

# Status Construction MoU for the CBM experiment

10th CBM Resource Review Board meeting  
9th February 2021



Jürgen Eschke, CBM Resource Coordinator



# RRB process → Construction MoU

1<sup>st</sup> meeting of FAIR RRBs  
04 – 05 July 2013



9-10 February 2021 10th RRB  
Online

2012 2013 -----2020 2021

RRB process →

signing CBM C-MoU

## Content presentation

- Reminder purpose of the CBM Construction MoU (C-MoU)
- finalization of C-MoU for signature after RRB9
- Status Signing C-MoU
- Common Infrastructure - Construction timeline Cave
- Establishment of Construction Common Fund (CF)
- Payment requests CF
- Procurements for Common Infrastructure

# Purpose of the CBM Construction MoU

- Collaboration agrees on responsibility for construction work packages
  - Defines the In-Kind contributions of the CBM member institutes to the construction of the CBM experiment
    - (~50% of the In-kind covered by legally binding Collaboration and In-Kind Contracts (shareholder countries) - regarding this issue redundant with C-MoU)
- Establishes the CBM Common Fund for the financing for the CBM common infrastructure
- C-MoU covers all contributions to CBM
  - also from non shareholder countries
  - also contributions by human resources (software development,.....)
- Regulates organizational, managerial and financial rules of collaboration
- Relation: Host Lab  $\leftrightarrow$  Collaboration (rights and duties)

# CERN model

(we do not reinvent the wheel)



**LHC Resources Review Boards (LHC-RRB)**

The Resources Review Board (RRB) comprises the representatives of each Experiment's Funding Agencies and the managements of CERN and of each Experiment's Collaboration. It is chaired by the CERN Director for Research and Computing.

The role of the RRB includes :

- reaching agreement on the Memorandum of Understanding
- monitoring the Common Projects and the use of the Common Funds
- monitoring the general financial and manpower support
- reaching agreement on a maintenance and operation procedure and monitoring its functioning
- endorsing the annual construction and maintenance and operation budgets of the detector.

The management of the Collaboration reports regularly to the RRB on technical, managerial, financial and administrative matters, and on the composition of the Collaboration.

**Chairperson:** CERN Director for Research and Computing

- CERN has implemented the RRB process for the LHC experiments
- LHC collaborations have concluded MoUs for construction and operation phase
- Most of funding agencies participate at the CERN RRBs since many years and have signed MoUs for the LHC experiments

→ we profit from this successful model

# Memorandum of Understanding

## for Collaboration in the Construction of the Compressed Baryonic Matter (CBM) Experiment at FAIR between

the Facility for Antiproton and Ion Research in Europe GmbH, hereinafter referred to as  
FAIR GmbH,

and

the full member institutions of the CBM Collaboration  
(hereinafter referred to as *Member Institutions*)

together with the corresponding funding agencies

- Drafting of C-MoU in CBM collaboration since 2015
- Discussion of C-MoU contact (e.g. CF) with Funding Agencies in RRB since 2017

Article 1	Parties to this MoU
Article 2	Purpose of this MoU
Article 3	Duration of this MoU and its Extension
Article 4	The CBM Experiment and Collaboration
Article 5	Program of Work for the Construction Phase of the CBM Experiment and Sharing of responsibilities for its Execution
Article 6	Common Infrastructure and Construction Common Fund
Article 7	Obligations of FAIR as Host Laboratory, and of the Institutes
Article 8	Relationship CBM Collaboration – FAIR
Article 9	Rights and Benefits of the Institutes
Article 10	Administrative and Financial Provisions
Article 11	Amendments
Article 12	Disputes
Article 13	Annexes
Article 14	Final Provisions

Annex 1:	List of <i>Member Institutions</i> and <i>Associate Member Institutions</i> of the CBM Collaboration
Annex 2;	List of Funding Agencies
Annex 3:	Organisation rules of the CBM Collaboration and management structure of the CBM Collaboration
Annex 4a:	Responsibilities of the <i>Member Institutions</i> for the work packages on detector/subsystems construction
Annex 4b:	Summary tables on construction cost and funding
Annex 5:	Status of Technical Design Reports
Annex 6:	List of substantial human-resource allocations of Member Institutions to the subsystem construction, to computing subprojects, to the Physics Working Groups and to preparation and coordination tasks
Annex 7:	Construction schedule
Annex 8:	Procedures for the Construction Common Fund for the Common Infrastructure
Annex 9:	General Conditions Applicable to Experiments at FAIR
Annex 10:	The CBM Start Version and the Day-1 Setup

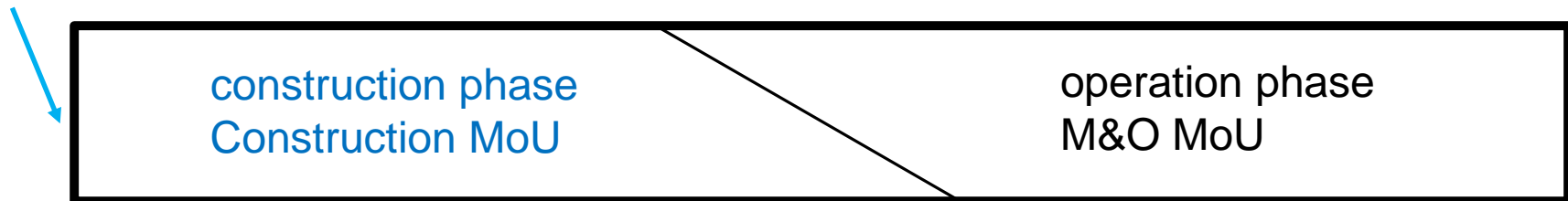
## Article 3 Duration of this MoU and its Extension

3.1 This **C-MoU is valid for the construction period of the CBM detector, from 1st April 2020** to a date not earlier than 31 December 2025. The actual termination date will be set by the CBM RRB no later than 31 December 2024. The construction phase ends after all construction workpackages are completed and the equipment is installed in the CBM cave.

3.2 The responsibilities for the maintenance and operation of the CBM detector is planned to be laid down in a separate M&O-MoU on maintenance and operation procedures, which will come into force in the operation phase of the CBM Experiment. The actual start date of the operation phase will be set by the CBM RRB no later than 31 December 2023. The M&O-MoU will be prepared by the CBM Collaboration together with FAIR GmbH, in consultation with the CBM RRB and will be signed by all the parties participating in the operation phase of CBM.

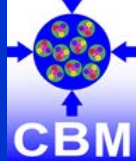
- Operation phase will be regulated by a **separate M&O MoU**

Start: 01.04.2020





# Status CBM Construction MoU



- The CBM C-MoU was evaluated by the ECSG/ECE (18.3.20)  
→ recommendation to RRB to agree on start of signing
- Final submission to Funding Agencies in RRBs in April 2020
- Final ok for signing of Funding Agencies in 24 June 2020
- Signing of C-MoU by FAIR, GSI and CBM spokesperson in August 2020
- Start of distribution to Ministries and Funding Agencies and to the CBM full member institutions in October 2020





# Status signing CBM Construction MoU 09.02.2021

## Funding Agencies

Country	Funding agency	Signature received
China	Central China Normal University (CCNU)	✓
China	Tsinghua University (THU)	
China	University of Science & Technology (USTC)	✓
		✓
Czech Republic	Ministry of Education, Youth and Sports (MSMT)	
		✓
Germany	Bundesministerium für Bildung und Forschung (BMBF)	
Germany	GSI Helmholtzzentrum GmbH	✓
		✓
Hungary	WIGNER RCP	
India	Department of Science & Technology (DST)	
Korea	Pusan National University	✓
Poland	Ministry of Higher Education in Poland	
Romania	Atomic Physics Institute (AFI) for Ministry of Research, Innovation and Digitalization	expected in February/March
Russian Federation	ROSATOM	
Russian Federation	National Research Centre Kurchatov Institute	
International Organisation	Joint Institute for Nuclear Research (JINR)	expected in the next days
Ukraine	NASU / State Agency of Ukraine	contacted

# Status Signing of CBM Construction MoU – CBM full member institutions

Mnemo	City	Country	Status	Full Name of Institution
AMU	Aligarh	India	FULL	Department of Physics, Aligarh Muslim University
THU	Beijing	China	FULL	Department of Engineering Physics, Tsinghua University
ZIB	Berlin	Germany	FULL	Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB)
IOPB	Bhubaneswar	India	FULL	Institute of Physics
NISER	Bhubaneswar	India	FULL	National Institute of Science Education and Research (NISER)
IFIN-HH	Bucharest	Romania	FULL	Horia Hulubei National Institute of Physics and Nuclear Engineering (IFIN-HH)
UBucharest	Bucharest	Romania	FULL	Atomic and Nuclear Physics Department, University of Bucharest
ELTE	Budapest	Hungary	FULL	Eötvös Loránd University (ELTE)
WignerRCP	Budapest	Hungary	FULL	Institute for Particle and Nuclear Physics, Wigner Research Centre for Physics, Hungarian Academy of Sciences
ECTP	Cairo	Egypt	ASSO	Egyptian Center for Theoretical Physics at Nile University (ECTP)
UPanjab	Chandigarh	India	FULL	Department of Physics, Panjab University
UChongqing	Chongqing	China	FULL	Chongqing University
USilesia	Chorzów	Poland	ASSO	Institute of Physics, University of Silesia
FAIR	Darmstadt	Germany	FULL	Facility for Antiproton and Ion Research in Europe GmbH (FAIR)
GSI	Darmstadt	Germany	FULL	GSI Helmholtzzentrum für Schwerionenforschung GmbH (GSI)
IKP-TUD	Darmstadt	Germany	FULL	Institut für Kernphysik, Technische Universität Darmstadt
HZDR	Dresden	Germany	FULL	Institut für Strahlenphysik, Helmholtz-Zentrum Dresden-Rossendorf (HZDR)
JINR-LIT	Dubna	Russia	FULL	Laboratory of Information Technologies, Joint Institute for Nuclear Research (JINR-LIT)
JINR-VBLHEP	Dubna	Russia	FULL	Veksler and Baldin Laboratory of High Energy Physics, Joint Institute for Nuclear Research (JINR-VBLHEP)
FIAS	Frankfurt	Germany	FULL	Frankfurt Institute for Advanced Studies, Goethe-Universität Frankfurt (FIAS)
IKF-UFra	Frankfurt	Germany	FULL	Institut für Kernphysik, Goethe-Universität Frankfurt
IRI-UFra	Frankfurt	Germany	FULL	Institute for Computer Science, Goethe-Universität Frankfurt
PNPI	Gatchina	Russia	FULL	Petersburg Nuclear Physics Institute named by B.P. Konstantinov of National Research Centre Kurchatov Institute" (PNPI)"
UGießen	Gießen	Germany	FULL	Justus-Liebig-Universität Gießen
UGauhati	Guwahati	India	FULL	Nuclear and Radiation Physics Research Laboratory, Department of Physics, Gauhati University
USTC	Hefei	China	FULL	Department of Modern Physics, University of Science & Technology of China (USTC)
PI-Uhd	Heidelberg	Germany	FULL	Physikalisches Institut, Universität Heidelberg
ZITI-Uhd	Heidelberg	Germany	FULL	Institut für Technische Informatik, Universität Heidelberg
IIT-I	Indore	India	FULL	Indian Institute of Technology Indore
UJammu	Jammu	India	FULL	Department of Physics, University of Jammu
KIT	Karlsruhe	Germany	FULL	Karlsruhe Institute of Technology (KIT)
IIT-KGP	Kharagpur	India	FULL	Indian Institute of Technology Kharagpur
Bose	Kolkata	India	FULL	Department of Physics, Bose Institute
UCalcutta	Kolkata	India	FULL	Department of Physics and Department of Electronic Science, University of Calcutta
VECC	Kolkata	India	FULL	Variable Energy Cyclotron Centre (VECC)
AGH	Kraków	Poland	FULL	AGH University of Science and Technology (AGH)
Uagiellonian	Kraków	Poland	FULL	Marian Smoluchowski Institute of Physics, Jagiellonian University
KINR	Kyiv	Ukraine	FULL	High Energy Physics Department, Kiev Institute for Nuclear Research (KINR)
UKyiv	Kyiv	Ukraine	FULL	Department of Nuclear Physics, Taras Shevchenko National University of Kyiv
IMP	Lanzhou	China	ASSO	Institute of Modern Physics, Chinese Academy of Sciences (IMP)
INR	Moscow	Russia	FULL	Institute for Nuclear Research (INR)
ITEP	Moscow	Russia	FULL	Institute for Theoretical and Experimental Physics named by A.I. Alikhanov of National Research Centre Kurchatov Institute" (ITEP) in Moscow
MEPhi	Moscow	Russia	FULL	National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)
NRC-KI	Moscow	Russia	FULL	National Research Centre Kurchatov Institute""
SINP-MSU	Moscow	Russia	FULL	Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University (SINP-MSU)
Umuenster	Münster	Germany	FULL	Institut für Kernphysik, Westfälische Wilhelms-Universität Münster
IIT-B	Mumbai	India	ASSO	Indian Institute of Technology Bombay
TUM	Munich	Germany	ASSO	Department of Physics, Technical University of Munich (TUM)
CTU	Prague	Czech Republic	FULL	Czech Technical University (CTU)
IHEP	Protvino	Russia	FULL	Institute for High Energy Physics (IHEP)
PNU	Pusan	Korea	FULL	Pusan National University (PNU)
NPI-CAS	Rež	Czech Republic	FULL	Nuclear Physics Institute of the Czech Academy of Sciences
NBU	Siliguri	India	ASSO	Department of Physics, Faculty of Science, University of North Bengal
UKashmir	Srinagar	India	ASSO	Department of Physics, University of Kashmir
KRI	St. Petersburg	Russia	ASSO	V.G. Khlopin Radium Institute (KRI)
SPbPU	St. Petersburg	Russia	ASSO	St. Petersburg Polytechnic University (SPbPU)
IPHC	Strasbourg	France	ASSO	Institut Pluridisciplinaire Hubert Curien (IPHC), IN2P3-CNRS and Université de Strasbourg
KEK	Tsukuba	Japan	ASSO	High Energy Accelerator Research Organization (KEK)
UTuebingen	Tübingen	Germany	FULL	Physikalisches Institut, Eberhard Karls Universität Tübingen
BHU	Varanasi	India	FULL	Department of Physics, Banaras Hindu University (BHU)
TUWarsaw	Warsaw	Poland	FULL	Institute of Electronic Systems, Warsaw University of Technology
UWarsaw	Warsaw	Poland	FULL	Faculty of Physics, University of Warsaw
CCNU	Wuhan	China	FULL	College of Physical Science and Technology, Central China Normal University (CCNU)
UWuppertal	Wuppertal	Germany	FULL	Fakultät für Mathematik und Naturwissenschaften, Bergische Universität Wuppertal
CTGU	Yichang	China	FULL	College of Science, China Three Gorges University (CTGU)

## CBM member institutions:

09.02.2021

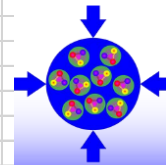
- Chinese Universities signed
- German Universities signed
- JINR VBLHEP&LIT signed
- Czech Institutes signed
- Hungary (Wigner & ELTE) signed
- Korea (Pusan) signed
- Romania: IFIN-HH signing announced
- Univ. Bucharest signed
- Poland: Polish Universities will only sign, after Ministry has signed
- Russia: Kurchatov institutes delays in signing
- Russian Universities: MSU signed, MEPhi will sign
- India: delays in signing
- Ukraine: KINR signed

in total 25 CBM institutions have signed at present

# CBM Common (cave) infrastructure

Work Package	2020	2021	2022	2023	2024	2025	1.1.1.10.1 targ beam	1.1.1.10.2 rail	1.1.1.10.3 data fiber	1.1.1.10.4 racks	1.1.1.10.5 cryo	1.1.1.10.6 gas inf	1.1.1.10.7 gen inf	1.1.1.10.8 supports	1.1.1.10.9 pow std
Rail System	100,0	300,0	96,5					496,5							
upstream platform	130,0	145,0	90,0											365,0	
RICH-MUCH foundation		90,0	90,0											180,0	
Cryo - BB balcony		3,0	7,0										10,0		
Survey tools		25,0	25,0	25,0									75,0		
Tools, scaffolding, hoisting gear		50,0	35,0	35,0	75,0								195,0		
Safety gear			12,0												
Control room			43,0	43,0											
Gas container (E40)				15,0											
Gas alarm system (E30/E40)				20,0	20,0										
Gas lines (E40-E30)		30,0	57,9												
Gas lines (E30-E10)		50,0	92,5												
Optical fibers (E40-IT)			40,0	80,3											
Control system			15,0	30,0											
Target Box+Holder				35,0	35,0		70,0								
Beam pipes				35,0	35,0		70,0								
Vacuum pumps				39,0	40,0		79,0								
Beam diagnosis box				15,0	15,0		30,0								
Beam abort system				40,0	40,0		80,0								
CBM beam dump (rest)			15,0	20,0											
HADES beam dump			25,0	25,0											
Sum	230,0	751,0	1027,8	952,4	260,0		329,0	496,5							
							Sum of work p								

The Experiment Cost Scrutiny Group (ECSG) has performed a Cost Assessment of the Common Infrastructure of the CBM Experiment.

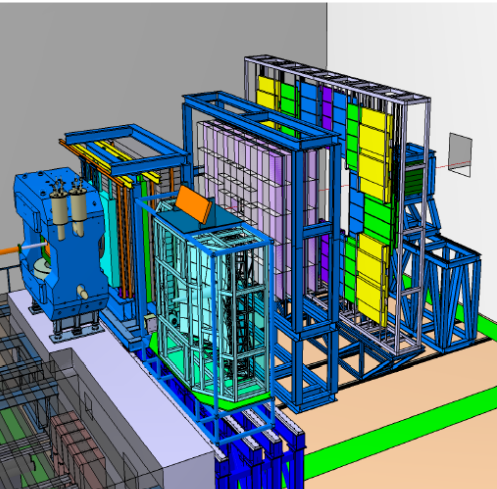


**Cost Assessment**

by ECSG in progress

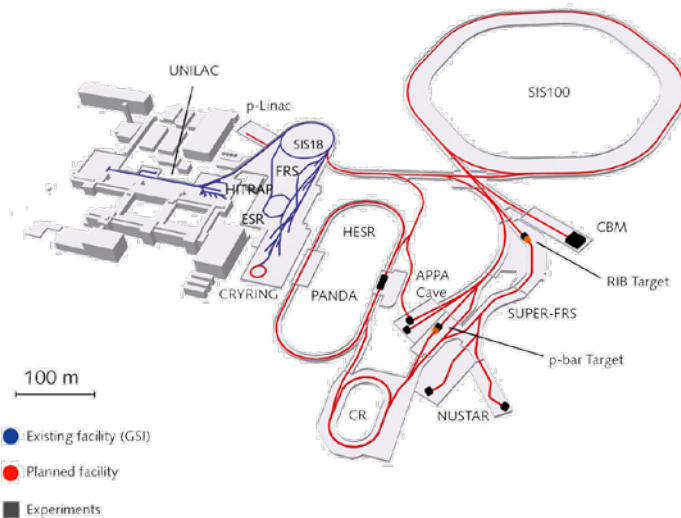
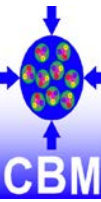
Common Infrastructure  
of the CBM Experiment at FAIR

Compressed Baryonic Matter Experiment



October 2019

# CBM “cave” - Building (L0608A)



- Shell construction is progressing and soon will be ready
- Award of Technical Building Installation (TBI) packages until Q1/2021
- Beam dump shelling completed, installation of iron core in H1/2021
- Beam transfer tunnel being constructed with the same pace
- Ground floor prepared for the installation of the rail system



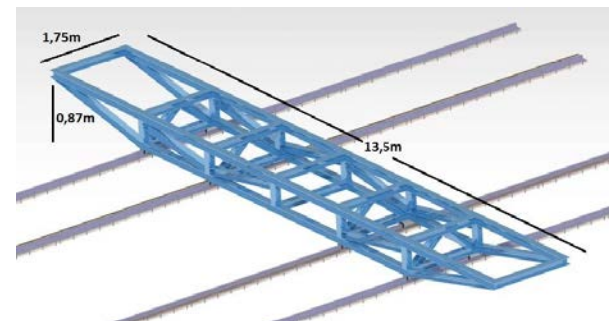
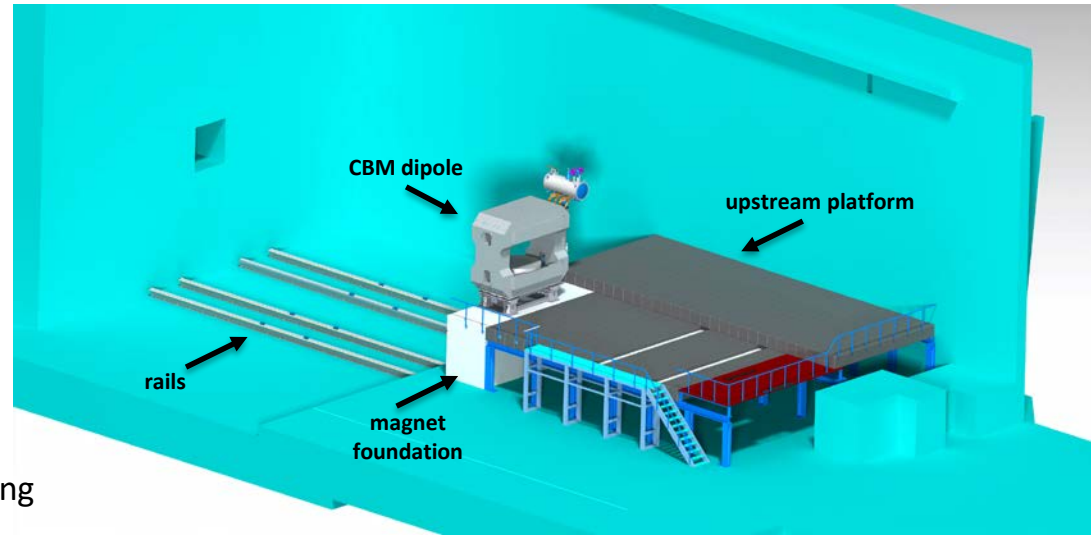
# 1. Heavy construction, supports, magnet

## CBM Building status

- Building shell completed
- Crane and elevator ready
- Electricity (power) available
- E10 survey, blue line ready

## CBM installation activities

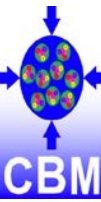
- Dipole foundation (FSB) – possible after roofing
- Rail system (procurement procedure launched)
- Upstream platform (design ongoing, Czech in-kind)
- Magnet mechanical installation (SAT Aa)
- Detector supports/mechanics



- Rail system procurement procedure launched
- Goal: installation in Q2.2022

## 2. Infrastructure

---

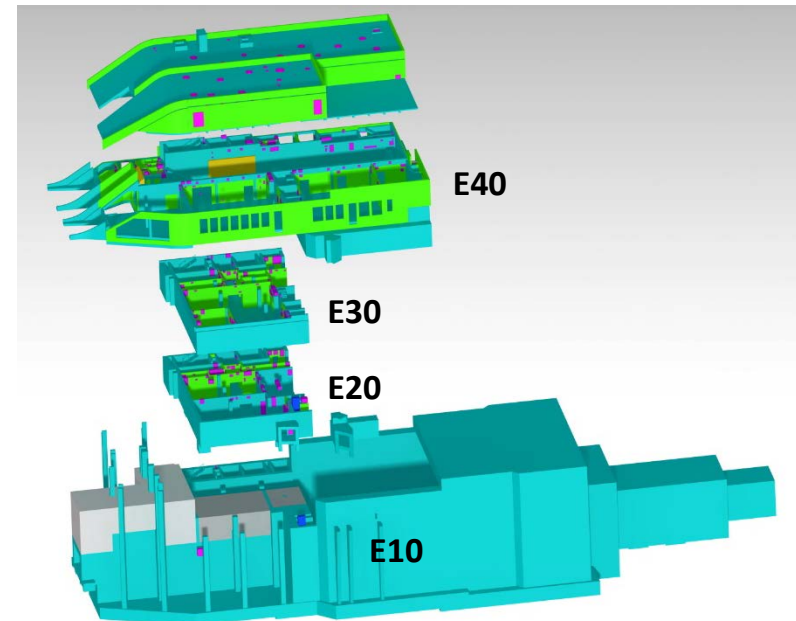


### Building status

- Building ready for installation (TGA)
- TGA ongoing
- Cryo installation

### CBM installation activities

- Activities in parallel to TGA (coordination with SMG/FSB)
- Racks, power, cooling lines
- Services between technical rooms (E20-40) and the cave (E10)
- Detector service lines and supports
- Magnet branch-box, cryo line, feed-box, services  
(+ warm commissioning)



### 3. Detectors, connection and pre-commissioning

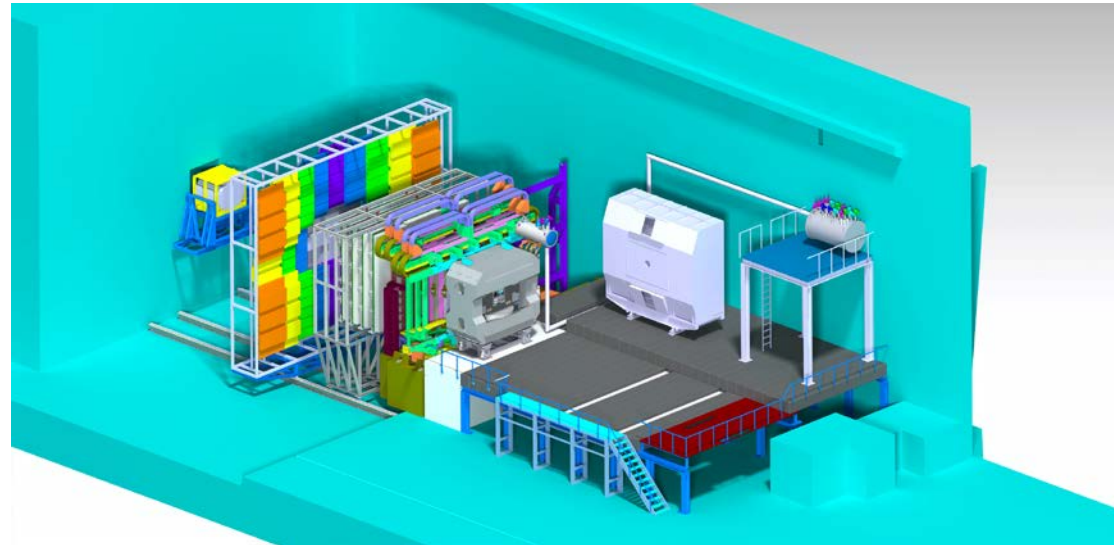
---

#### Building status

- TGA completed
- “Ready for pre-commissioning”
- HBO (Hessische Bauordnung)

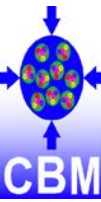
#### CBM installation activities

- Detectors (+ LV/HV/gas/cooling) installation
- Control room, IT room
- Magnet cold commissioning (SAT Ab)
- Pre-commissioning of all systems, magnetic field mapping

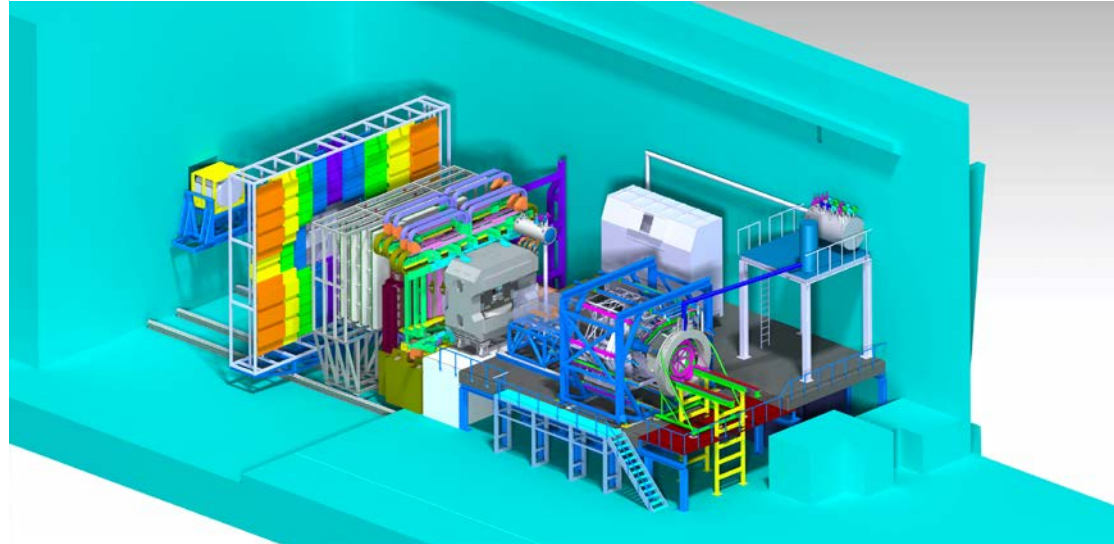


## 4. Ready for beam

---

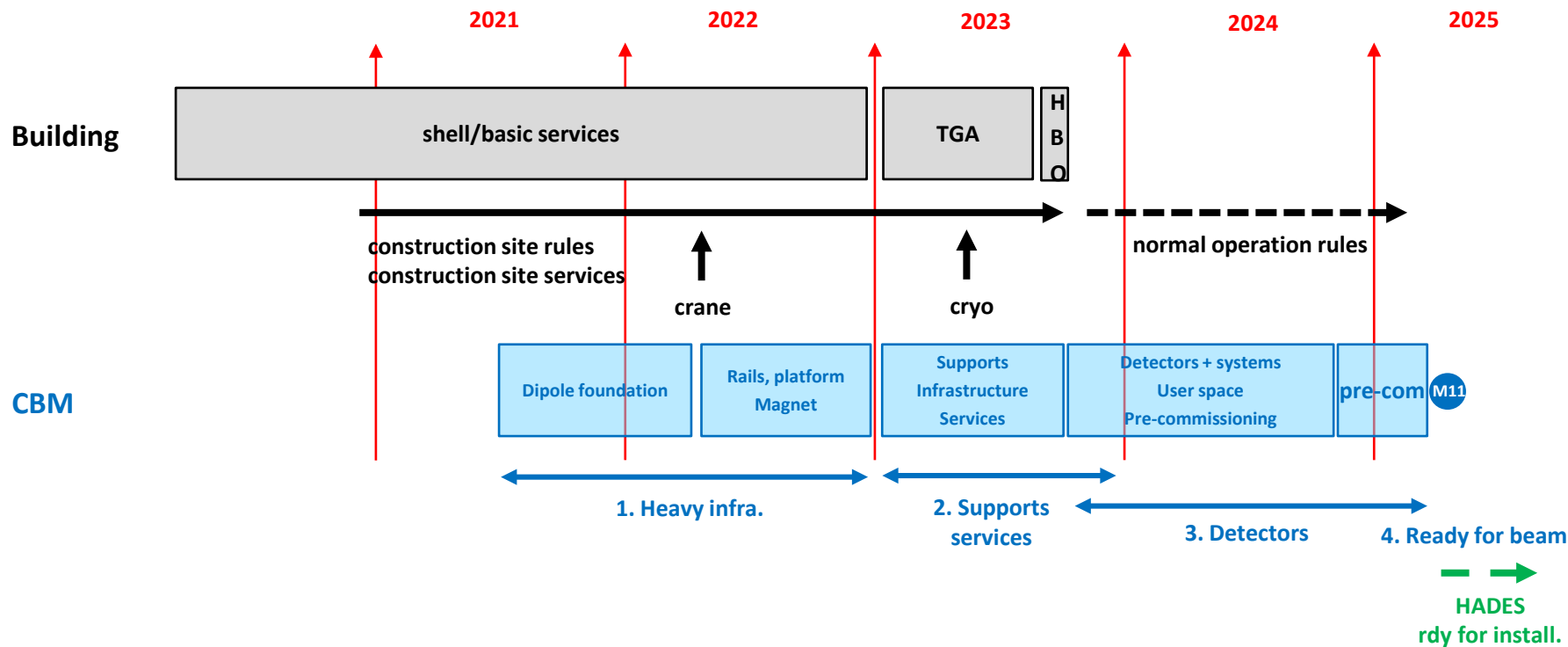
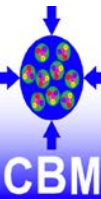


- CBM ready for beam
- HADES installation
- HADES ready for beam





# CBM installation – towards baseline 2021



# CBM Common Fund

## Procedure for Common Fund

The CBM collaboration has decided to implement a Construction Common Fund. **Each full member institute shall contribute according to the number of PhD holders working for CBM.** The annual due amounts per institute have been defined such that the required expenditures for the common (cave) infrastructure are covered.

# CBM Common Fund

Institute	Country	all CBM members	PhD-Students	PhDs + Profs	common fund 2020 [€]	common fund 2021 [€]	common fund 2022 [€]	common fund 2023 [€]	common fund 2024 [€]	Total [€]	Total per country [€]	Fraction per country [%]
					1000,00	3265,22	4468,70	4184,35	1130,43	14048,70		
					EURO per PhD/Prof	EURO per PhD/Prof	EURO per PhD/Prof	EURO per PhD/Prof	EURO per PhD/Prof	EURO per PhD/Prof		
Tsinghua (THU)	China	6	1	5	5.000	16.326	22.343	20.922	5.652	70.243		
USTC	China	10	5	2	2.000	6.530	8.937	8.369	2.261	28.097		
CCNU	China	11	3	8	8.000	26.122	35.750	33.475	9.043	112.390		
Uchongqing	China	3	0	2	2.000	6.530	8.937	8.369	2.261	28.097		
CTGU	China	4	1	3	3.000	9.796	13.406	12.553	3.391	42.146	280.974	8,70
CTU	Czech Republic	2	0	1	1.000	3.265	4.469	4.184	1.130	14.049		
NPI-CAS	Czech Republic	3	1	2	2.000	6.530	8.937	8.369	2.261	28.097	42.146	1,30
IPHC (associated member)	France				0	0	0	0	0	0	0	0,00
ZIB	Germany	4	0	3	3.000	9.796	13.406	12.553	3.391	42.146		
FAIR	Germany	3	0	3	3.000	9.796	13.406	12.553	3.391	42.146		
GSI	Germany	52	5	36	36.000	117.548	160.873	150.637	40.696	505.753		
IKP-TUD	Germany	3	2	1	1.000	3.265	4.469	4.184	1.130	14.049		
HZDR	Germany	5	0	4	4.000	13.061	17.875	16.737	4.522	56.195		
FIAS	Germany	10	5	5	5.000	16.326	22.343	20.922	5.652	70.243		
IKF-UFra	Germany	20	6	9	9.000	29.387	40.218	37.659	10.174	126.438		
IRI-UFra	Germany	4	2	1	1.000	3.265	4.469	4.184	1.130	14.049		
UGiessen	Germany	12	4	5	5.000	16.326	22.343	20.922	5.652	70.243		
PI-UHD	Germany	7	3	2	2.000	6.530	8.937	8.369	2.261	28.097		
KIT	Germany	8	1	3	3.000	9.796	13.406	12.553	3.391	42.146		
ZITI-UHd	Germany	1	0	1	1.000	3.265	4.469	4.184	1.130	14.049		
UMuenster	Germany	13	3	3	3.000	9.796	13.406	12.553	3.391	42.146		
UTuebingen	Germany	7	5	2	2.000	6.530	8.937	8.369	2.261	28.097		
UWuppertal	Germany	7	2	3	3.000	9.796	13.406	12.553	3.391	42.146	1.137.944	35,22
ELTE	Hungary	2	0	1	1.000	3.265	4.469	4.184	1.130	14.049		
WignerRCP	Hungary	2	1	1	1.000	3.265	4.469	4.184	1.130	14.049	28.097	0,87
AMU	India	4	1	3	3.000	9.796	13.406	12.553	3.391	42.146		
IOPB	India	3	0	2	2.000	6.530	8.937	8.369	2.261	28.097		
NISER	India	4	0	4	4.000	13.061	17.875	16.737	4.522	56.195		
UPanjab	India	2	0	2	2.000	6.530	8.937	8.369	2.261	28.097		
UGauhati	India	2	1	1	1.000	3.265	4.469	4.184	1.130	14.049		
IIT-I	India	3	1	2	2.000	6.530	8.937	8.369	2.261	28.097		
Ujammu	India	4	0	2	2.000	6.530	8.937	8.369	2.261	28.097		
IIT-KGP	India	1	0	1	1.000	3.265	4.469	4.184	1.130	14.049		
Bose	India	10	3	6	6.000	19.591	26.812	25.106	6.783	84.292		
UCalcutta	India	3	0	3	3.000	9.796	13.406	12.553	3.391	42.146		
VECC	India	11	7	4	4.000	13.061	17.875	16.737	4.522	56.195		
UKashmir	India	6	0	3	3.000	9.796	13.406	12.553	3.391	42.146		
UBanaras	India	4	1	3	3.000	9.796	13.406	12.553	3.391	42.146	505.753	15,65
PNU	Korea	1	0	1	1.000	3.265	4.469	4.184	1.130	14.049	14.049	0,43
AGH	Poland	8	1	7	7.000	22.857	31.281	29.290	7.913	98.341		
UJagiellonian	Poland	6	0	5	5.000	16.326	22.343	20.922	5.652	70.243		
TUWarsaw	Poland	8	3	5	5.000	16.326	22.343	20.922	5.652	70.243		
UWarsaw	Poland	2	0	2	2.000	6.530	8.937	8.369	2.261	28.097	266.925	8,26
IFIN-HH	Romania	5	0	4	4.000	13.061	17.875	16.737	4.522	56.195		
UBucharest	Romania	9	1	8	8.000	26.122	35.750	33.475	9.043	112.390	168.584	5,22
JINR-LIT	Russia	7	1	6	6.000	19.591	26.812	25.106	6.783	84.292		
JINR-VBLHEP	Russia	17	1	7	7.000	22.857	31.281	29.290	7.913	98.341		
PNPI	Russia	15	0	11	11.000	35.917	49.156	46.028	12.435	154.536		
INR	Russia	10	3	3	3.000	9.796	13.406	12.553	3.391	42.146		
ITEP	Russia	18	2	9	9.000	29.387	40.218	37.659	10.174	126.438		
MEPhi	Russia	11	2	8	8.000	26.122	35.750	33.475	9.043	112.390		
NRC-KI	Russia	5	0	3	3.000	9.796	13.406	12.553	3.391	42.146		
SINP-MSU	Russia	6	2	3	3.000	9.796	13.406	12.553	3.391	42.146		
IHEP	Russia	7	0	1	1.000	3.265	4.469	4.184	1.130	14.049	716.483	22,17
KINR	Ukraine	6	2	1	1.000	3.265	4.469	4.184	1.130	14.049		
UKyiv	Ukraine	4	0	4	4.000	13.061	17.875	16.737	4.522	56.195	70.243	2,17
<b>Total:</b>		<b>401</b>	<b>82</b>	<b>230</b>	<b>230.000</b>	<b>751.000</b>	<b>1.027.800</b>	<b>962.400</b>	<b>260.000</b>	<b>3.231.200</b>	<b>3.231.200</b>	<b>100,00</b>

Breakdown of the annual contributions to the CBM Common Fund for the member institutes of the CBM collaboration (CBM data base 13<sup>th</sup> November 2019 is bases for calculation of due amounts):

2020: 1000€ /PhD holder  
 2021: 3265€ /PhD holder  
 2022: 4469€ /PhD holder  
 2023: 4184€ /PhD holder  
 2024: 1130€ /PhD holder

in total per PhD holder:  
 14049 €

→ flexible payment possibilities included in final C-MoU text

# Procedure for Common Fund CBM Construction MoU

## Article 6 Common Infrastructure and Construction Common Fund

6.1 The items belonging to the Common Infrastructure of CBM are defined in **Annex 8**, and shall be funded through the implementation of a Construction Common Fund as described in **Annex 8**.

6.2 The purchasing process of the Common Infrastructure will be organized by the FAIR GmbH under the condition of support through cash supplements by all CBM Member Institutions into a dedicated Construction Common Fund. In-kind contributions are also possible. The Construction Common Fund will be managed and operated by the CBM Resource Coordinator in consultation with the CBM Management and the FAIR Management. All Construction Common Fund operations will be annually evaluated the Experiment Cost Scrutiny Group (ECSG) and monitored by the RRB.

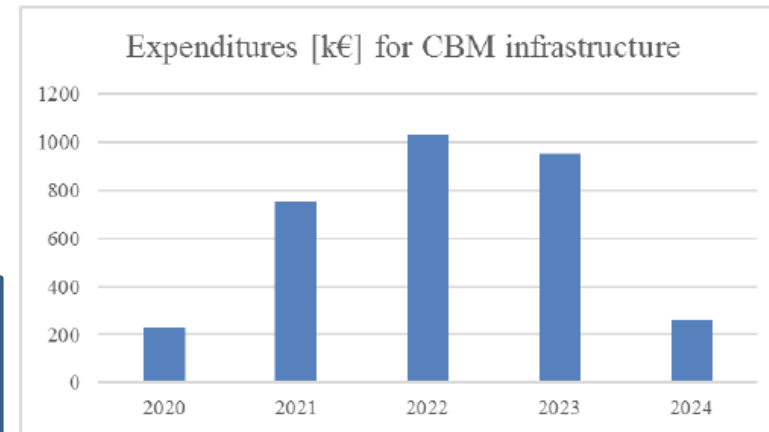
6.3 The detailed procedure for collecting the cash supplements and the planned spending profile is given in Annex 8. The cash contributions depend on the number of PhD holders per member institute. The due amounts of the member institutes to the Common Fund were calculated, according to the number of PhD holders per member institute, which are presently\* listed in the CBM Collaboration database \*(status memberships and number of PhD holders of November 2019 is used for this calculation). The member institutes can also fulfil their obligations regarding the Common Fund by paying equal annual amounts in the years 2020 to 2024, or by an early down payment of the full amount per PhD holder.

6.4 Institutes, which join the CBM collaboration as Member Institutions during the construction period, have to pay the same amount to the Common Fund according to the number of PhD holders working for CBM, as if they were Member Institutions during the whole construction period.

6.5 The CBM Common Infrastructure items are purchased and owned by FAIR GmbH. The member institutes of the CBM Collaboration support the financing by paying cash supplements into the Common Fund as described above.

6.6 If a Member Institution is able and willing to procure one or several items of the Common Infrastructure, which correspond exactly to the technical specifications of Common Infrastructure items as listed in the Common Infrastructure cost

breakdown, these contributions are accounted with the listed amounts instead of cash contributions to the CBM Common Fund. However, they cannot be accounted as an In-Kind contribution of a shareholder to FAIR GmbH.



Letters requesting  
down payments  
into Common Fund  
are send

→ flexibility is foreseen

# Establishment of Team Accounts at FAIR GmbH for Construction Common Funds of FAIR Experiment Collaborations

## Model: CERN Team Accounts for Common Funds of LHC Collaborations

Working group „Team Accounts“ at FAIR/GSI (Administration and FAIR Exp. Coordinators) checked legal, financial (tax – VAT) and organisational issues:

- Annual payments of member institutes of collaboration into common fund at FAIR GmbH
- The purchasing process of the Common Infrastructure will be organized by FAIR GmbH
- The Common Infrastructure items are owned by FAIR GmbH
- The member institutes of a Collaboration support the financing by paying cash supplements into the Construction Common Fund
- All Construction Common Fund operations will be regularly evaluated by the Experiment Cost Scrutiny Group (ECSG) and monitored by the RRB

Result:

1. The establishment of “Team Accounts” at FAIR GmbH for the Construction Common Funds of the FAIR Experiment Collaborations is compatible with legal issues (e.g. money laundering law - risk analysis performed) and also with tax issues (no VAT has to be paid by FAIR GmbH).
2. Text of the CBM Construction MoU was legally audited.

→ Team Accounts established at FAIR GmbH for the Construction Common Funds of CBM



FAIR - Planckstraße 1 · 64291 Darmstadt · Germany

GSI Helmholtzzentrum für Schwerionenforschung GmbH

Dr. Ulrich Breuer  
Planckstraße 1  
64291 Darmstadt  
Germany

**Call for Funds – Request of cash contribution to CBM Common Fund**

Dear Dr. Breuer,

With regard to

- ▶ Article 6 of the "Memorandum of Understanding for Collaboration in the Construction of the Compressed Baryonic Matter (CBM) Experiment at FAIR between the Facility for Antiproton and Ion Research in Europe GmbH and the full member institutions of the CBM Collaboration" (CBM C-MoU), and
- ▶ Annex 8 of the CBM C-MoU on "Procedures for the Construction Common Fund for the Common Infrastructure"

the Facility for Antiproton and Ion Research in Europe GmbH kindly requests the transfer of the amount of

**EUR 505,753.00**

**(five hundred five thousand and seven hundred and fifty three Euros)**

by 31 January 2024 to the following bank account of the Facility for Antiproton and Ion Research in Europe GmbH:

Account name: FAIR GmbH  
 Account No.: 132 630 500  
 Bank: Commerzbank Darmstadt  
 Sort Code: 508 400 05  
 BIC/SWIFT: COBADEFF508  
 IBAN: DE03 5084 0005 0132 6305 00  
 Purpose: GSI contribution to CBM Common Fund

Facility for Antiproton and  
 Ion Research in Europe GmbH  
 Planckstraße 1  
 64291 Darmstadt  
 Germany  
 www.fair-center.eu

**Management Board**

**Scientific Managing Director**  
 Professor Dr. Paolo Giubellino  
 Phone +49-6159-71-2649  
 paolo.giubellino@fair-center.eu

**Administrative Managing Director**  
 Dr. Ulrich Breuer  
 Telefon +49-6159-71-2646  
 ulrich.breuer@fair-center.eu

**Technical Managing Director**  
 Jörg Blaurock  
 Phone +49-6159-71-3290  
 joerg.blaurock@fair-center.eu

2020-11-17

Geschäftsführung:  
 Professor Dr. Paolo Giubellino  
 Dr. Ulrich Breuer  
 Jörg Blaurock  
 Sitz: Darmstadt  
 Amtsgericht Darmstadt HRB 89372  
 USt-IdNr.: DE275599927  
 Commerzbank Darmstadt  
 IBAN DE03 5084 0005 0132 6305 00  
 BIC COBADEFF508



Facility for Antiproton and  
 Ion Research in Europe GmbH  
 Planckstraße 1  
 64291 Darmstadt  
 Germany  
 www.fair-center.eu

**For information:**

According to Article 6.3 of the CBM C-MoU the annual due amounts of the CBM member institutes to the Common Fund were calculated, according to the number of PhD holders per member institute, which are listed\* in the CBM Collaboration database \*(status memberships and number of PhD holders of November 2019).

The member institutes can also fulfil their obligations regarding the Common Fund by paying equal annual amounts in the years 2020 to 2024, or by an early down payment of the full amount.

**This means for GSI Helmholtzzentrum für Schwerionenforschung GmbH, that you can fulfil your obligation either by the**

- 1. early transfer of the full due amount of EUR 505,753.00 (or by several early installments), or**
- 2. by the annual transfer of the amount of EUR 101,150.60 in the years 2020 to 2024, or**
- 3. by the transfer of the annual due amounts as listed in Annex 8 of the CBM C-MoU for GSI ( EUR 36,000.00 for 2020, EUR 117,548.00 for 2021, EUR 160,873.00 for 2022, EUR 150,637,00 for 2023 and EUR 40,696,00 for 2024).**

We would like to take this opportunity to express our gratitude for your support.

Sincerely yours,

FAIR GmbH

  
 ppa. Markus Jaeger  
 Head of Controlling



i. A. Jürgen Eschke  
CBM Resource Coordinator

## November/December 2020:

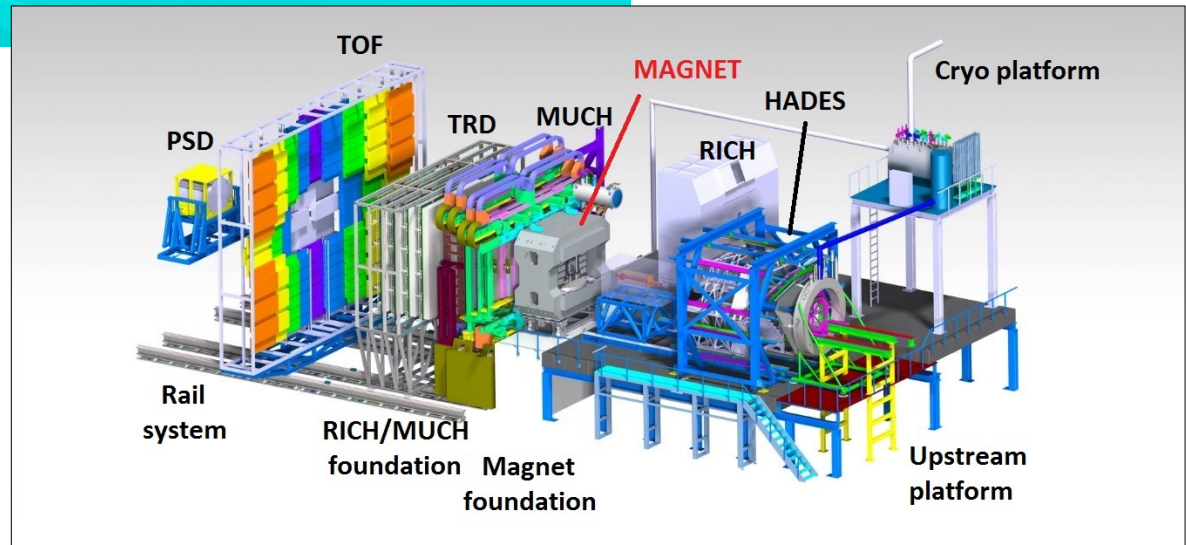
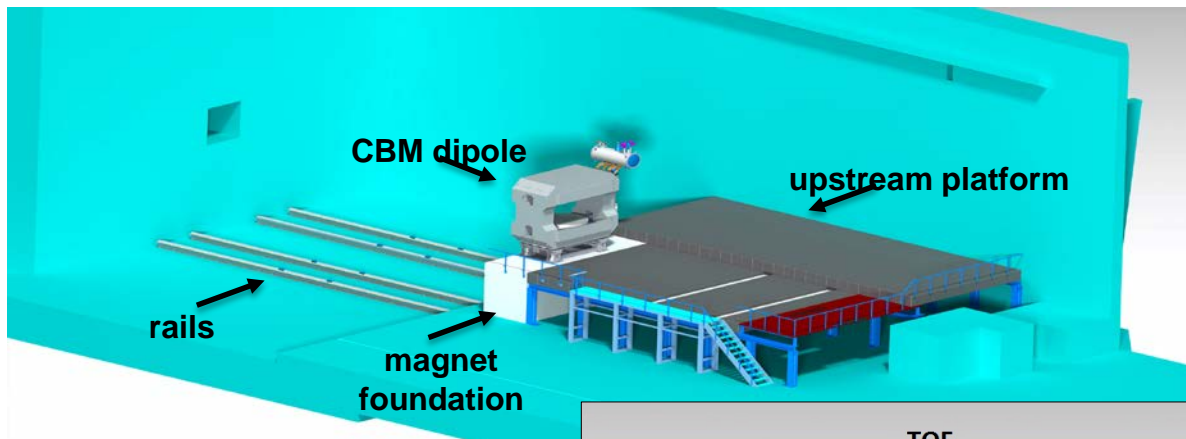
- down payment of GSI (505k€)  
and of NPI, Rez (36k€)  
into common fund (Team Account at FAIR GmbH)
  - Wigner RCP paid earlier (14k€)
  - amount collected in Common Fund at FAIR GmbH at  
present: 555k€
- available for procurement of the  
Common Infrastructure in the CBM cave

# Status CBM Construction MoU



(starting in) February 2021 procurements for common infrastructure:

- call for tender for CBM cave rails system (~270k€)
- call for tender for structural steel certification (~100k€)





## Next steps:

- finalize sending of C-MoU to Funding Agencies and to all eligible CBM member institutions
- letters to CBM member institutions, which have signed the C-MoU, with requests to make payments into the Common Fund
- further procurement for the Common Infrastructure

Thank you for your attention

