

The Facility for Antiproton and Ion Research

FAIR

Nuclear Structure & Astrophysics
(Rare-isotope beams)

Hadron Physics
(Stored and cooled anti-protons)

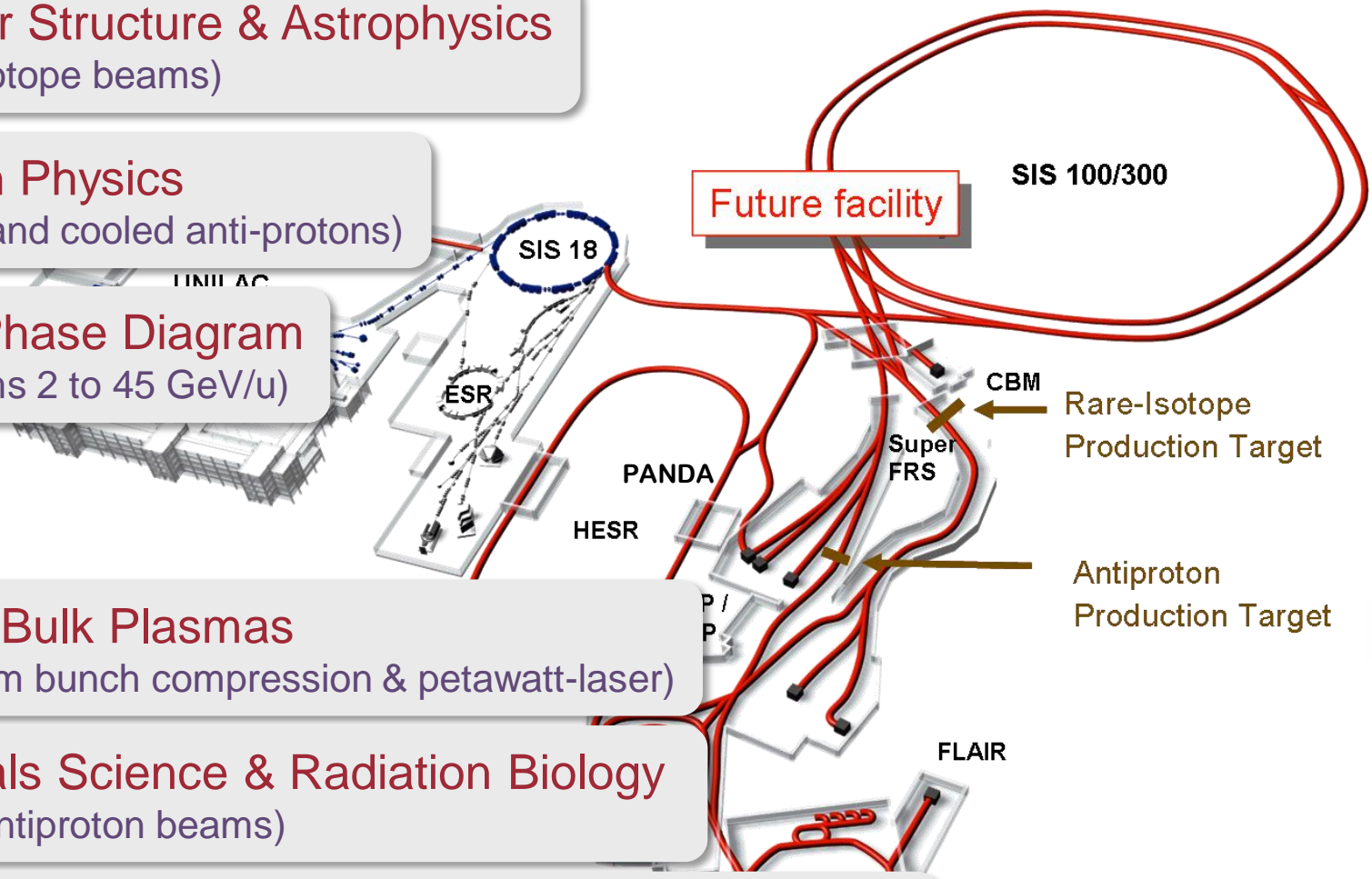
QCD-Phase Diagram
(HI beams 2 to 45 GeV/u)

Dense Bulk Plasmas
(Ion-beam bunch compression & petawatt-laser)

Materials Science & Radiation Biology
(Ion & antiproton beams)

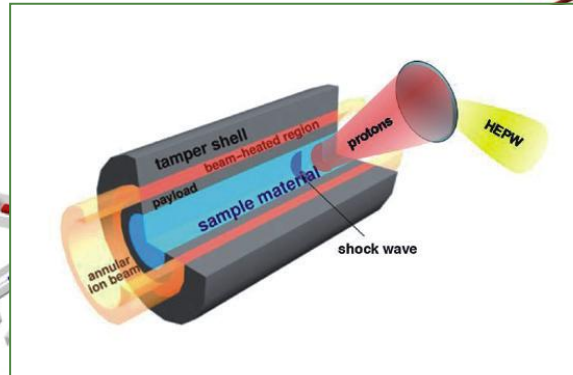
Fundamental Symmetries & Ultra-High EM Fields
(Antiprotons & highly stripped ions)

Accelerator Physics

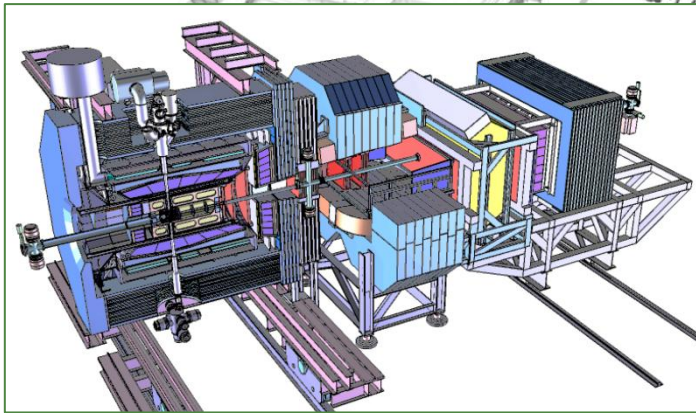
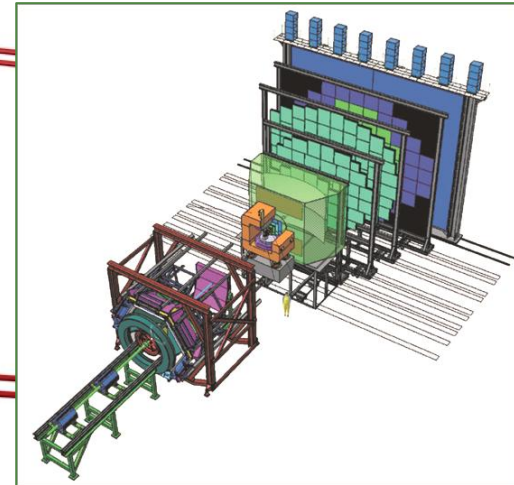


Experiments

APPA



CBM

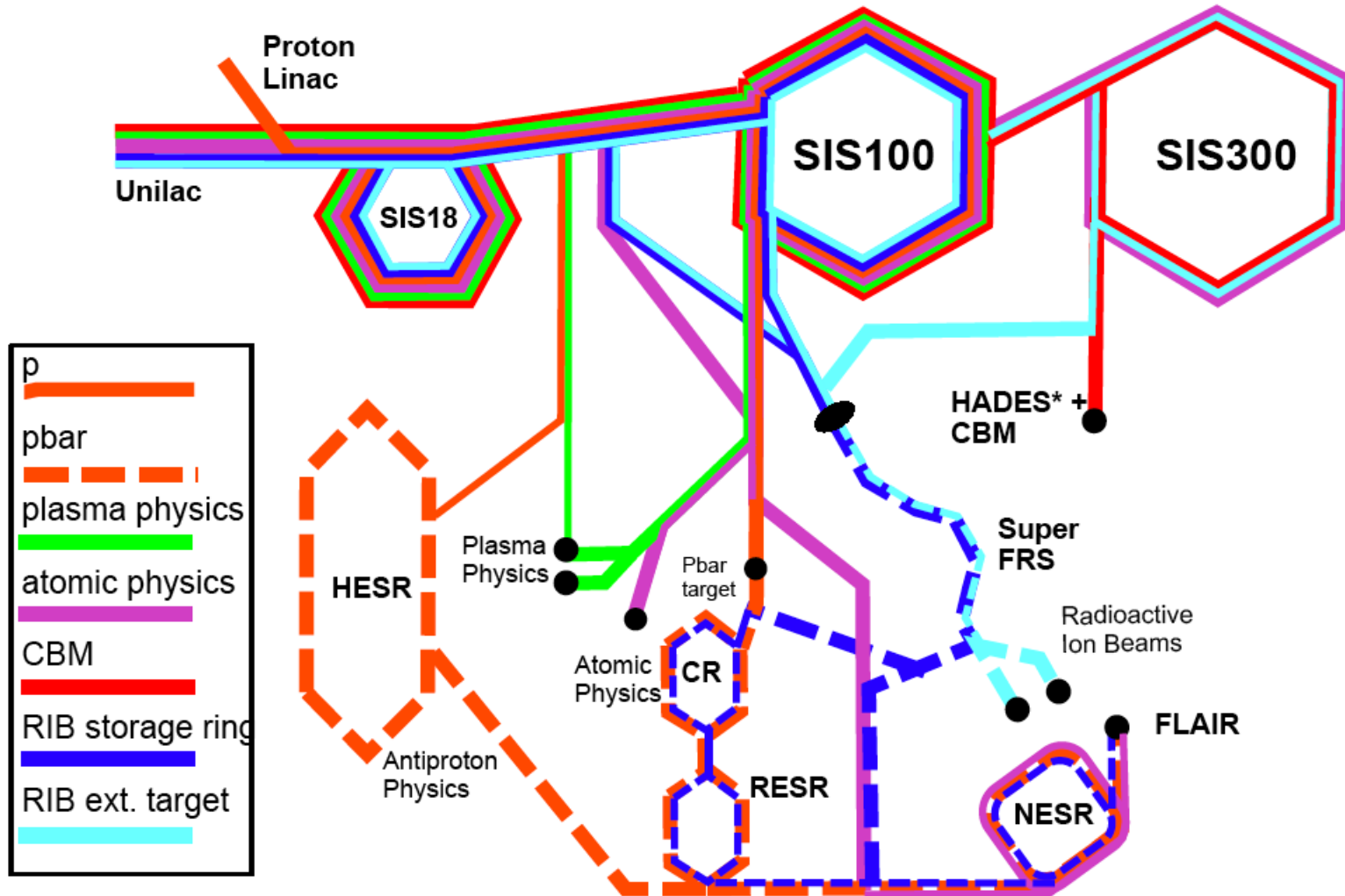


PANDA



NuSTAR

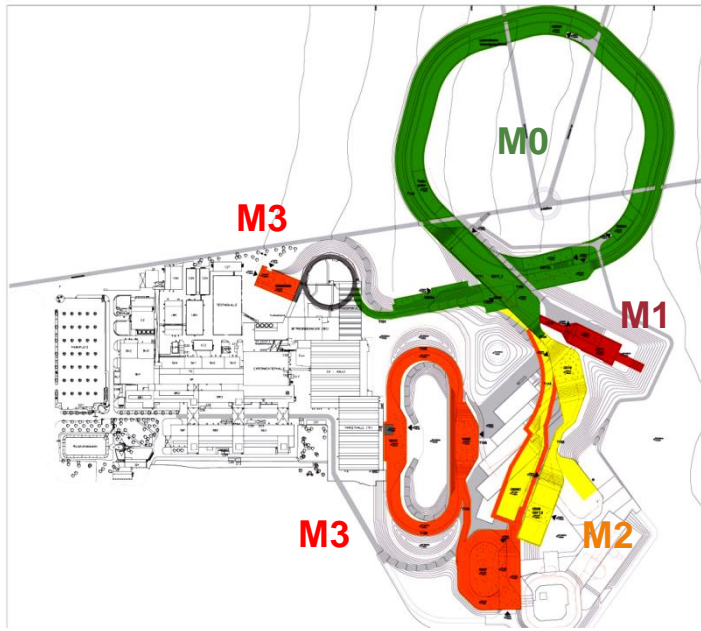
Parallel Operation



Staging

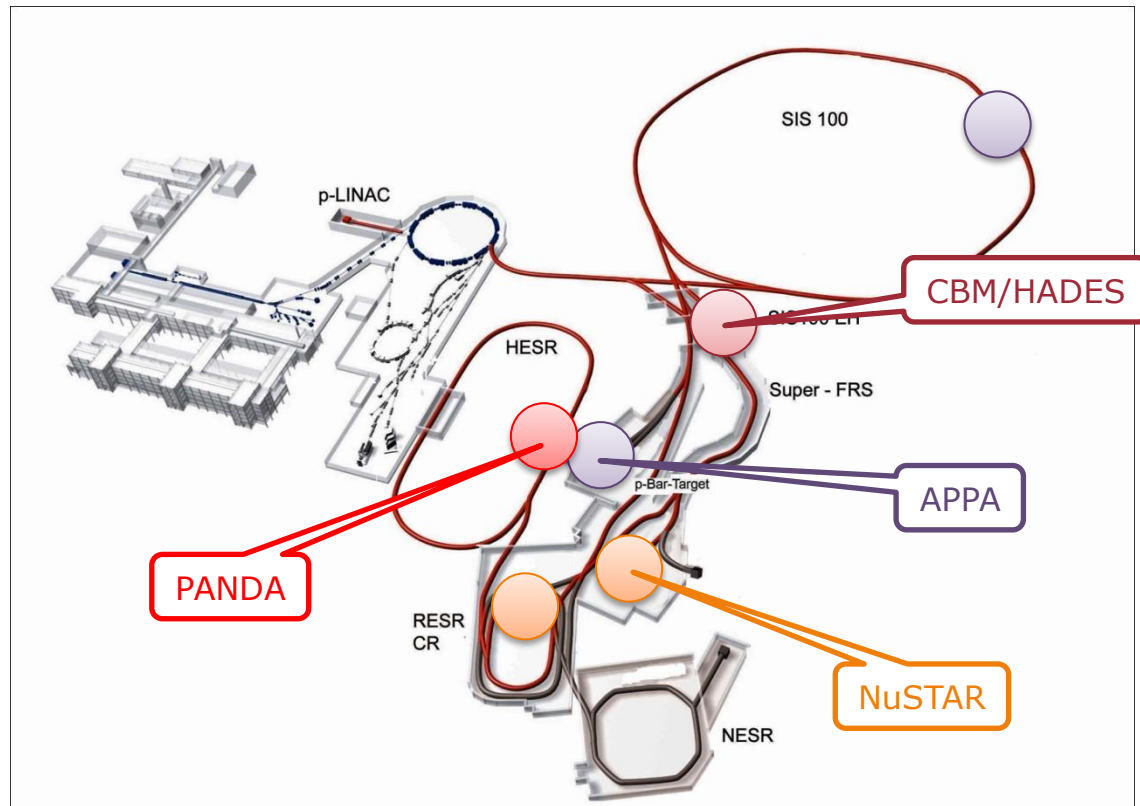
Start Version Phase A (SIS100)						Phase B (SIS300)
Modularised Start Version						
Module 0	Module 1	Module 2	Module 3	Module 4	Module 5	
SIS100	Exp. halls for CBM & APPA	Super-FRS for NuSTAR	Antiproton Facility for PANDA & options for NuSTAR	LEB, NESR, FLAIR for NuSTAR or APPA	RESR for PANDA, NuSTAR & APPA	

Modularised Start Version

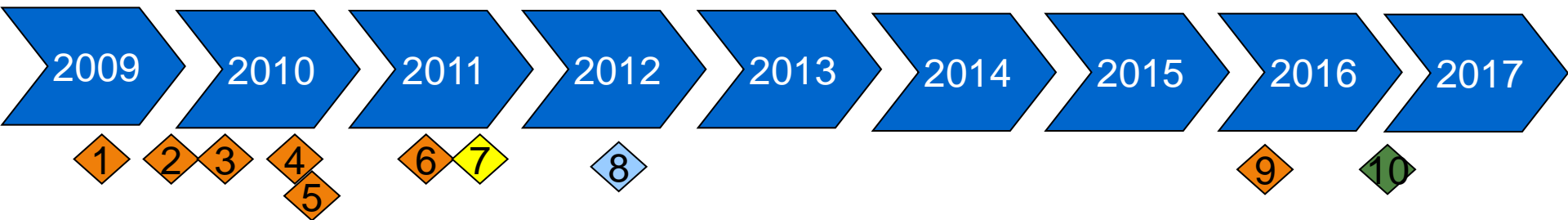


Experiments

- M1:** APPA
- M1:** CBM/HADES
- M2:** NuSTAR
- M3:** PANDA



Timelines



- 1 Submission of pre-planning documents to HBM
- 2 Clarification of user requirements Modularised Start Version (MSV)
- 3 Start revised pre-planning for MSV
- 4 Expected approval of revised planning for MSV
- 5 Preparation of documents for building permit
- 6 Expected approval for (partial) building permit
- 7 Start site preparation (clearing trees)
- 8 Award contracts on civil construction work lot 1-4
- 9 Completion of civil construction work lot 1-4
- 10 Start installation of accelerators and detectors

Commissioning & Operation

- **Commissioning MSV, Modules 0-3**
 - Top priority: Module 0 – SIS100
 - Sequence of experiments depends on
 - Civil construction
 - Progress in
 - Prototyping & building the accelerators (storage rings)
 - Prototyping & building the production targets (RIB & anti-proton targets)
 - Prototyping & setting up the large-scale experimental equipment
 - **Funding (majority from outwith MSV budget)**
- **Operation MSV, Modules 0-3**
 - Signing of agreement on financing the FAIR operation budget three years after project has started
 - Soon develop model for fair share of costs for operating FAIR
 - Explore
 - Contributions from countries that are not shareholders, but participate in exploiting the facility scientifically
 - Set up common collaboration funds for running the experiments (cf. DESY & CERN)
- **Modules 4 & 5, Phase B**
 - Continue R&D, in particular for SIS300, HESR Electron Cooler and NESR Electron Ring
 - Secure funding for civil construction, accelerators and experiments

Current Status

FAIR Organisation

- Fair Convention signed and GmbH established on 4/10/10
- Funding of Modularised Start Version secured
- FAIR Council
 - 1st meeting 4/10/10
 - 2nd meeting 23/11/10
- FAIR organisational structure being defined
 - Top level posts advertised, to be filled soon
- Start of civil construction anticipated end of next year



Cost Estimate MSV

Total accelerator and personnel Modules 0 - 3	502 M€
Total civil construction Modules 0 - 3	400 M€
Experiment funding	78 M€
FAIR GmbH personnel and running costs	47 M€
Grand Total Modules 0 - 3	1027 M€

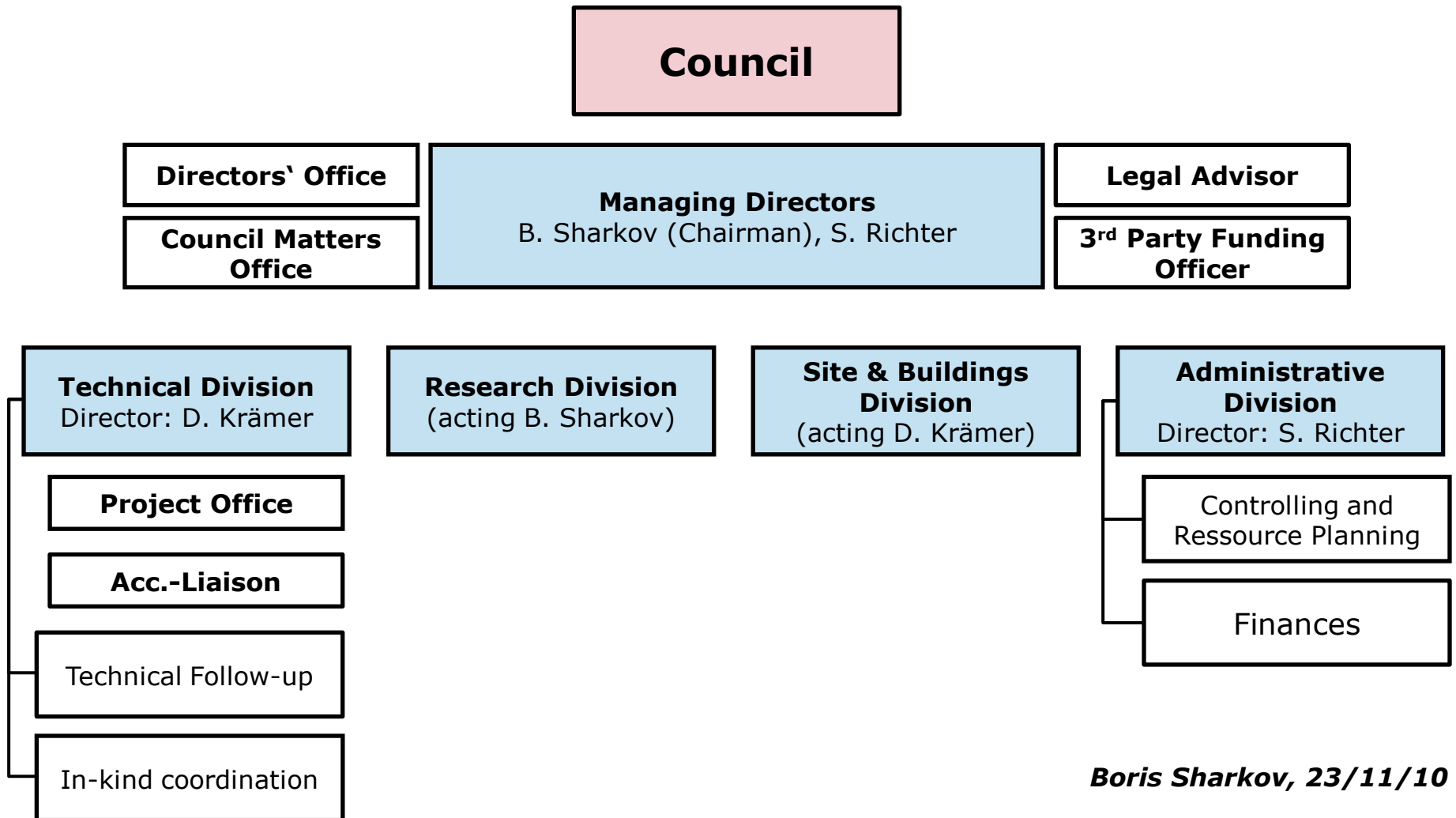
in 2005 values

Funding of MSV

Contracting Party	Contribution M€]
Finland	5.00
French Republic	27.00
Federal Republic of Germany	705.00
Republic of India	36.00
Republic of Poland	23.74
Romania	11.87
Russian Federation	178.05
Republic of Slovenia	12.00
Kingdom of Sweden	10.00
Total	1.008,66

- Spain expected to join soon (11.87 M€)
- China and UK will contribute to experiments (6.6 M€)

Start Version Organigram



Boris Sharkov, 23/11/10

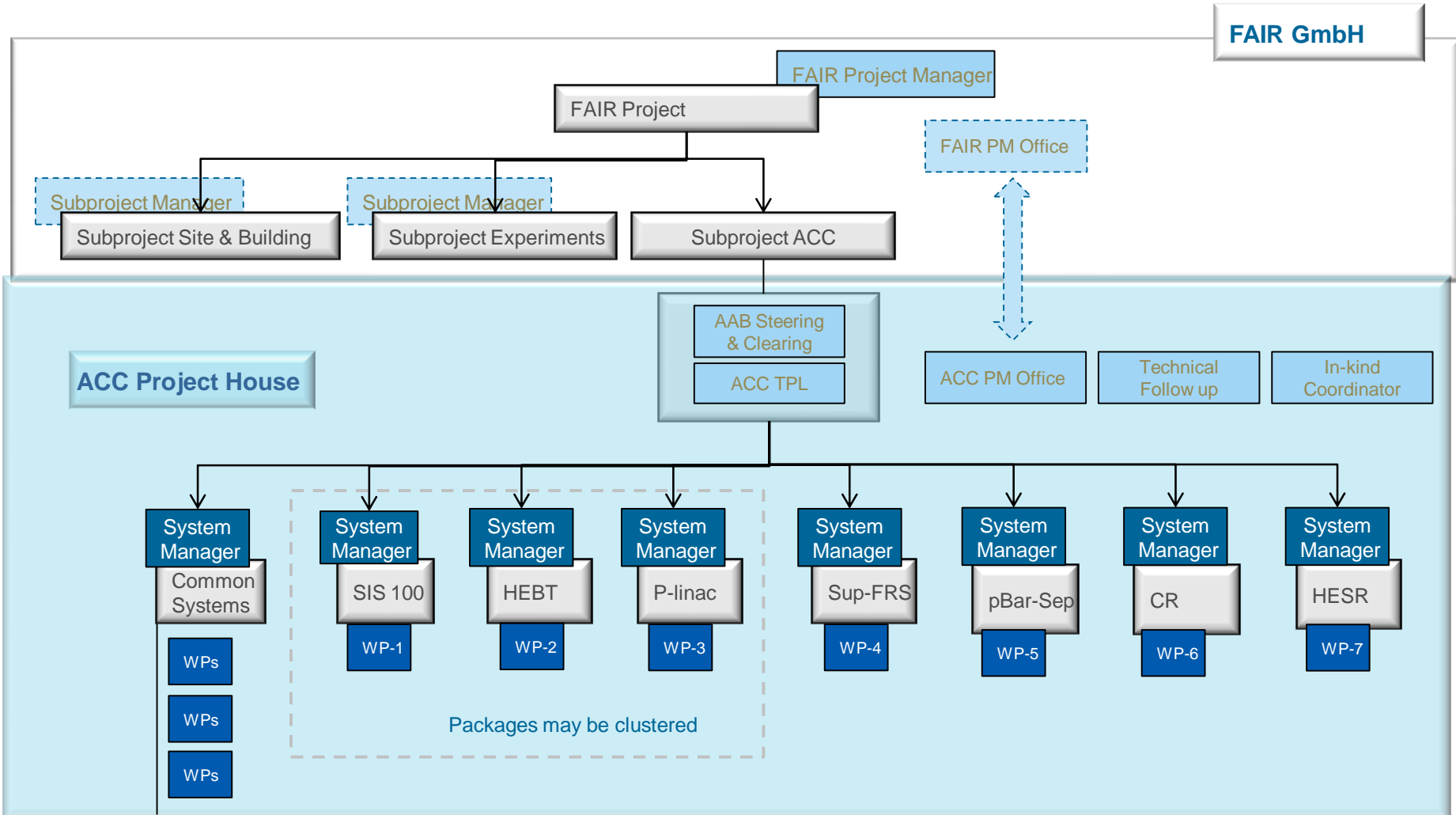
Administrative Division

- Official entry of FAIR GmbH into Commercial Register on 10/11/10 (HRB 89372)
- Finance
 - SAP accounting set up
 - Cost centres implemented
 - Budget planning tool set up
- FAIR Council
 - Procedures and policies documents
- Recruitment
 - Job offers published for
 - Finance Officer
 - Legal Advisor
 - 3rd Party Funding Officer

Site and Buildings Division

- Kick-off 2nd Planning Phase on 22/9/10
- Regular meetings with Users to:
 - finalise details of buildings
 - include details of media transport into buildings
- Target: Application for Buildings Permit in May 2011
- In parallel: Application to Radiation Safety Authority
- Establishment of Change Management System
- Milestone
 - December 2011: Begin of site preparation
- Recruitment
 - Director Site & Buildings Division

Technical Division



Technical Division cont'd

- Documents under discussion
 - Accelerator Construction Agreement
- In preparation
 - Technical Specifications for in-kind contracts
 - Procurement of non-in-kind components
 - Super-FRS, SIS100 in 2011
- Meetings with
 - Polish cryo-experts, Dec. 2010
 - Indian experts, Jan. 2011

Research Division

- **Leading FAIR scientists in Collaborations**
 - Nominations by Collaborations of
 - Technical Coordinator
 - Resource Coordinator
 - Approval by Research Director
- **FAIR Collaborations Committee established**
 - Interface FAIR management - Collaborations
 - Two representatives each from APPA, CBM, NuSTAR, PANDA
- **Recruitment**
 - Director of Research Division

Collaborations

- Finish R&D phase 2011
 - Deliver prototypes of all essential parts
- **Submit complete sets of TDRs** 2011
 - Take decisions on alternative technical solutions
- Co-ordinate with 2011
 - Civil construction requirements
 - Accelerator setup schedule
- Identify critical pathways 2011
 - Milestones, timelines, deliverables
- Submit risk management plan 2011
- **Secure funding** 2011/12
- Negotiate MoU with FAIR 2011/12
- (Europe-wide) tendering 2012
- **Build detector** 2013-16
- Commission detector 2017
- Initial period of data taking 2018-20

External Relations

- **MoUs with**
 - CERN, signed on 18/11/10
 - GSI and Institute for Applied Physics (RAS), Nishnij Novgorod, in preparation
- **Discussion to join FAIR started with**
 - Norway
 - Brazil
 - Israel
- **Visits**
 - Swedish Research Council
 - Additional funding of experiments by Wallenberg Foundation?

Fund Raising

- Potential new international partners
 - Saudi Arabia
 - Brazil
 - Turkey
 - Hungary
- Increasing contributions to FAIR from
 - China
 - India
 - Italy
- EU FP7/8 Programmes
 - R&D via Integrating Activities in FP7
 - HadronPhysics2 & HadronPhysics3
 - ENSAR
 - EU contribution to construction costs in FP8?
- Further cost optimisation
 - Accelerators & experiments
 - Implementation of MAC recommendations already in 2010

Vielen Dank!