

2023 physics accounting

Experimental facility	Start Physics	End Physics	Duration 2023 [days]* Ver. 0.6	Duration 2023 [days]* Normal YETS	Ratio [%]
ISOLDE	10.04.2023	30.10.2023	203	231	83
nTOF	10.04.2023	30.10.2023	203	231	83
PS East Area	17.04.2023	30.10.2023	182	210	81
SPS North Area p ⁺	01.05.2023	28.09.2023	150	192	78
ELENA (AD)	11.05.2023	30.10.2023	172	214	80
SPS North area Pb ions	02.10.2023	30.10.2023	28	28	100
PS East area Pb ions	16.10.2023	30.10.2023	14	14	100
AWAKE	01.05.2023	22.10.2022	67	84	80
HiRadMat	29.05.2023	10.09.2023	15 (+13 reserve)	20 (+8 reserve)	75 (163%)

*TS, MD time, etc. not deducted

Open Issues for HERD 2023 beam test

- ▶ beam time 2022-12-07 TEB meeting
 - ▶ continuous SPS proton + Ion run, not before September
 - ▶ PS necessity? at least for TRD
 - ▶ CERN RE?
- ▶ detectors(confirmed design & confirmed chip)
 - ▶ CALO array composed of 1k LYSO, dual read out(full scale PD and two CMOS cameras), trigger PMT
 - ▶ ≥ 1 TRD module
 - ▶ scale of PSD, SCD, FIT?
 - ▶ trigger validation?
- ▶ compact structure? common table as support and scan?
 - ▶ deadline for each sub-detector to provide inputs
- ▶ common DAQ?
 - ▶ deadline to determine establish a working group or not

sub-system	prototype and readouts	beam line and purpose	compact as payload design / standalone	scanning	beam particle
TRD	single module, SAMPA	PS: 1). TR charactrrize response; 2). uniformity of radiator. SPS proton: on/off axis TR yields validation	standalone in ps; compact in SPS proton for backsplash	2d scanning, step 2mm, range +- 10cm; 1d rot, step 1 deg. Range +- 40 deg.	PS, 0.5-5 GeV e- SPS, > 50GeV e-
SCD	tbc	tbc	tbc	tbc	tbc
PSD	tbc	PS: test DAQ SPS Ion: chargeZ performance	can't be worked as compact as with SCD in 2023. directly exposused to beam during some Ion run	tbc	fragmented ions
FIT	5 to 7 X-Y layer tracker Beta Asic and VATA	SPS proton and ion: spatial and charge resolutions of the tracker	no preference, the tracker can be place very close in between CALO and PSD	2d, step and range tbc	primary proton? fragmented ions
CALO	7*7*7 LYSO array, camera and PD dual readout, trigger PMT readout	SPS proton and ion: hardware performance verification, performance(resolution ,PID, off-axis), dual readout and x-calibration, HE validation	compact, with upstream detectors removeable	2d, step 6mm, range full cover 7*7 crystal; 1d rot, step 1deg range 0-90 deg.	muons, 150GeV ? necessities of mu? 30 - 300 GeV e- ? upper limit? primary proton fragmented ions

quick answers to the open issues

- ▶ beam requests time constrain
 - ▶ PS, not before August 2 ?
 - ▶ SPS proton, not before August 30
 - ▶ SPS ion, as close as to the proton run
- ▶ in orbit physics trigger validation
 - ▶ HE
- ▶ compact structure as payload design
 - ▶ No, → 2024 or later
- ▶ common DAQ?
 - ▶ No, → 2024 or later

common requirements

- ▶ each sub-system prefer to be directly exposed to beam line for high quality ion beam
 - ▶ the 2021 big table to be re-used ?
- ▶ a beam tracker for trajectory and positional related analysis
 - ▶ HERD sub-detectors ?
 - ▶ the AMS ladders ?

context in the beam request

Activity Beam Properties Hardware and Setup **Runs and Schedule** Safety Funding Submit

Runs And Schedule Information

SPS proton

Summary

Run Usage Category	Number of Runs	Time [Weeks]
Main or parallel usage	3	1

Requested Runs

You currently have 3 requested runs for your beam request.

From here, you can

- Use the "Add" button to add further runs.
- Click on the individual runs to display details or edit them, including setting preferences for the date, the used hardware setups, and the used beam configurations
- Delete individual runs (can not be undone!)

+ ADD

Type	Name (Please click for details or to edit)	Actions
Main or parallel usage	HERD primary proton 3 days	X DELETE
Main or parallel usage	HERD electron run 3 days	X DELETE
Main or parallel usage	HERD muon run 1 day	X DELETE

Exclusion Periods (Negative Global Preferences For Scheduling)

Exclusion periods refer to any period in time where no runs (or any other work concerning your beam request) should be scheduled.

Note that global exclusion periods defined here have a lower priority than the individual positive preferences and exclusion periods that can be defined for every individual run (click on a run in the list above & edit to add or modify these run-specific time preferences).

Please use the "Add" button to create additional exclusion periods.

+ ADD

Begin	End	Description (click for details or to edit)	Action
2023/04/05	2023/08/30	our prototype will not be ready before September	X DELETE

Activity Beam Properties Hardware and Setup **Runs and Schedule** Safety Funding Submit

Runs And Schedule Information

SPS ion

max. time can be requested is 1week

Summary

Run Usage Category	Number of Runs	Time [Weeks]
Main or parallel usage	1	1

Requested Runs

parallel run with AMS02?

You currently have 1 requested run for your beam request.

From here, you can

- Use the "Add" button to add further runs.
- Click on the individual runs to display details or edit them, including setting preferences for the date, the used hardware setups, and the used beam configurations
- Delete individual runs (can not be undone!)

+ ADD

Type	Name (Please click for details or to edit)	Actions
Main or parallel usage	HERD ion run	X DELETE

Exclusion Periods (Negative Global Preferences For Scheduling)

Exclusion periods refer to any period in time where no runs (or any other work concerning your beam request) should be scheduled.

Note that global exclusion periods defined here have a lower priority than the individual positive preferences and exclusion periods that can be defined for every individual run (click on a run in the list above & edit to add or modify these run-specific time preferences).

Please use the "Add" button to create your first exclusion period.

+ ADD