



Wet Run 02.2026 Operator School

Introduction

- Goals and Schedule for the School
- Goals and Schedule for the Wet Run
- Operating Restrictions for the Wet Run

- Disseminate information about changes and current status of the control system for the upcoming wet run
- Introduce new applications and operating procedures to operators and related staff in preparation of the beamtime
- Prepare operators for tutorials, hands-on-training and practice operation during the wet run
- Disseminate goals and planning information about the wet run
- Schedule see indico page: <https://indico.gsi.de/event/23845/>

- Verify operational readiness
 - Changes due to development since Wet Run 2025
 - New and upgraded MCR features
- Re-establish Storage Ring Mode
- Re-establish coupling with ESR and CRYRING
- New control system: introduction and training
- Verify Operating Scenarios for Beamtime 2026/27.1
 - Dual beam (carbon and helium)
 - Plasma physics (Single request workaround)
 - Multi-multiturn injection (not yet ready for regular operation)
 - Slow extraction (extraction times for schedule length restrictions)

Schedule for the Wet Run

- Planning and documentation of Wet Run:
https://www.acc.gsi.de/wiki/FAIR/Intern/WetRun_26_1
- 7 weeks

Schedule for the Wet Run: Week 1

- UNILAC commissioning
- operator school

Stand: 13.01.2026	Woche 1							Woche 2							Woche 3							M N		
	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So			
	UNILAC Tunnelabschaltung							HF-Inbetriebnahme über Nacht							Schichtbesetzung									
RB	PG	PG	PG	PG	PG	PG	PG	JF	JF	JF	JF	JF	JF	JF	HH	HH	HH	HH	HH	HH	HH	PG		
RB standby	HH	HH	JF	HH	JF	JF	JF	PG	PG	RM	RM	RM	RM	RM	JF	JF	JP	JP	JP	AS	AS	HH		
Parasiten								Cooler magnets (Kathrin)							Cooler magnets (Kathrin) backup							Ph		
															Ion Source tests (IOS)									
															SBL sequencer (Oksana)									
General Plan UNILAC	Commissioning without Beam							LINAC-RF commissioning							Commissioning without Beam							Be		
General Plan SIS18								Heizen							Commissioning without Beam									
General Plan ESR																								
General Plan Cryring	Source commissioning																						E-d	
ICU	Dry run UNILAC				School			Tutorial							Dry run UNILAC+SIS							W		
								Debugging																
OPE					School			Tutorial							Hands-on training							W		

Schedule for the Wet Run: Week 2

- UNILAC RF commissioning
- operator tutorials
- Cooler magnet tests

	Woche 1							Woche 2							Woche 3							Woche 4						
	12.01.	13.01.	14.01.	15.01.	16.01.	17.01.	18.01.	19.01.	20.01.	21.01.	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.	29.01.	30.01.	31.01.	01.02.	02.02.	03.02.	04.02.	05.02.	06.02.		
	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr		
	UNILAC Tunnelschließung							HF-Inbetriebnahme über Nacht																				
	Schichtbesetzung																											
PG	PG	PG	PG	PG	PG	PG	PG	JF	JF	JF	JF	JF	JF	JF	HH	HH	HH	HH	HH	HH	HH	PG	PG	PG	PG	PG	P	
HH	HH	JF	HH	JF	JF	JF	PG	PG	RM	RM	RM	RM	RM	RM	JF	JF	JP	JP	JP	AS	AS	HH	HH	AS	AS	CH	C	
	Cooler magnets (Kathrin)							Cooler magnets (Kathrin) backup							Ion Source tests (IOS)							Philipp Niedermayer SOS						
	SBL							SBL sequencer (Oksana)																				
Commissioning without Beam				LINAC-RF commissioning														Beam Commissioning										
				Heizen							Commissioning without Beam																	
Source commissioning																		E-cooler Commissioning										
Dry run UNILAC			School	Tutorial							Dry run UNILAC+SIS							Wet Run UNILAC										
				Debugging														Hands-on training										
			School	Tutorial							Hands-on training							Wet Run UNILAC										

Schedule for the Wet Run: Week 3

- UNILAC RF commissioning, SIS commissioning
- Dry Run UNILAC+SIS
- operator hands-on-training
- Ion source tests

Wo 1				Woche 2							Woche 3							Woche 4							Wo								
Mo	Fr	Sa	Su	Mo	Di	Mi	Do	Fr	Sa	Su	Mo	Di	Mi	Do	Fr	Sa	Su	Mo	Di	Mi	Do	Fr	Sa	Su	Mo	Di	Mi	Do	Fr	Sa	Su		
UNILAC Tunnelschließung				HF-Inbetriebnahme über Nacht																													
				Schichtbesetzung																													
PG	PG	PG	JF	JF	JF	JF	JF	JF	HH	HH	HH	HH	HH	HH	HH	PG	PG	PG	PG	PG	PG	PG	AS	JP	AS	RM							
JF	JF	JF	PG	PG	RM	RM	RM	RM	JF	JF	JP	JP	JP	AS	AS	HH	HH	AS	AS	CH	CH	CH	PG	PG	JP	JF							
			Cooler magnets (Kathrin)						Cooler magnets (Kathrin) backup							Ion Source tests (IOS)					Philipp Niedermayer SOS												
								SBL			SBL sequencer (Oksana)																						
m			LINAC-RF commissioning						Commissioning without Beam							Beam Commissioning					Engineering Run												
			Heizen																						Commissioning without Beam								
ool			Tutorial						Dry run UNILAC+SIS							Wet Run UNILAC					Dry run ESR												
			Debugging																														
ool			Tutorial						Hands-on training							Wet Run UNILAC					UNILAC operation												

Schedule for the Wet Run: Week 4

- UNILAC beam commissioning, SIS commissioning
- Wet Run UNILAC
- SOS test

Woche 2					Woche 3					Woche 4					Woche 5														
L	21.01.	22.01.	23.01.	24.01.	25.01.	26.01.	27.01.	28.01.	29.01.	30.01.	31.01.	01.02.	02.02.	03.02.	04.02.	05.02.	06.02.	07.02.	08.02.	09.02.	10.02.	11.02.	12.02.	13.02.	14.02.	15.02.	16.02.	17.02.	
	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	
inahme über Nacht																													
zung	JF	JF	JF	JF	JF	HH	HH	HH	HH	HH	HH	HH	PG	PG	PG	PG	PG	PG	PG	AS	JP	AS	RM	RM	RM	RM	HH	HH	
	RM	RM	RM	RM	RM	JF	JF	JP	JP	JP	AS	AS	HH	HH	AS	AS	CH	CH	CH	PG	PG	JP	JF	JF	JF	JP	CH		
magnets (Kathrin)						Cooler magnets (Kathrin) backup																					Opti		
						Ion Source tests (IOS)							Philipp Niedermayer SOS																
		SBL				SBL sequencer (Oksana)																							
missioning											Beam Commissioning					Engineering Run													
											Commissioning without Beam															Beam Com			
																				Commissioning without Beam									
																	E-cooler Commissioning					Engineering Run							
						Dry run UNILAC+SIS					Wet Run UNILAC					Dry run ESR					Wet Run UN								
						Hands-on training					Wet Run UNILAC					UNILAC operation					Wet Run UN								

Schedule for the Wet Run: Week 5

- UNILAC engineering run, SIS and ESR commissioning
- Optimizer/AI studies
- Operators: UNILAC operation training

Woche 3							Woche 4							Woche 5							Woche 6							
26.01.	27.01.	28.01.	29.01.	30.01.	31.01.	01.02.	02.02.	03.02.	04.02.	05.02.	06.02.	07.02.	08.02.	09.02.	10.02.	11.02.	12.02.	13.02.	14.02.	15.02.	16.02.	17.02.	18.02.	19.02.	20.02.	21.02.	22.02.	
Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	
HH	HH	HH	HH	HH	HH	HH	PG	PG	PG	PG	PG	PG	PG	AS	JP	AS	RM	RM	RM	RM	HH	HH	PG	PG	PG	PG	PG	
JF	JF	JP	JP	JP	AS	AS	HH	HH	AS	AS	CH	CH	CH	PG	PG	JP	JF	JF	JF	JF	JP	CH	CH	CH	JP	JP	JF	
Cooler magnets (Kathrin) backup														Optimizer/AI Studien														
Ion Source tests (IOS)							Philipp Niedermayer SOS																					
SBL sequencer (Oksana)																												
							Beam Commissioning							Engineering Run														
							Commissioning without Beam														Beam Commissioning							
							E-cooler Commissioning							Engineering Run														
Dry run UNILAC+SIS							Wet Run UNILAC							Dry run ESR							Wet Run UNILAC+SIS							
Hands-on training							Wet Run UNILAC							UNILAC operation							Wet Run UNILAC+SIS							
UNILAC+SIS																												

Schedule for the Wet Run: Week 6

- UNILAC engineering run, SIS beam commissioning
- ESR commissioning
- Wet Run UNILAC+SIS

		Woche 4							Woche 5							Woche 6							Woche 7						
1.01.	01.02.	02.02.	03.02.	04.02.	05.02.	06.02.	07.02.	08.02.	09.02.	10.02.	11.02.	12.02.	13.02.	14.02.	15.02.	16.02.	17.02.	18.02.	19.02.	20.02.	21.02.	22.02.	23.02.	24.02.	25.02.	26.02.	27.02.		
Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr		
H	HH	PG	PG	PG	PG	PG	PG	AS	JP	AS	RM	RM	RM	RM	HH	HH	PG	PG	PG	PG	PG	PG	PG	JF	JF	JF			
S	AS	HH	HH	AS	AS	CH	CH	CH	PG	PG	JP	JF	JF	JF	JP	CH	CH	CH	JP	JP	JF	JP	JP	AS	AS	AS			
Optimizer/AI Studien																													
Philipp Niedermayer SOS																													
Beam Commissioning							Engineering Run																						
Beam							Commissioning without Beam							Beam Commissioning							Engineering Run								
E-cooler Commissioning							Engineering Run																						
Wet Run UNILAC							Dry run ESR							Wet Run UNILAC+SIS							Dry run UNILAC+SIS+ESR								
Wet Run UNILAC							UNILAC operation							Wet Run UNILAC+SIS							UNILAC+SIS operation								

Schedule for the Wet Run: Week 7

- UNILAC+SIS engineering run, ESR Dry Run
- Wet Run UNILAC+SIS, Dry Run UNILAC+SIS+ESR
- Operators: UNILAC+SIS operation training

		Woche 4							Woche 5							Woche 6							Woche 7																		
1.01.	01.02.	02.02.	03.02.	04.02.	05.02.	06.02.	07.02.	08.02.	09.02.	10.02.	11.02.	12.02.	13.02.	14.02.	15.02.	16.02.	17.02.	18.02.	19.02.	20.02.	21.02.	22.02.	23.02.	24.02.	25.02.	26.02.	27.02.														
Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr														
H	HH	PG	PG	PG	PG	PG	PG	AS	JP	AS	RM	RM	RM	RM	HH	HH	PG	PG	PG	PG	PG	PG	PG	JF	JF	JF															
S	AS	HH	HH	AS	AS	CH	CH	CH	PG	PG	JP	JF	JF	JF	JP	CH	CH	CH	JP	JP	JF	JP	JP	AS	AS	AS															
Optimizer/AI Studien																																									
Philipp Niedermayer SOS																																									
Beam Commissioning							Engineering Run																																		
Beam														Beam Commissioning							Engineering Run																				
Commissioning without Beam																																									
E-cooler Commissioning							Engineering Run																																		
Wet Run UNILAC							Dry run ESR							Wet Run UNILAC+SIS							Dry run UNILAC+SIS+ESR																				
Wet Run UNILAC							UNILAC operation							Wet Run UNILAC+SIS							UNILAC+SIS operation																				

Restrictions resulting from radiation protection and/or renovation of experimental hall

- No acceleration in SIS18
- No extraction from SIS18
- Max. 1E7 particles per second in SIS18
- HEST not available
- beam intensity at UNILAC limited to low duty cycle and reasonable low beam currents (for orientation: overall intensity like M-Branch experiments)
- available beam targets at UNILAC:
 - TK
 - M3
 - X/Y/Z: only up to GUT1DC2

Restrictions resulting from in-development state of the control system

- max. 2 SIS Chains in a Pattern with UNILAC at the same time
- SIS Chains must be removed from UNILAC/SIS Pattern before length changes of SIS chain can be made
 - Workaround may be available („rubber time parameter“)
- length of Master Schedule restricted to 20s (1000 slots), has to be checked manually
- setting of TK stripper using ParamModi and Device Control, not Stripper App

Other restrictions

- do not use stabilizers and conditioners for HLI
- only UNILAC VirtAcc/SID 1-13 usable (as long as DevAcc devices are present)
- not all limits and checks are implemented:
think before setting values, set only reasonable values

The control system is and will be in constant development right up to the start of the beamtime.

Do not expect too much continuity, rather than change, especially during the wet run. Stay vigilant!

Things will have changed until the beamtime, therefore we plan for another, longer **operator school end of June 2026**.