenkov → Alexander Malyzhenkov
Wk. 44	▪ The PSI Positron Production (P^3 or P-cubed) project is a e^+ source demonstrator for the Future Circular Collider Study, to be installed at the SwissFEL facility at PSI. ▪ Beam time at CLEAR devoted to the testing of one key instruments for P-cubed: the broadband pick-ups (BBPs). The BBPs consist of an arrangement of four pick-ups with large broadband response to measure the time structure of consecutive, non-gaussian electron and positron bunches of roughly 33 ps length and around 167 ps apart from each other. ▪ Installing BBPs to the CLEAR beamline and performing testing with a single bunch. ▪ Very consistent results for the bunch length (2-12 ps) and bunch charge (100-400 pC) measurements in comparison with standard CLEAR diagnostics.
Issues:	▪ Vacuum issues in RF amplifier for MKS11.
Wk. 45	▪ Continuation of experiments in wk. 44.



➢ Questions, comments, anything to add?

Short-term Injectors Schedule Outlook:

- Version 1.5 prepared by Rende (31.10).



Last week:

- End of physics for n_ToF, North Area and LHC.
- Radiation survey in the PS complex (31.10).
- First week of winter physics at ISOLDE.
- CHIMERA run until 01.11 at 08:00.
- AD/ELENA physics with antiprotons extension.
- CLEAR physics.
- Linac4/PSB high intensity MD.
- Linac3/LEIR/PS oxygen run.

This week:

- Winter physics at ISOLDE.
- AD/ELENA physics with antiprotons extension.
- Physics at CLEAR.
- Linac3/LEIR/PS oxygen run.

Next few weeks:

- Winter physics at ISOLDE until 20.11.
- ELENA continues providing H^- beams to GBAR until 15.12.
- Physics at CLEAR until 15.12.
- Last FOM meeting: Nov. 14th