Facility for Antiproton and Ion Research
FAIR MAC Review on Controls

Monday, June 17, 2024, 13:00 local time (CET)
until Wednesday, June 19, 2024, 15:00 local time (CET)
FAIR/GSI, Darmstadt, Germany

Agenda*

Day 1: Monday, June 17, 2024[†]

13:00 - 13:40	**Closed session** Chair	(40')
13:40 - 13:50	**Greetings** Chair + J. Blaurock (TGF)	(10')
13:50 - 14:10	**Goal & Mandate** R. Assmann (ACC)	(20')
14:10 - 14:55	**Needs for FAIR Commissioning for Early and First Science** S. Reimann (OPE)	(35'+10')
14:55 - 15:40	**Controls Overview and Status at GSI/FAIR, Results from Controls Steering Group** R. Bär (ACO)	(35'+10')
15:40 - 16:10	**Coffee**	(30')
16:10 - 16:40	**Controls Architecture: Overview, Services, Technologies, Interfaces** H. Hüther (ACO)	(20'+10')
16:40 - 17:00	**Timing System** D. Beck / F. Ameil (ACO)	(15'+5')
17:00 - 17:20	**LSA Framework** A. Schaller (ACO)	(15'+5')
17:20 - 17:40	**LSA Setting Generation - from beam optics to settings** D. Ondreka (SYS)	(15'+5')
17:40 - 18:40	**Closed session**	(60')
18:40	**End of first day, transport to hotel**	
20:00	**Dinner** (by invitation)	

---

*as of June 10, 2024

[†]20'+10' = 20' presentation + 10' questions.

Day 2: Tuesday, June 18, 2024

9:00 - 9:30	**Industrial Controls Projects and Status** W. Bach (ACO)	(20'+10')
9:30 - 9:50	**Front-End Control Hardware** M. Dziewiecki (ACO)	(15'+ 5')
9:50 - 10:10	**Front-End Control Software (FESA)** M. Wiebel (ACO)	(15'+5')
10:10 - 10:40	**Beam Instrumentation and its Controls Aspects** T. Hoffmann (BEA)	(20'+10')
10:40 - 11:10	**Coffee**	(30')
11:10 - 11:30	**Control Room Applications - Project follow-up and development process** M. Stein (OPE)	(15'+5')
11:30 - 11:50	**Control Room Applications** J. Fitzek (ACO)	(15'+5')
11:50 - 12:20	**OpenDigitizer, OpenCMW, GNU Radio, beam-based feedback systems and its Controls Applications** R. Steinhagen (SYS)	(20'+10')
12:20 - 13:30	**Lunch** (by invitation)	(1h10')
13:30 - 13:50	**Python Interfaces and Applications, Controls Requirements for ML/AI** S. Appel (APH)	(15'+ 5')
13:50 - 14:20	**UNILAC/Injector Controls Upgrade** H. Hüther (ACO)	(20'+10')
14:20 - 14:40	**CRYRING and HITRAP specific Controls** W. Geithner (DEC)	(15'+5')
14:40 - 15:10	**SFRS specific Controls** S. Pietri (SFRS)	(20'+10')
15:10 - 15:30	**Magnet Protection - Full Stack View** M. Dziewiecki (ACO)	(15'+5')
15:30 - 16:00	**Coffee**	(30')
16:00 - 16:00	**General Archiving System** V. Rapp (ACO)	(15'+5')
16:20 - 16:40	**Automized Test Sequences for Commissioning** O. Geithner (OPE)	(15'+5')
16:40 - 18:40	**Committee report writing** (closed session) Chair	(2h)
18:40	**End of second day, transport to hotel**	
20:00	**Dinner** (by invitation)	

Day 3: Wednesday, June 19, 2024

9:00 - 10:00	**Answers to Homework from Committee** (closed session) Chair	(60')
10:00 - 10:30	**Discussion with TGF / GBL** (closed session) Chair	(30')
10:30 - 12:30	**Committee report writing** (closed session) Chair	(1h30')
12:30 - 13:30	**Lunch** (by invitation)	(60')
13:30 - 14:30	**Close-out** (open session) Chair	(60')
14:30	**Adjourn**	

Appendix: **Mandate for the MINI-MAC /**
Review FAIR-GSI Control System

Background

For FAIR a new control system is being developed, widely based on CERN controls architecture components. The FAIR controls project includes upgrading the existing GSI accelerator systems to the new system. The controls work is centered in the accelerator controls (ACO) department but also involves the beam diagnostics (BEA) department, the operations (OPE) department, the FAIR SIS-100 sub-project and various additional persons in other departments. Work spans over the FAIR project and the GSI accelerator division. A Controls Steering Group had reviewed and ranked the various controls tasks in 2022, ranking about 200 tasks in priority.

Goal of the review

Ensure that an adequate control system will be available for the first beam operation out of the FAIR Control Center in 2026 for the existing GSI accelerators, the commissioning of FAIR/SFRS (Early Science) in 2027 and the commissioning of FAIR/SIS-100 (First Science) in 2028.

Review Mandate

1. Review the planned controls tasks, the assigned priorities and the degree of completion.
2. Review the control system features to be provided versus the control room needs.
3. Review the use of underlying software packages and approaches, especially focusing on the middleware solutions planned.
4. Review the organization of work, the status of collaboration between different departments and the decision process and control of subsequent execution.

Questions to the Committee:

1. Are there any control system features missing in your opinion? In case yes, what is missing?
2. Are there any control system features obsolete or not important in your opinion? In case yes, what is obsolete and can be removed from the work list?
3. Are there any planned features inefficient in your opinion, in the sense that simpler solutions could be adopted or already existing solutions can be adapted? In case yes, where and how could efficiency be gained?
4. Is there a need to adjust the priority for some controls work packages in your opinion? In case yes, what should be lowered or raised in priority?
5. Can the planned FAIR controls milestones be reached in your opinion? In case you see delays, where are those and do you have suggestions for improvement?
6. Is the planned controls system well maintainable (within the available resources at GSI/FAIR) in your opinion, both in terms of software updates and in complexity? In case not, where should we take actions?
7. Is the work well organized and efficient towards our goals in your opinion? In case you see room for improvement, please comment on possible measures to be taken.

Report

- A preliminary draft report should be presented at the end of the review meeting to the FAIR/GSI management and selected attendees.
- A written report should be prepared within 3 weeks after the end of the review and sent to the Head Business Area ACC and to the Technical Managing Director. Both will provide feedback and comments to the committee.
- A final written report shall be provided within 5 weeks after the end of the review and sent to the Head Business Area ACC and to the Technical Managing Director.