Minutes of the 14th Meeting of the
COSY Beamtime Advisory Committee (CBAC)

February 23 and 24, 2023
Location: GSI, Planckstraße 1, 64291 Darmstadt, Germany

Participants:

CBAC members:

Kurt Aulenbacher	Univ. Mainz, DE
Oliver Kester	TRIUMF, CA
Thomas Stöhlker	GSI, HI Jena, DE
Christian Schmidt	GSI, DE
Marc Weber	KIT, DE

CBAC Scientific Secretary:

Frank Goldenbaum	(IKP-1)

IKP:

Seva Kamerdzhiev	(IKP-4)
Ralf Gebel	(IKP-4 Acting and Managing Director)
James Ritman	(IKP-1 Director, IKP-2 Acting Director, Scientific Coordinator COSY)

Chairman of the Board of Directors FZJ: Wolfgang Marquardt (digital)
Scientific Managing Director GSI and FAIR: Paolo Giubellino
Technical Managing Director GSI and FAIR: Jörg Blaurock (partly)

1. General remarks

The 14th CBAC session took place on February 23 and 24, 2023 at GSI.

The meeting was again a hybrid of digital presentations of the proponents while the CBAC members were physically at GSI.

The beamtime requests of the individual groups were presented on Thursday in the Open Session of CBAC#14. For the programme and the list of applications see the Addendum.

Closed sessions of the CBAC members were held on Thursday morning 9:00-9:31, on Thursday evening 17:45 - 18:30 and on Friday morning until 11:38.

The **closed session** on Thursday morning is opened by Jim welcoming the participants and CBAC members. This year there will be 8 weeks of beam time from Q2 through Q3. With this season COSY reaches the end of its lifetime. There will be no COSY beamtimes in 2024 and beyond. Thus, the limited beamtime is more valuable than ever. The prioritization criteria are discussed. Paolo Giubellino and Wolfgang Marquardt emphasize to consider if beamtime requests rely on unique features of COSY and cannot be carried out elsewhere. So – next to the excellence of the science – the criteria will be "Feasibility", "Readiness", "Uniqueness" of COSY and "Relevance" to FAIR and PoF goals. The boundary conditions for the cyclotron beamtime requests related to the High brilliance Neutron Source HBS are discussed.

The assignment of CBAC members to the proposals is finalized.

Jim Ritman and Paolo Giubellino welcome the participants and start the **open session**.

Vsevolod (Seva) Kamerdzhiev gives the customary introduction to the COSY accelerator facility, sources, beamlines, etc. and covers their properties and parameters. The machine is in good shape, as well-instrumented and understood as ever, and it has continuously been improved in the recent years. There are no open maintenance or repair tasks, and beam delivery could start soon. COSY is also a great environment for apprentice training and for the education of bachelor, master or PhD students.

The Big Karl Area is being decommissioned. Substantial instrumentation and infrastructure has been installed for the JULIC neutron platform and HBS.

With only one exception, all beamtime request in the 2021-22 season were carried through successfully.

The COSY team is highly motivated and operates at a very high level in challenging boundary conditions. Still, the number of staff is slowly shrinking and only 6 machine physicists remain.

Fourteen proposals were submitted to CBAC#14. The beamtime requests amount to more than 12 weeks of beamtime, excluding machine development (MD). Approximately 7 weeks are requested for cyclotron use. CBAC realizes that the scarcity of beamtime was well communicated to the users who – in anticipation – made great efforts to reduce their beamtime requests to the minimum.

An overview of all the applications and the agenda of the CBAC#14 meeting are given in the Addendum. The electronic versions of all proposals and reports as well as the pdf files of all contributions presented in the open session are located on the web page:
http://www.ikp.fz-juelich.de/CBAC/documents/cbac14.html

2. Summary of the discussion and recommendations

Below we first comment on the ranking procedure, then summarize the recommendations of CBAC, and finally conclude with a detailed report on each proposal.

2a) Procedure

The rating system applied in the past to rank the proposals is felt to be effective and adequate. However, for this meeting two modifications are used. The former “Urgency” is replaced by “Uniqueness” of COSY for the request. A fifth category “Project completion” is introduced.

Thus, the requests are rated A (highest rank), B, and C (lowest rank) within the following five categories:

(i) **Feasibility** Here the committee judges the feasibility of the proposed test or measurement based on its expert knowledge and external input or advice. Other assessments from, e.g., a PoF review or accepted proposals may enter. Also, boundary conditions imposed by the facility must be considered.

(ii) **Readiness** The committee assesses the possibility that critical elements or components required for the test are not available in time. It should be noted that CBAC as an external group cannot make a complete assessment of all possible delays. The proponents are asked to comment in detail on the readiness of their proposals.

(iii) **Uniqueness of COSY** considers if the request could be carried through at other facilities or if it relies on unique features of COSY.

(iv) **Strategic priority** This considers if the beamtime request relates directly to FAIR (A), to other PoF IV goals (B) and otherwise (C).

(v) **Project completion** Projects that can demonstrate their readiness for physics with the

request (A) would be preferred over those which will require (many) further iterations.

The recommendations consider the written requests, the oral presentations, and the related questions and answers during the open CBAC session. Following the open session, a detailed comparative discussion takes place in the closed session.

2b) Summary of the Recommendations

The projects presented in the open session on Thursday (see Sec.1 and the addendum) and the recommendations of CBAC are listed in Table 1. This year 8 weeks of beamtime will be available in a period starting from April 2023 earliest and ending no later than September 2023.

CBAC is again acting as an advisory body for requests of support to international users through the EU STRONG-2020 hadron community initiative.

Table 1: *Summary of requests (for details see table in the addendum), ratings and recommendations of CBAC#14. The beamtimes given in ( ) are conditional on combination with other requests.*

Experiment	Recommended beamtime	Feasibility	Readiness	Uniqueness of COSY	Relevance to FAIR/PoF	Project completion
D004.11 CBM HADES	(2 x 3 days)	A	A	B	A	Yes, phase 0
D009.7 PANDA cluster jet target	1 week (Q3)	A	B	A	A	largely
D011.6 PANDA lumin. detector	(0 weeks)	A	B	B	A	no
D012.2 SiPM irradiation	1 day, cyclotron	A	A	n/a	A	yes, phase 0
D013.2 A_{yy} elastic pp-scatt.	1 week	A	A/B	A	B	yes
D015.1 Charged particle track-det. R3B/SFRS	1 week (> June)	A	A	A/B	A	yes
D017.1 PANDA MVD	(0 week)	A	B	B	A	no
D019.1 HI-MAPS (GSI)	0 week	A	A/B	B	A	no
D020.1 PANDA FW endcap	1 week	A	A/B	A	A	yes
D022 Pol 3He+ ion source	1 week, cyclotron	A	A	n/a	A	yes
E005.8 JEDI precursor	2 weeks	A	A	A	A	likely
A013.4 JULIC - neutron platform (HBS)	6 x 1 week, cyclotron, Big KARL	A	A	A	A	no
A014.5 COSY injection studies	1 week	A	A	B	A	no
A021 RF knockout extraction	2 x 3 days	A	A	A	A	no, but quick returns

2c) Short reports and recommendations on individual proposals

Proposal D004.11 **CBM-HADES**

The CBM-HADES team has been exploring fast low-gain avalanche diode detectors (LGADs) since many years. LGADs offer excellent time resolution (tens of picoseconds), high spatial resolution (tens to hundreds of microns), large radiation lengths and radiation hardness. LGADs are attractive for the HADES and CBM T0 beam monitoring detector, but further applications as beam monitor for the S-DALINAC or for ion computed tomography are also investigated.

The collaboration proposes to test the next generation of LGADs sensors with high fill factor and higher channel count combined with upgraded timing electronics. These sensors are important for early physics in the FAIR phases 0 and FAIR First Science plus (FS+).

CBAC confirms the feasibility, readiness, relevance for FAIR. COSY is ideally suited for these measurements, but eventually similar tests could also be performed at other test beam sites. The requested beamtime should be combined with other requests as is also suggested by the team.

Rating: Feasibility A, Readiness A, Uniqueness B, Relevance to FAIR/PoF A
Recommendation: (2 x 3 days of combined tests with A21)

Proposal D009.7 **PANDA cluster jet target**

The cluster target is a core element of PANDA as a whole at FAIR. The device comprises complicated hardware that has been thoroughly and extensively tested in the home lab of the applicant and lately as a fixed installation at COSY. The prudent experimental team has prepared the cluster target in a way that left no doubt about its readiness. In the granted beam times 2018 to 2021, the complex facility could be shown to operate absolutely to specifications, indeed. The cluster jet target could be fully commissioned, it could be shown to surpass standard technology by at least an order of magnitude and meet the target density of 2×10^{15} protons/cm^2 needed for PANDA operation at HESR. It is particularly reassuring that successive beam times on beam cooling, using barrier bucket, stochastic cooling as well as electron beam cooling techniques, had successfully been realized with the cluster jet target in operation. The team proved the feasibility of extremely stable beam operation even with such a high-density target. The cluster jet proved to be a well-suited target solution for PANDA.

The requested beam time now aims at exploiting the new multi-channel-plate (MCP) based beam ionization monitor that can be used to map out the proton beam. Even though the final, advanced, differentially pumped cluster beam dump is not quite available yet due to corona-related difficulties, the team aims to prepare the operative beam dump to demonstrate the MCP beam mapping facility.

The beam time aims to fully demonstrate that all technical diagnostic facilities work to specifications. Although the final cluster jet beam dump is not quite available yet, this last COSY measurement campaign aims to wrap up the cluster jet target development for the PANDA experiment, which unfortunately has been shifted into the next decade.

Rating: Feasibility A, Readiness B, Uniqueness A, Relevance to FAIR/PoF A
Recommendation: 1 week

Proposal D011.6 **PANDA luminosity detector**

For refinement of the PANDA luminosity determination, silicon sensors rather than scintillators shall measure elastic low-angle scattering with very high resolution and suppress background reactions. For optimum resolution, a thinned HV-MAPS forward detector shall thus be allocated within the vacuum tube, 11 m downstream of PANDA. HV-MAPS technology is well-established and mature. It has been developed by Ivan Peric of KIT for the Mu3e experiment at PSI as well as for the future ATLAS inner tracker and currently circulates in versions MuPix10 and MuPix11.

The beam time currently applied for is intended to fully verify the entire, newly developed DAQ-chain with MuPix10 and the Kintex 7-based DAQ board as a full-sized detector system setup in a beamtime environment with four sensors in a beam telescope configuration at the start.

The team has spent the past years to prepare the hard-, firm- and software. As described in the proposal readiness is incremental, but it is not entirely clear whether the full DAQ-chain will finally be ready, including the essential micro-cables to the sensors. The beam time rather aims at proof of operation. One needs to conclude that this goal does not rely upon COSY as unique facility. On the contrary, more beamtime will be needed at other facilities to complete the project in the following years.

Rating: Feasibility A, Readiness B, Uniqueness B, Relevance to FAIR/PoF A
Recommendation: (0 weeks, but a combined beamtime with D015.1 or D020.1 is encouraged)

Proposal D012.2 **SiPM irradiation**

The applicant aims to irradiate a particular SiPM type with protons in order to evaluate the sensitivity to radiation of the particular device which has been chosen for readout of the ITOF detector at HADES. SiPMs have been tested with respect to their susceptibility to radiation damage on various occasions (different devices, different radiation etc.). Results do show vast inconsistencies though the internal structure of devices typically remains unknown as they are proprietary commercial designs. For any particular application and choice of device, this raises the need for a full characterization which is the target of this beam time application. The applicant has a very pragmatic and professional approach for the test campaign. There is no doubt that the device's radiation tolerance will be determined within a single shift. In principle, but much less systematically this could be evaluated in situ at HADES itself. However, similarly this measurement could quickly be realized parasitically at the Cyclotron or alternatively at the NEMP or TOF.

Rating: Feasibility A, Readiness A, Uniqueness n/a, Relevance to FAIR/PoF A
Recommendation: 1 parasitic day at the cyclotron

Proposal D013.2 **A_{yy} of elastic pp scattering**

The project is motivated by the study of the polarization of produced antiprotons. It thus relates to the FAIR antiproton program and supports and enables conclusive results of a PS polarized antiproton production experiment at CERN. The analyzing power A_{yy} is an important input which can be determined at COSY, and the COSY polarized proton beam offers a unique opportunity for this measurement.

The experimental set-up has been tested during a one-day runtime in 2021. It has been improved by introducing scintillating fibers of increases thickness yielding better detection efficiency of the SciFi-

hodoscope for the incoming particle. Several damaged straw-tubes have been repaired. The apparatus will be ready for beam in Q2/2023.

A GEANT-4 simulation has been performed which indicates that a determination of A_{yy} with 10% relative accuracy will be feasible.

Since there are symmetry arguments which require the conservation of the absolute value of analyzing power if one reaction partner is exchanged by its antiparticle, a successful measurement of antiproton polarization at CERN can be performed. The project will therefore come to a conclusion once this measurement is done, provided that theory predictions remain valid in the low energy region around a few GeV. The experiment at COSY is for a long time to come the only opportunity to measure A_{yy} and to provide a suitable polarimeter for antiprotons. CBAC strongly recommends the beamtime.

Rating: Feasibility A, Readiness A/B, Uniqueness A, Relevance to FAIR/PoF B
Recommendation: 1 week

Proposal D015.1 **Charged particle tracking detector R3B/SFRS**

The R^3B (Reactions with Relativistic Radioactive Beams) and Super-FRS EXPERT experiments propose a comprehensive beam test combining ALPIDE pixel detectors, FOOT microstrip detectors, a GEM TPC and GADAST crystals. First experience with all detectors is available from earlier test beam campaigns, and many improvements and bug fixes, e.g., in the data acquisition systems, have been implemented after the successful 2022 beam test at COSY. For the ALPIDE sensors, the construction of detector modules on 75 micron-thin aluminum flex cables and their integration in R3B detector stations is in progress. The GEM TPC is an important work horse at the Super-FRS and the new electronics and alternative gas mixtures should be tested. A thorough characterization of the GADAST crystals with respect to energy response, resolution and light yield is anticipated for alternative crystal orientations.

CBAC considers these measurements to be feasible and ready. The combination of all the aforementioned subdetectors in one set-up is rather effective. COSY is a natural test beam site for these detectors. Given the prospects of early science at FAIR for R3B/S-FRS, there is no practical alternative. Clearly, this request is highly relevant for several FAIR experiments.

Rating: Feasibility A, Readiness A, Uniqueness A/B, Relevance to FAIR/PoF A
Recommendation: 1 week

Proposal D017.1 **PANDA MVD**

The applicant intends to realize a full system test of the double-sided silicon microstrip detector as part of the PANDA MVD. The project had suffered a considerable period of stagnancy since 2015. During this period an adequate readout was missing but the full amount of sensors was procured and tested. The project had recently picked-up speed again with the ToASt front end ASIC as feasible ASIC-based readout solution finally at hand and operative.

It is a pleasure to see that the team is picking up speed and take the new readout into operation with the sensor. It seems, however, that the team will need another two or three years to reach a state where one could claim routine operation of these devices and their electronics. In this respect the team will need to find other beam sources to complete their development activities in the future. The beam time at COSY can thus not be viewed as the essential step that would complete a line of developments. On the contrary,

the status of the project promises incremental improvements, rather than break-through results. For this reason, the application cannot be rated as upmost important in view of the limited and final beam time available. Further, the PANDA MVD applies for an unpolarized proton beam which is not unique to COSY. The experiment could, however, be realized upstream of other detector tests, though only low intensity of 10^3 to 10^7 p/(cm^2 s) is demanded.

Rating: Feasibility A, Readiness B, Uniqueness B, Relevance to FAIR/PoF A
Recommendation: (0 weeks, but a combined beamtime with D015.1 or D020.1 is encouraged)

Proposal D019.1 **HI-MAPS (GSI)**

The HI-MAPS collaboration (Monolithic active pixel sensors for heavy ions) proposes another beam test at COSY to explore the correlation of the hit cluster size with energy loss (dE/dx) for particle identification. Earlier results obtained in with ALICE and at COSY are encouraging. In the testbeam campaign an ALPIDE and a MIMOSIS-2 telescope are to be operated in parallel for 1 week at two different deuteron energies. The deuteron cross-section in matter has not yet been measured precisely and represents an uncertainty in GEANT4 simulations. Thus, it is to be determined as well.

The request is certainly feasible and worthwhile. The ALPIDE beam telescope is available, the availability of the MIMOSIS-2 telescope is uncertain, since delivery of the sensors is only expected in Q2 with some uncertainty, and in addition some slack for telescope assembly is required.

COSY is an excellent place to explore this idea with deuterons, however it should be noted that setting up many energy configurations is cumbersome and time consuming. At the same time, similar information will eventually be available by a combination of ALPIDE sensors and TPC data in ALICE.

Clearly the proposed measurement and the ALPIDE and MIMOSIS sensors are very relevant for several FAIR experiments. The MMOSIS-2 sensors might be available for beam tests at COSY in 2023. The final sensors type – likely MIMOSIS-3 – will become available beyond 2023 and will have to be characterized at a different test beam.

Rating: Feasibility A, Readiness A/B, Uniqueness B, Relevance to FAIR/PoF A
Recommendation: 0 week of deuterons (a combination with proton beamtime could be considered)

Proposal D020.1 **PANDA forward endcap calorimeter**

The PANDA Forward Endcap Calorimeter will consist of 3856 lead tungstate crystals read out by vacuum photo tetrodes and avalanche photo diodes. The calorimeter is in its final stages of development and will be the first PANDA subdetector to be completed. Since the last beam tests, the design has been improved in many respects, e.g., optical coupling signal shaping and preamplifier gain. The collaboration request two separate weeks of beamtime to test and calibrate the fully assembled calorimeter with protons, charged and in particular neutral pions.

It is clearly highly desirable and feasible to complete this project of great relevance to FAIR. COSY is the only practical site to complete the proposed program. Given the large amount of beam time the request should be combined with other measurements. Possibilities to increase the data acquisition rate and thus reduce beam time should be made. It is important and realistic to avoid delays in assembly of the full device in order to be ready in Q3.

Rating: Feasibility A, Readiness A/B, Uniqueness A, Relevance to FAIR/PoF A
Recommendation: 1 week

Proposal D022 **Polarized $^3He^+$ ion source**

This proposal is a test of a smart and completely new approach – based on a so-called Sona transition unit – that promises to overcome the recent limitations of polarized $^3He^+$ ions. This method has huge potential as the method itself can be expand to other ions, even heavy ions, that may open the door for a new generation of polarized ion sources.

For the method a patent was filed in December 2022. Test in Jülich using an ECRIS for $^3He^+$ beam and the test require at least one week preparation to change the cyclotron polarity for positive ion acceleration. The degree of polarization will be determined by a polarimeter located in the COSY Injection Beam line.

The beam tests only require the cyclotron for one week and CBAC is in support of this test.

Rating: Feasibility A, Readiness A, Uniqueness n/a, Relevance to FAIR/PoF A
Recommendation: 1 week

Proposal E005.8 **JEDI precursor**

The EDM precursor experiment has been run successfully and is currently under analysis. Effects that mimic an EDM result from radial fields (leading to vertical beam excursions) and /or from the unavoidable alignment errors. The presence of both effects leads to an ambiguity which limits the control of systematics. This is expressed by an unexpectedly large value of tilt of the invariant spin axis. The reason for this effect is unknown and limits the systematic uncertainties to a value that is about an order of magnitude larger than expected.

The group suggests performing systematic checks with unpolarized beam to investigate possible reasons. For instance, an imperfection in the RF-Wienfilter could induce such a tilt but would show up in additional vertical beam distortions which can be identified. They have however to be disentangled by measuring the phase space couplings which in turn require to investigate other parameters such as tune shifts and the effect of non-parallelism of the longitudinal magnetic fields with the reference orbit. Given the fact that analyzing beam parameters without the additional requirements of polarization is much easier there is a reasonable possibility for success of this attempt.

Performing these systematic investigations offers the only chance to clarify these issues in the remaining runtime of COSY. Apart of the possibility to improve the upper limit for the Deuteron EDM considerably, there is an overarching importance since such an unclear situation will remain a burden for the worldwide attempts aiming at an EDM measurement in storage rings. This would also reduce the impact of the research done at FZJ during PoF-IV.

Rating: Feasibility A, Readiness A, Uniqueness A, Relevance to FAIR/PoF A
Recommendation: 2 weeks

A13.4 JULIC neutron platform (HBS)

Thomas Brückel gave a comprehensive report on the status of the HBS project and the requested use of the cyclotron and the Big Karl area. Intensive tests of critical components like the target, extraction channels, moderators and the target handling hardware can be tested. While the beam current is orders of magnitudes below future HBS facilities, it is sufficient for the R&D program.

CBAC notes that the instrumentation at Big Karl has been improved substantially in comparison with earlier measurement campaigns. The broad testing program is certainly feasible, and readiness is high when the shielding around the accelerator area is improved and the upgrade of the beam current to 10 microamps is realized. The importance of HBS for the European and German neutron community cannot be overstated. The project is a great opportunity for Helmholtz and part of the PoF IV goals.

At this stage, there is no alternative to the use of the sophisticated instrumentation and infrastructure at Big Karl and JULIC, although eventually the project will have to do without it.

Rating: Feasibility A, Readiness A, Uniqueness A, Relevance to FAIR/PoF A
Recommendation: 6 x 1 week at cyclotron

Proposal A014.5 COSY injection studies

This proposal builds on A014.4 which met the objectives:

- to probe the suitability of the EPICS environment for automated access to the necessary devices to control the Injection BeamLine (IBL)
- to demonstrate the automated optimization of the IBL using Bayesian Optimization.
- To develop new tools of beam optic simulation (based on MAD-X) and envelope display for operators.

Scientifically it is the correct move now to expand the project by using machine learning (ML) as a next step. It is planned for each test to train a Reinforcement Learning (RL) agent with simulation and use this during the first iteration of beamtime. Therefore, it is wise to split the tests into several separate and short beam times with several weeks in between to allow the data evaluation, performing updates, and re-train the ML model.

The relevance for FAIR has not been explained well but is important because the automation of beam injection is mandatory for such a complex facility with restricted set-up time. However, the different injection method must be modelled correctly. The tests are not unique at COSY and could be performed at SIS18 at GSI as well.

Rating: Feasibility A, Readiness A, Uniqueness B, Relevance to FAIR/PoF A
Recommendation: 1 week

Proposal A021 **RF knockout extraction**

This proposal addresses an issue all synchrotrons with slow extraction face. Slow or RF Knock Out extraction is used to extract stored particle beams from synchrotrons through transverse excitation for the delivery of particles to experiments over a longer time (seconds). For GSI and the future FAIR synchrotrons, RF KO is the main extraction choice.

However, the method usually provides particle fluxes with significant fluctuations which lead to detector pile up. The delivery of a constant particle flux is a long-known issue and not resolved so far. It requires minimizing the fluctuations in spill intensity on the second to microsecond scale. A feasible solution that is proposed here, based on experience from HIT in Heidelberg, does optimize the excitation signal by using a feedback system to control the excitation amplitude.

The beam time to test the new scheme of excitation spectra and signal defined radio is well-justified and can be combined with D004.11 CBM HADES spill detector test.

Rating: Feasibility A, Readiness A, Uniqueness A, Relevance to FAIR / PoF A
Recommendation: 3 x 2 days

3. Summary and Conclusions

What made this meeting special is that COSY operation will end in 2023, and thus CBAC#14 was in all likelihood the last CBAC meeting.

We would like to thank all speakers and participants for the many excellent and pedagogical – or rather didactical – talks, well-founded proposals and good discussions. The breadth of the science that can be explored with COSY is truly amazing.

This year the available beamtime is 8 weeks (excluding machine development).

CBAC received fourteen beamtime requests asking for a total of 12 weeks of COSY beamtime. CBAC realizes that the scarcity of beamtime was well communicated to the users who – in anticipation – made great efforts to reduce their beamtime requests to the minimum.

The fourteen requests relate to

- detector tests for FAIR (D004.11, D009.7, D011.6, D012.2, D013.2, D015.1, D017.1, D019.1, D020.1),
- accelerator physics experiments of interest to FAIR and other facilities (D022, A014.5, A021),
- R&D for the High Brilliance neutron Source (A013.4) and
- preparations for the determination of the EDM (E005.8),

As always, the detailed scheduling of the prioritized proposals is left to the local COSY coordination committee.

The remaining 8 weeks of beamtime are of great importance for the FAIR community and must be delivered reliably. Due to the shrinking size of the COSY machine crew, it will be essential for the success of the remaining beam time that critical staff which moved to other groups in Jülich is made available for emergency break fixes and maintenance.

CBAC thus recommends strongly to arrange temporary support as needed for smooth operation.

CBAC acknowledges the strategic importance of the HBS project for the large neutron community in Germany and Europe. COSY/JULIC support for HBS is crucial at this stage of R&D. CBAC thus

endorses the use of the cyclotron for HBS demonstrator experiments. The financial agreements to support the required cyclotron use are beyond the remit of CBAC. CBAC would also like to note that beyond 2024 the availability of R&D infrastructures other than JULIC will be critical for HBS.

Finally, when all is done, CBAC is very much looking forward to a COSY "Fest" to celebrate and honor the decades of excellence and unique science at COSY.

Next CBAC session

The CBAC#14 session has in all likelihood been the last CBAC meeting.

Marc Weber (CBAC Chair)

AGENDA

Thursday, February 23rd, 2023

09:00 – 09:30	**Closed session**	(GSI, Geb. SB1, room 4.101)
	W. Marquardt, J. Ritman	Welcome
	M. Weber (chair)	Organization, committee work
	Open session	(SB1, room 4.101 and TelCo)
09:30 – 09:40	P. Giubellino, J. Ritman	Welcome
09:40 – 10:00	V. Kamerdzhiev	Status of COSY

Proposals are scheduled for 15' presentation + 10' discussion (TelCo)

10:00 – 10:25	D004.11	CBM-HADES	F. Ulrich-Pur
10:25 – 10:50	D015.1	Track.Det.R3B/SFRS	O. Kiselev
10:50 – 11:15	D019.1	HI-MAPS for HI exp.	B. Blidaru

11:15 - 11:30 Coffee

11:30 – 11:55	D012.2	SiPM irradiation	D. Grzonka
11:55 – 12:20	D013.2	A_{yy} elast. pp-scatt.	D. Grzonka
12:20 – 12:45	D022	Pol. 3He+ Ion source	R. Engels

13:00 – 14:00 Lunch Break

14:00 – 14:25	D009.7	PANDA Clas.Jet Tg.	A. Khoukaz
14:25 – 14:50	D017.1	PANDA MVD	H.-G. Zaunick
14:50 – 15:15	D020.1	PANDA FW_endcap	T. Held
15:15 – 15:40	D011.6	HV-MAPS Lumi-det.	M. Fritsch
15:40 – 16:05	E005.8	JEDI Precursor	A. Andres

16:05 – 16:30 Coffee

16:30 – 16:55	A014.5	COSY inject.-studies	J. Hetzel
16:55 – 17:20	A021	RF KnockOut extr.	P. Niedermayer
17:20 – 17:45	A013.4	HBS - JULIC n-platf.	T. Brückel

17:45 – 18:30	**Closed session**	(GSI, Geb. SB1, room 4.101)

Friday, February 24th, 2023

09:00 – 11:45 **CBAC closed session** (GSI, Geb. SB1, room 4.101)

representatives of the experiments should be available on call for additional information or questions

Open session (GSI, Geb. SB1, room 4.101 and TelCo)

11:45 – 12:15 Summary of CBAC Recommendations M. Weber

12:30 – 14:00 Lunch (for CBAC members at GSI)

End of meeting