

Status of FAIR



Content:

- (Political) Status of the Project
- Status on Accelerators
- Status Civil construction



Helmholtz Centre for Ion Research



D. Krämer, HESR Collaboration Meeting , December 8, 2008



FAIR Start Version Launched

November 7, 2007



German Minister Ms. Schavan on November 7, 2007

Partners signing communiqué:

Austria, Germany, Spain, Finland, France, Poland,
Romania, Russia, Sweden, Great Britain and State of Hesse

Communiqué on the Official Launch of the Facility for Antiproton and Ion Research (FAIR)

Darmstadt, 07 November 2007

Representatives of the FAIR partner countries have met in Darmstadt today, 07 November 2007, to jointly announce the beginning of the realization of the FAIR project in Darmstadt. The FAIR partner countries have issued statements on their intended contributions to funding FAIR. Furthermore, the signatory representatives declare the following:

 Dr. A. Stoklasa Federal Ministry of Science and Research Austria	 Dr. A. Schavan Federal Minister of Education and Research Germany
 J. Donceel Ministry of Education and Science Spain	 M. Arajärvi Ministry of Education Finland
 Dr. G. Bloch Director-General Ministry of Higher Education and Research France	 Dr. O. Gaj Ministry of Science and Higher Education Poland
 Prof. Dr. A. Anlon President of the National Authority for Scientific Research Romania	 V.I. Rachkov Federal Agency for Atomic Energy Russian Federation
 Mats Johansson Ministry of Education, Research and Culture Sweden	 Prof. Dr. J. Womersley Science and Technology Facilities Council United Kingdom
 R. Koch Minister-President State of Hesse	

FAIR Start Event

November 7/ 8, 2007



- 1400 international participants
- 500 international scientists attended the symposium on the Physics of FAIR

FAIR – Resolution by ISC



October 2007

FAIR Start Version - Resolution of the International Steering Committee (ISC)
October, 17 2007 reacting on the status of secure funds

The ISC appreciates the efforts of the STI in defining a FAIR start version that allows to achieve major scientific goals. It approves the recommended FAIR start version with a volume of 940 M€. The ISC underlines that already this start version allows to build a world-leading facility in its scientific domains. However, the ISC urges all interested partners to provide further resources in due time in order to realize the full version according to the Baseline Technical Report as soon as possible.

FAIR – Annex 1b to Convention

April 2008: accepted by AFI & STI and ISC on May 14, 2008

Draft: Convention

concerning the construction of the

FACILITY FOR ANTIPROTON AND ION RESEARCH
FAIR

Annex 1B:

Description of the FAIR Start Version to be constructed first

Preface

Based on available commitments to fund FAIR, a Start Version of 940 M€ will be constructed first which will allow major scientific goals to be achieved and will permit to start construction of a world-leading facility in its scientific domains without delay.

It is important from the scientific point of view and intended to construct the full FAIR facility as described in Annex 1A to the FAIR Convention as soon as funding for the items not contained in this Start Version is secured, and if the FAIR Council decides so.

Below, the description of the FAIR Start Version is presented. In the present document, Phase B refers to items not included in the Start Version. It has to be understood that this Annex 1B forms a complement to the original Annex 1A and should not be considered a stand-alone document. All prices given in this document are 2005 values as provided by the FAIR Cost Book.

De-scoping of accelerators within the Start Version:

The following accelerators and beamlines are not to be realized within the Start Version:

- HESR Electron COOLER
- SIS18 beamline to HESR
- SIS18 beamline to PP
- ER (ring&linac)
- APPA high-energy beamlines
- SIS300 and cryo-infrastructure
- De-scoping of SIS100 RF¹

Realization of Accelerator Components in the Start Version

Accelerator Components

Super-Fragmentseparator (Super-FRS)

Collector Ring (CR)

New Experimental Storage Ring (NESR)

Proton Linear Accelerator

Heavy-Ion Synchrotron SIS 100 (w/o Stage B Radio Frequency)²

Antiproton Target and Separator

Recycled Experimental Storage Ring (RESR)

High-Energy Experimental Storage Ring (HESR),
w/o Electron Cooling facility

Beam Lines

SIS 18 to FAIR accelerators (w/o HESR and PP)

SIS 100 Connection Beam Lines

SIS 100 to Super-FRS

SIS 100 to Antiproton Target

SIS 100 to CBM

Plasma Physics Beam Lines from SIS 100

Beam Lines between Super-FRS and CR

Beam Lines between CR and RESR / NESR

Beam Lines between RESR and HESR

Beam Lines from Super-FRS to NUSTAR experiments

Beam Lines from NESR to SPARC/FLAIR experiments



What Happened Since?

Convention on FAIR Finalized

October 1, 2008, ISC:

Final text for Convention, Annexes and AoA approved.

15 Partners:

**Austria, China, Finland, France, Germany, Greece,
India, Italia, Poland, Romania, Russia, Slovenia,
Spain, Sweden, Great Britain**

FAIR-CONVENTION081001

The Government of the Republic of Austria,

The Government of the People's Republic of China,

Republic of Finland,

Republic,

Republic of Germany,

Republic,

of India,

Public,

Poland,

eration,

Slovenia,

Spain,

Sweden,

of Great Britain and Northern Ireland,

hereinafter referred to as 'Contracting Parties';

Desiring to further strengthen Europe's and States of the Contracting Parties' position in research in the world, and to intensify scientific co-operation across disciplinary and national boundaries;

Recognizing that a worldwide unique and technically innovative accelerator system will be in future of great significance in many different fields to perform forefront research in the sciences concerned with the basic structure of matter and in intersection with other fields;

Expecting other countries to participate in the activities which they intend to undertake together under this Convention;

Having decided to promote the construction and operation of a Facility for Antiproton and Ion Research in Europe for the use of the international scientific communities, based on criteria of scientific excellence;

Have agreed as follows:



Signing of Convention & GER – RUS Declaration

October 3, 2008

Article 8

CONTRIBUTIONS

- (1) The German Contracting Party shall make available for the Company's use, free of charge and ready to build on, the site in Darmstadt marked on the plan attached as Annex 4.
- (2) At the time of signing this Convention, the Contracting Parties enter into the following commitments to contribute towards construction costs in cash and / or in kind, the following amounts (all amounts referring to January 2005 prices):
- 5.00 M€ by the Republic of Austria
 - [12.00] M€ by the People's Republic of China,
 - 5.00 M€ by the Republic of Finland,
 - 18.00 M€ by the French Republic,
 - 705.00 M€ by the Federal Republic of Germany,
 - [4.00] M€ by the Hellenic Republic,
 - 36.00 M€ by the Republic of India,
 - [42.00] M€ by the Italian Republic,
 - 23.74 M€ by the Republic of Poland,
 - 11.87 M€ by Romania,
 - 178.05 M€ by the Russian Federation,
 - [6.00] M€ by the Republic of Slovenia,
 - 19.00 M€ by the Kingdom of Spain,
 - 10.00 M€ by the Kingdom of Sweden,
 - [8.00] M€ by the United Kingdom of Great Britain and Northern Ireland.

Sum of expected commitments:
1040 – [1082] M€

.. so is HESR Cooler in ??

Presse- mitteilung



Bundesministerium
für Bildung
und Forschung

HAUSANSCHRIFT Hannoversche Straße 28-30, 10115 Berlin
POSTANSCHRIFT 11055 Berlin

TEL. 030/18 57-50 50
FAX 030/18 57-55 51
E-MAIL presse@bmbf.bund.de
HOMEPAGE www.bmbf.de

03. Oktober 2008
171/2008

Russland steigert Engagement für Beschleunigeranlage FAIR 10. Deutsch-Russischen Regierungskonsultationen geben Forschungs- partnerschaft neue Impulse

Anlässlich der 10. Deutsch-Russischen Regierungskonsultationen in St. Petersburg haben Bundesforschungsministerin Annette Schavan und ihr russischer Amtskollege Andrej Fursenko am Donnerstag den weiteren Ausbau der deutsch-russischen Zusammenarbeit in Forschung und Technologie vereinbart. Im Rahmen dieser Zusammenarbeit wird Russland unter anderem sein finanzielles Engagement für die internationale Beschleunigeranlage FAIR in Darmstadt ausbauen und mit 178 Millionen Euro seinen Anteil an der Finanzierung auf 15 Prozent steigern. Hierzu wurde am Rande der Regierungskonsultationen eine Gemeinsame Erklärung von Schavan und dem Leiter der Staatlichen Vereinigung für Atomenergie der Russischen Föderation ROSATOM Sergei Kirjenco unterzeichnet.

Mit FAIR (Facility for Antiproton and Ion Research)

Bilateral declaration between
RUS and GER:
Russia will contribute 178 M€

Russland ist traditionell ein bedeutendes Partnerland in der Forschungs- und Technologiekooperation. Seit einigen Jahren schon steigert...



Big step forward on the international level:

- **Convention now within government for checking consistency of 7 languages (English, Spanish, Russian, Chinese, Italian, French and German)**
- **Signing Ceremony dicussed for April 2009 (XFEL in Feb. 2009)**
- **Founding of Project Owner ,FAIR GmbH' expected for May 2009**
- **Committed funds are about 1040 – 1080 M€ @ Jan. 2005 prices**
- **Thus FAIR Startversion (940 M€ @ 2005 prices)
is considered to be covered.**



Call on Eols on Accelerators

**to bring together the experience
and expertise of
FAIR partner labs**

Expressions of Interest on Accelerators

the process as planned in 2007

- Template for EoI to Lab. Directors on 10.10.07 ✓
- Return of EoI until 10.12.07 ✓
- Evaluation of proposals – countries commitments ✓
- IKAB Meeting ✓
- Lab. Directors meeting 15/16 January 2008 ✓
- **Formation on Working Groups for each machine**
- Evaluation by external experts
- Proposal to IKAB/ISC/Pre-Council
- Contracts on WPs between FAIR GmbH and labs

Aiming for start of pre-series/series production in 2008

Technical Meeting on Accelerators

March 31, 2008	HEBT
April 2,	ER
April 3,	NESR & RESR
April 4,	SIS100
April 7,	CR
April 8,	p-bar target & HESR
April 9,	Super-FRS
April 10,	SIS300
April 11,	p-linac

Participants: see WEB
as changing participants at meetings:

Agenda:

- Definition of General Rules for FAIR as agreed at AFI/ISC
- Overview on Expression of Interest
- Overview on machine

• Focus on Technical Systems:

- Magnets
- RF
- Injection/Extraction
- Diagnostics
- Vacuum

Short reminder of components and their specs

Statement of technical experts on EoI issued



Expression of Interests on FAIR Accelerators

Sept. 07 Call for Eols to FAIR Partners

Oct. 07 First Lab Directors Meeting at GSI

Jan. 08 Second Lab-directors Meeting at Protvino

Technical Experts Meeting at GSI on:

March 31, 2008	HEBT
April 2,	ER
April 3,	NESR & RESR
April 4,	SIS100
April 7,	CR
April 8,	p-bar target & HESR
April 9,	Super-FRS
April 10,	SIS300
April 11,	p-linac



Kick Off Pre-Collaborations

Mandate of ISC: Start pre-collaboration on dedicated FAIR accelerators

Kick Off Meetings on SIS100, September 15, 2008 at GSI
Super-FRS & CR Pre-Collaboration October 8 and 9, 2008.
HESR on Dec. 8, 2008



S-FRS Meeting



CR Meeting

All documents, presentations, protocols on the WEB:

<http://indico.gsi.de/categoryDisplay.py?categId=46>

Agenda of Meetings

SIS100 EoI-Meeting

Monday 15 September 2008

Welcome and Goals of the Meeting - Side Room Lect

- Speakers: Dr. KRÄMER, Hans-Dieter

Status SIS100 - Side Room Lecture Hall (new!!!) (1

- Speakers: Dr. SPILLER, Peter

Coffee Break - Side Room Lecture Hall (new!!!) (1

SIS100 EoIs - Confirmation - Side Room Lecture Hal

- Speakers: Mr. JACOBY, Wolfgang

Form and Status of Specifications - Side Room Lectu

- Speakers: Mr. KOLB, Hermann

Data Exchange - Rules, Procedures - Side Room Lect

- Speakers: Dr. RICHTER, Simone

Lunch - Side Room Lecture Hall (new!!!) (12:00-1:

Discussion of SIS100 Roadmap - 1 - Side Room Lectu

- Speakers: Dr. SPILLER, Peter

Coffee Break - Side Room Lecture Hall (new!!!) (1

Discussion of SIS100 Roadmap - 2 - Side Room Lectu

- Speakers: Dr. SPILLER, Peter

CR EoI-Meeting

Wednesday 08 October 2008

Welcome and Goals of the Meeting - Side Room Lecture Hall (

- Speakers: Dr. KRÄMER, Hans-Dieter

Status CR - Side Room Lecture Hall (09:20-09:40)

- Speakers: Dr. STECK, Markus

CR EoIs - Confirmation - Side Room Lecture Hall (09:40-09:5

- Speakers: Mr. KOLB, Hermann

Coffee Break - Side Room Lecture Hall (09:50-10:05)

Form and Status of Specifications - Side Room Lecture Hall (1

- Speakers: Mr. KOLB, Hermann

Data Exchange - Rules, Procedures - Side Room Lecture Hall (

- Speakers: Dr. RICHTER, Simone

Discussion of CR Roadmap - 1 - Side Room Lecture Hall (11:0

- Speakers: Dr. STECK, Markus

Lunch - Side Room Lecture Hall (12:35-13:35)

Discussion of CR Road Map - 2 - Side Room Lecture Hall (13:

- Speakers: Dr. STECK, Markus

Coffee Break - Side Room Lecture Hall (14:35-14:50)

Super FRS EoI-Meeting

Thursday 09 October 2008

Welcome and Goals of the Meeting - Side Room Lecture Hall (09:00-09:20)

- Speakers: Dr. KRÄMER, Hans-Dieter

Status Super FRS - Side Room Lecture Hall (09:20-10:25)

- Speakers: Dr. WINKLER, Martin

Coffee Break - Side Room Lecture Hall (10:25-10:40)

Super FRS EoIs - Confirmation - Side Room Lecture Hall (10:40-10:50)

- Speakers: Mr. KOLB, Hermann

Form and Status of Specifications - Side Room Lecture Hall (11:00-11:30)

- Speakers: Mr. KOLB, Hermann

Data Exchange - Rules, Procedures - Side Room Lecture Hall (11:30-12:00)

- Speakers: Dr. RICHTER, Simone

Lunch - Side Room Lecture Hall (12:00-13:00)

Discussion of Super FRS Roadmap - 1 - Side Room Lecture Hall (13:00-14:30)

- Speakers: Dr. WINKLER, Martin

Coffee Break - Side Room Lecture Hall (15:00-15:15)

Central Message from the Meetings

- The participating partners are able, willing and prepare to realize their Eols
- The present Master Schedule (e.g. first experiemnts at Super-FRS in 2013/2014) is realistic **if** work starts in Jan. 2009
- Taking up the work requires funds to the participating labs.

As any in-kind contributor is funded by his agency directly:

- no cross financing for in-kind contributions
- some labs expect start of work in 2010 earliest due to informations by their funding agencies.

We urgently need founding FAIR GmbH

>80% of Accelerator Work Packages are Covered for FAIR Startversion

Summary of Eol on Accelerators vs. FAIR Partner Country and vs. Subprojects

According to Technical Meetings April 2008/ V. Jacoby 29.05.2008

Update according to Cost Book Version 5/V. Jacoby 11.09.2008

	Subproject										Countries
Country	HEBT	S-FRS	CR	NESR	p-LINAC	SIS100	pBar TARGET	RESR	HESR	COMM SYST	Sum
Costbook value	46.418	69.126	33.519	23.815	13.222	74.604	6.006	18.444	44.576	100.265	429.995
Austria											0
China		1.411	3.907								5.318
Finland											0
France					821						821
Germany	6.110	6.099	10.232	1.782	12.401	25.140	551	4.343	44.576	100.265	211.499
Great Britain											0
Greece											0
India		7.290			13.322						20.612
Italy											0
Poland		6.917				8.135					15.052
Romania	389	145				853					1.387
Russia	22.282	6.049	15.893	9.286	205	22.661		1.091			77.467
Slovenia											0
Spain		24.432									24.432
Sweden											0
Absolute	28.781	52.342	30.032	11.068	13.222	56.789	551	5.434	44.576	100.265	369
Relative	62,0%	75,7%	89,6%	46,5%	100,0%	76,1%	9,2%	29,5%	100,0%	100,0%	60

Actual:



What Happened to System Design ?

Technical Background Documents

FAIR Baseline Technical Report

March 2006

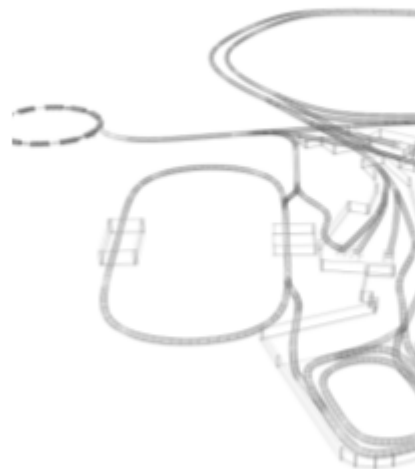
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Accelerator

Parameter List

of the International Facility for
Antiproton and Ion Research
FAIR



Helmholtz Centre for Heavy Ion Research

Version 1.0
October 22, 2005



FUR

SCHWERIONENFORSCHUNG



FAIR - Facility for Antiproton and Ion Research

Technical Design Report

Collector Ring (CR)

March 2008



Machine Advisory Committee

Chairman of ISC invited world-leading experts for participation in MAC

Chairman: Lyn Evans (LHC)

Date for Meeting under discussion (beginning of 2009)

Review of FAIR Accelerator TDRs

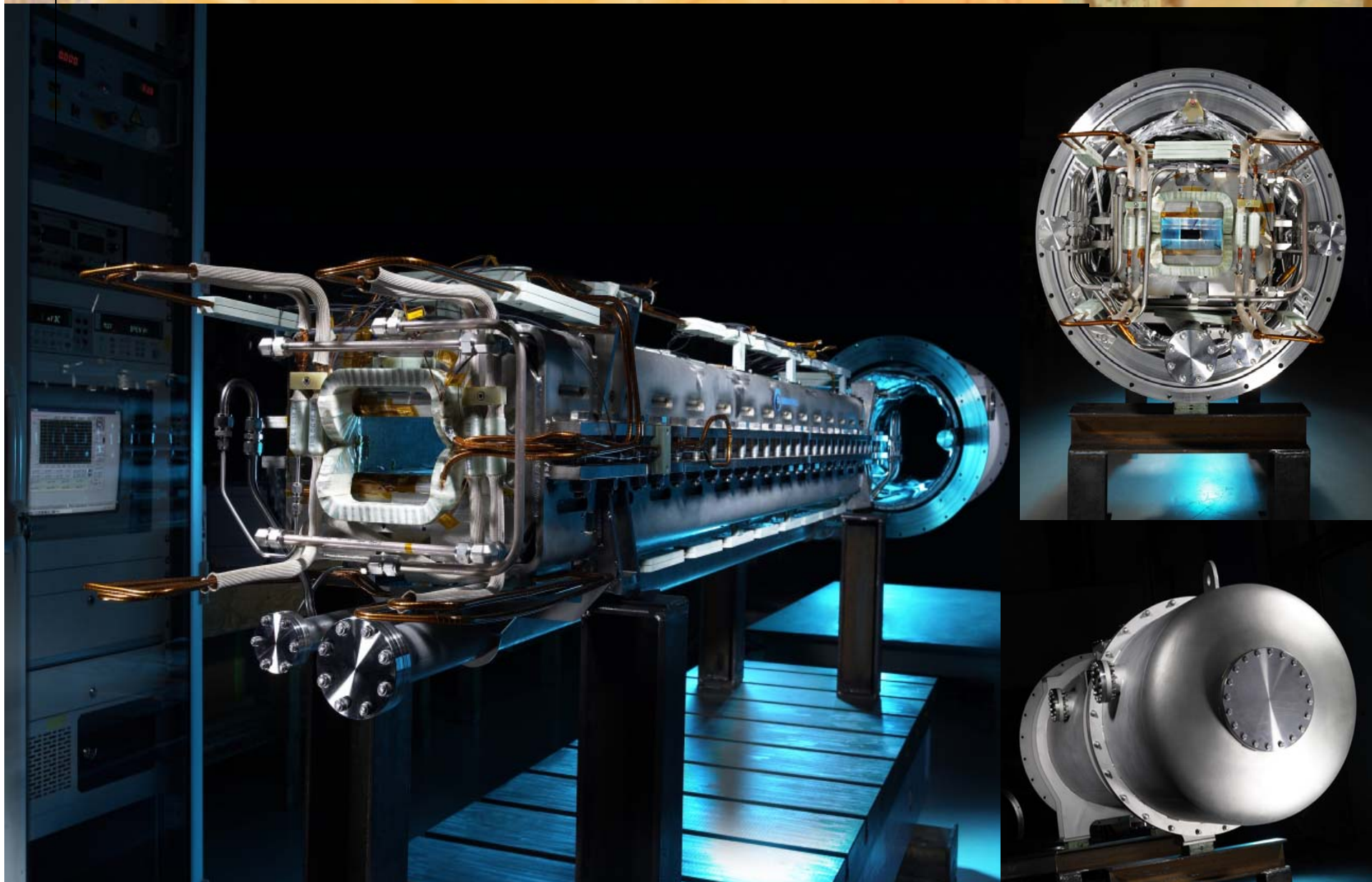
Technical Design Reports on
SIS100, CR, NESR, RESR, HESR,
Super-FRS, HEBT available



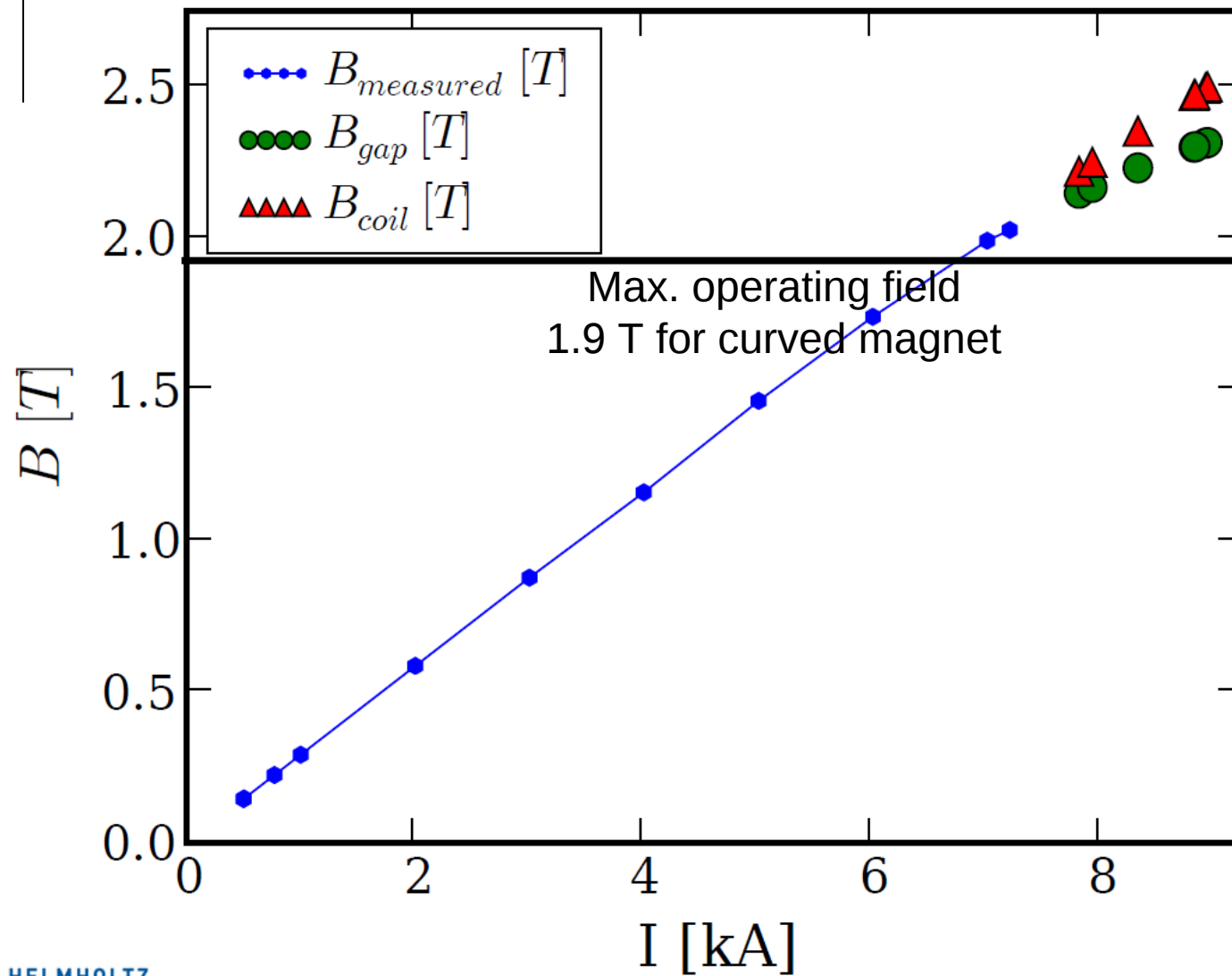


What Happened to Component R&D ?

Long-Term Test of SIS100 Prototype in Progress



DC Performance of BNG Prototype

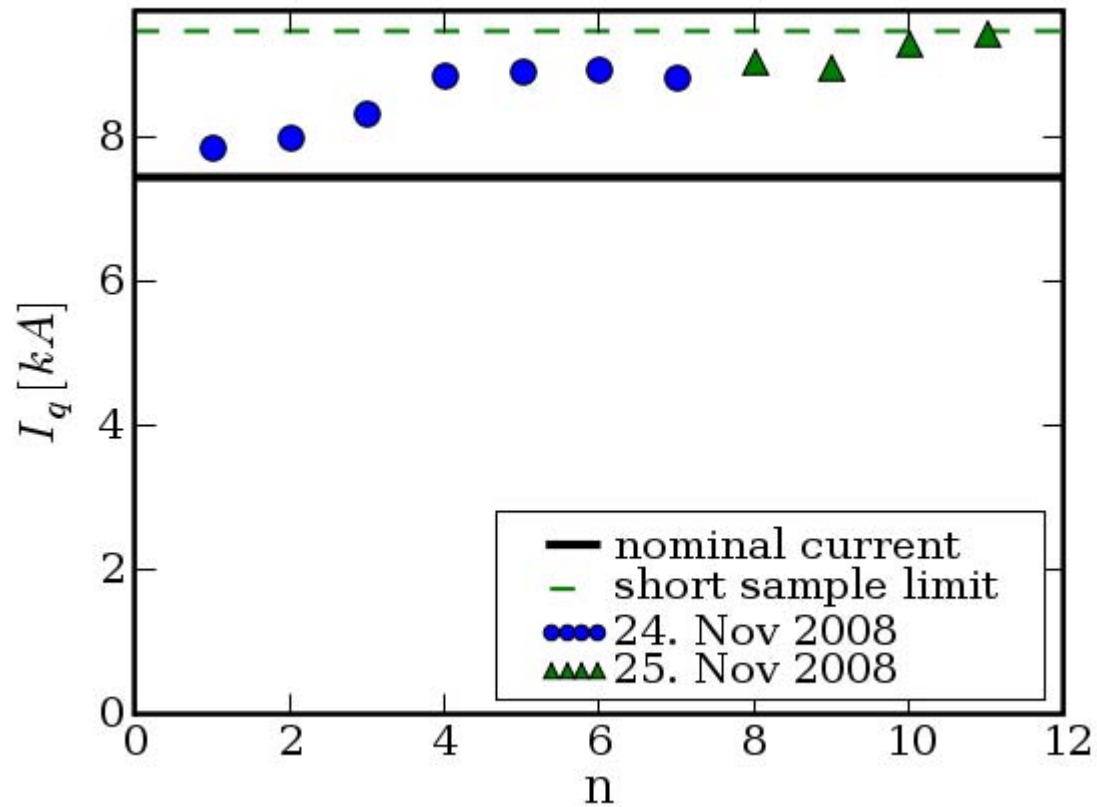


measured
load line up
to nominal
current

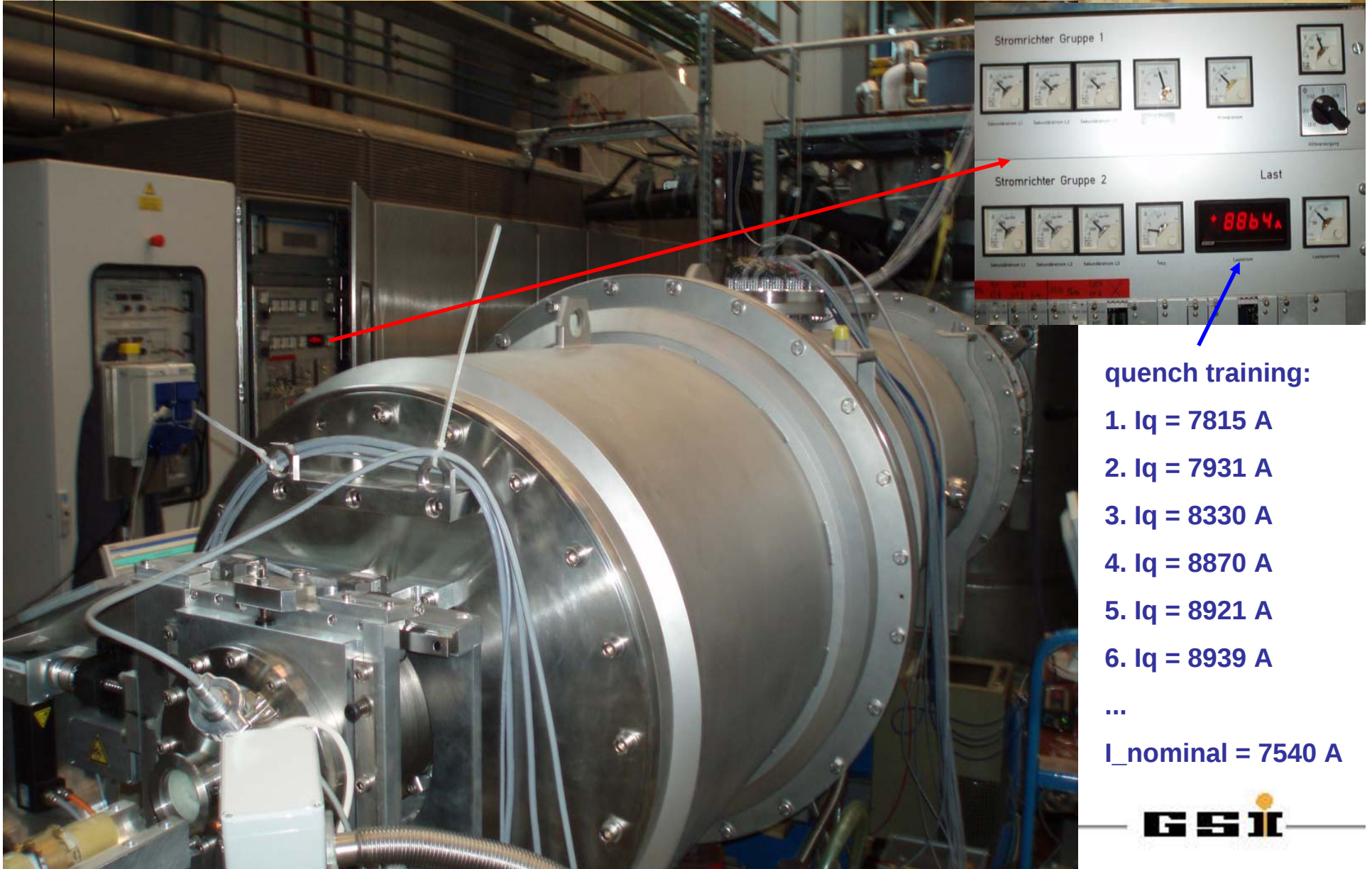
and

first quench
training data

Short Sample Limit Reached



AC Performance of BNG Prototype



quench training:

1. $I_q = 7815 \text{ A}$

2. $I_q = 7931 \text{ A}$

3. $I_q = 8330 \text{ A}$

4. $I_q = 8870 \text{ A}$

5. $I_q = 8921 \text{ A}$

6. $I_q = 8939 \text{ A}$

...

$I_{\text{nominal}} = 7540 \text{ A}$

AC Performance of BNG Prototype

Nom. Field 1.9 T

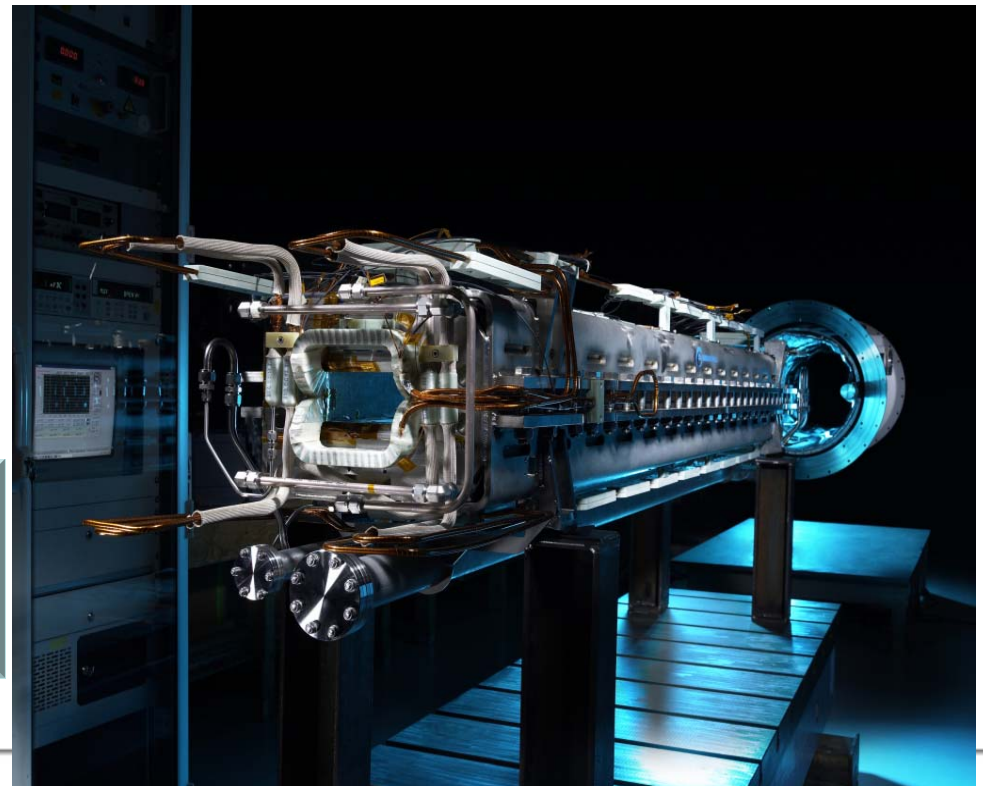
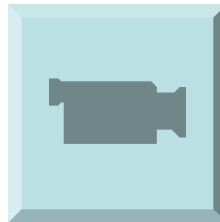
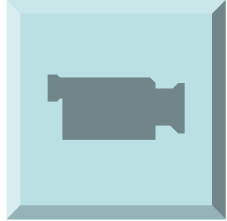
Nom. Current 7540 A

Ramp rate 4T/s

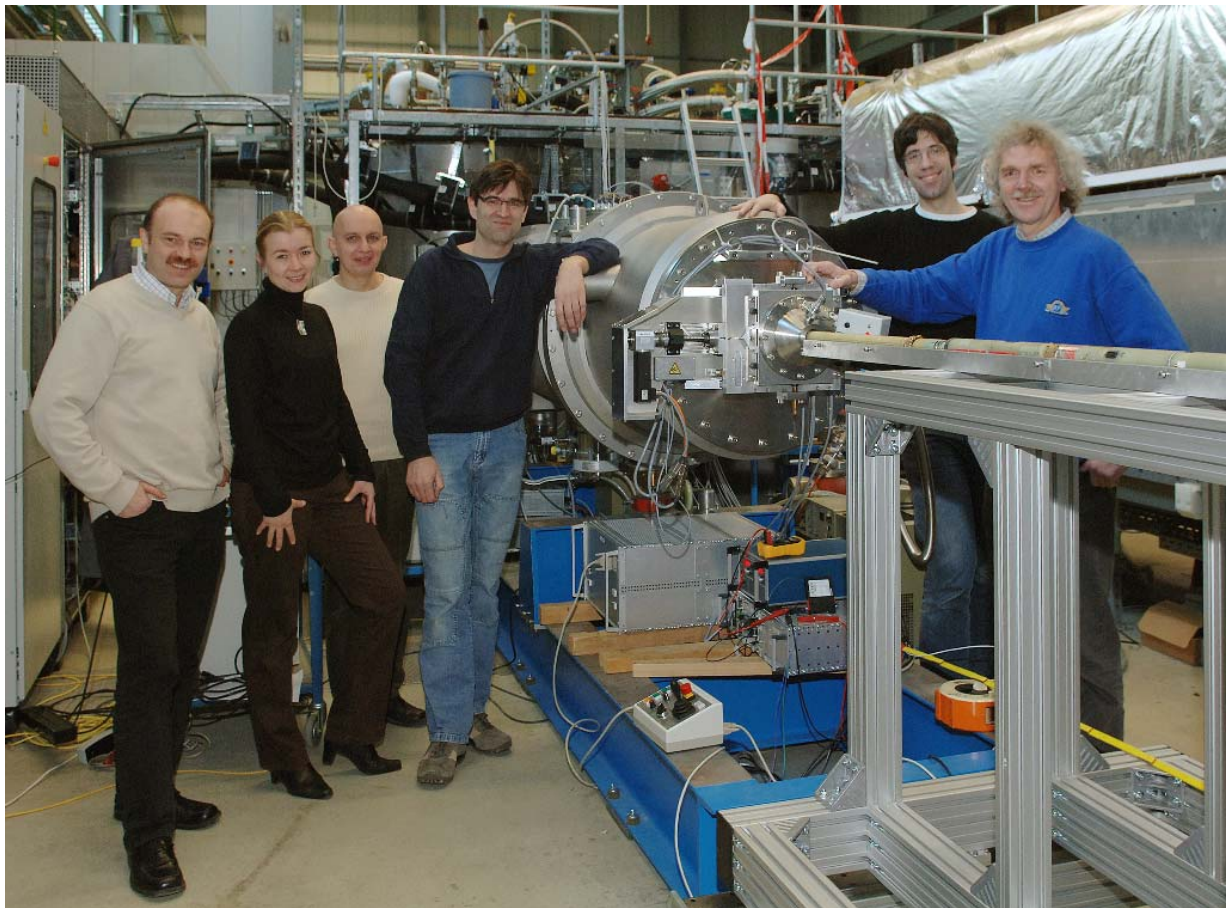
Max. current ramp 15000 A/s

at $1/f = 2.55$ s

Now running for 170h without problems



The Testing-Crew at GSI

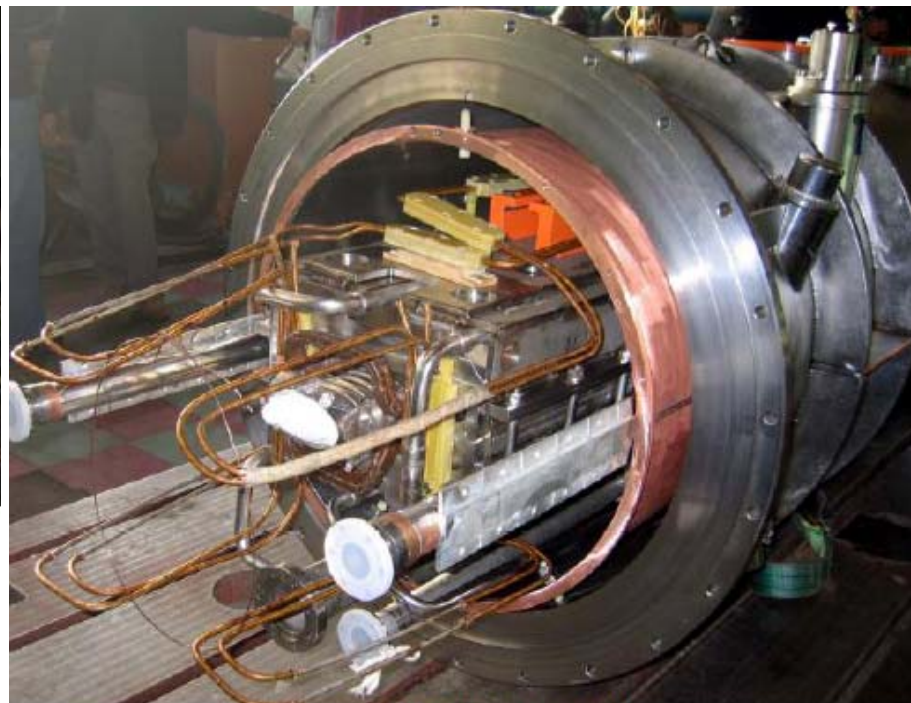


Credit to: E. Fischer, G. Sikler, P. Schnizer, A. Mierau, E. Floch, A. Stafiniak, C. Schroeder, F. Walter and Co.

BINP Curved Prototype Assembled



curved magnet



Magnet inserted into cryostat



Insertion of the magnet into cryostat

Prototype delivered, assembled,
but ..

Crack in a Welding Seam at LHe Cooling Line

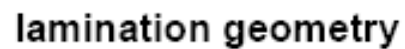


Shield will be redone

Start of Test: March 2009



HELMHOLTZ
GEMEINSCHAFT



**Ready for tests of full length
main magnets produced
at JINR Dubna:**

May be delayed



Super-FRS Dipole Prototypes



Dipole half-yoke at IMP



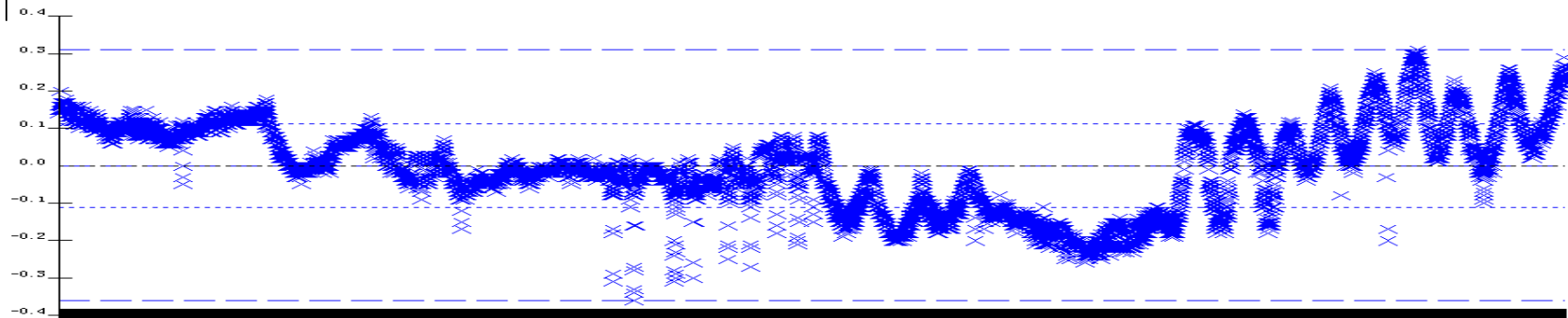
Superferric dipoles by FAIR China Group

China/GSI funded

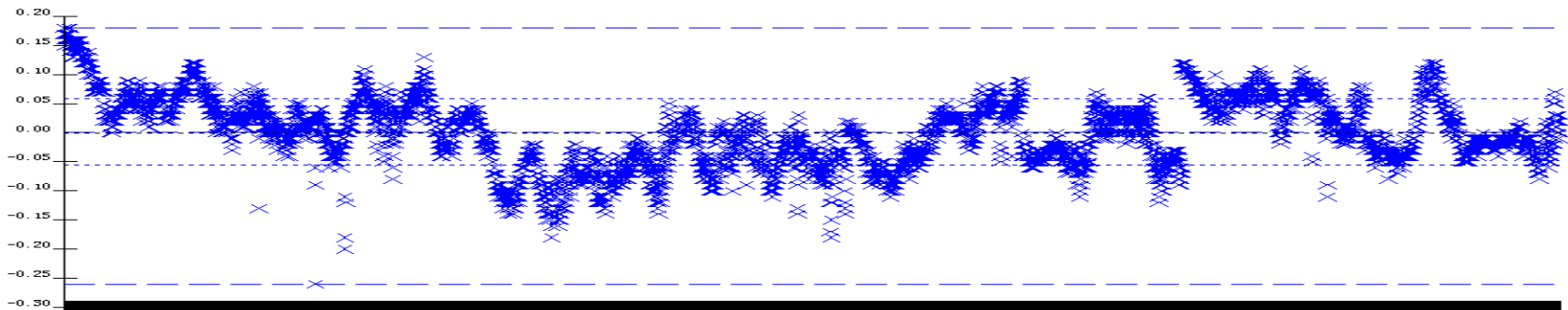
- Yoke ready
- Coil reads
- cryostat under production
- Tests scheduled for early 2009



Yoke Flatness - First Results



Upper yoke flatness about 0.20mm

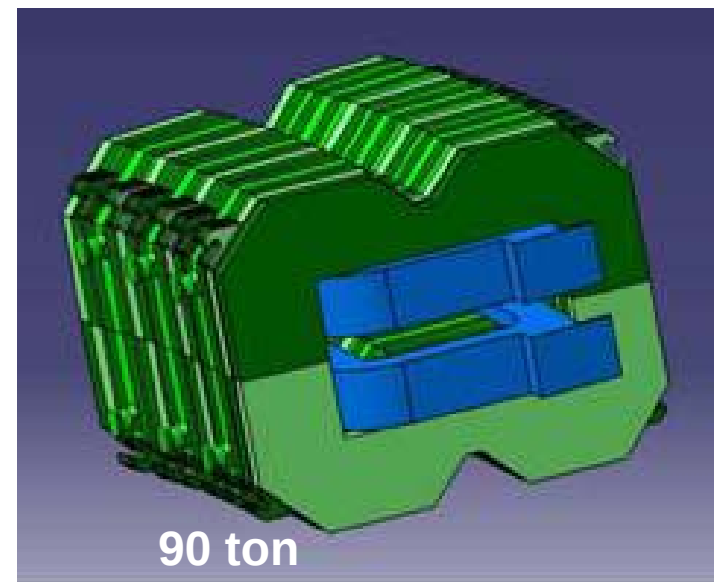


Lower yoke flatness about 0.30mm

Radiation resistant nc dipoles near production target

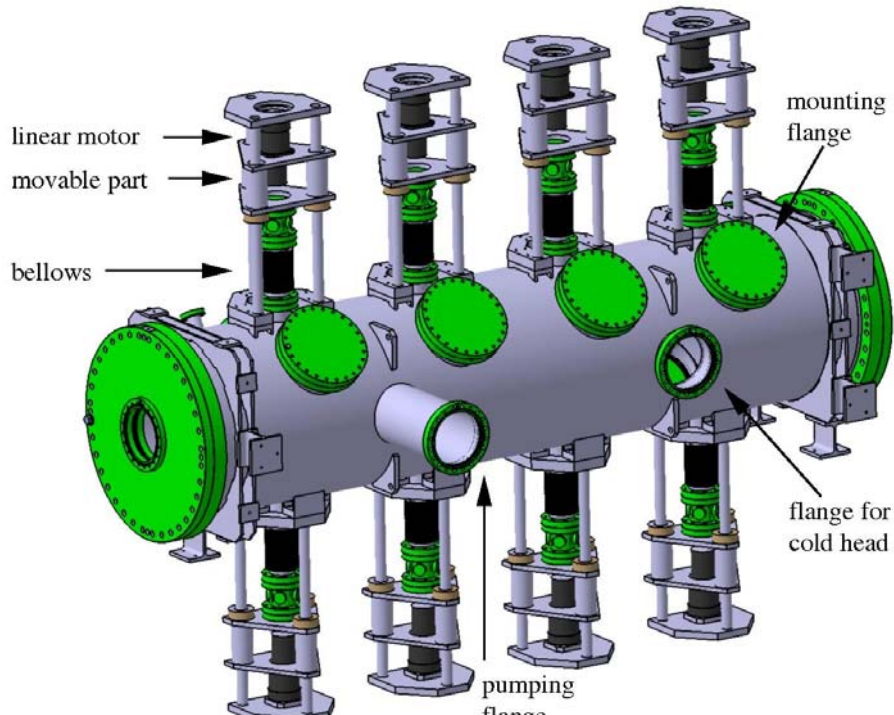


BINP Novosibirsk

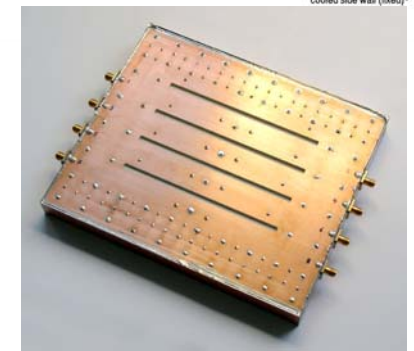
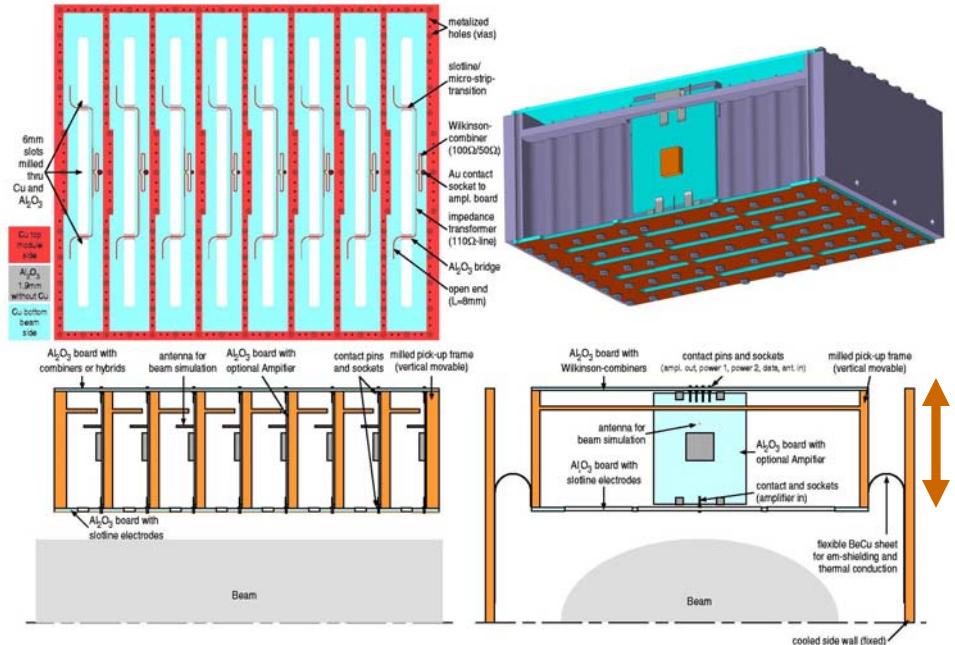


Stochastic Cooling Developments

vacuum tank
with movable electrodes
including cold heads (20 K) and
cooled pre-amplifiers



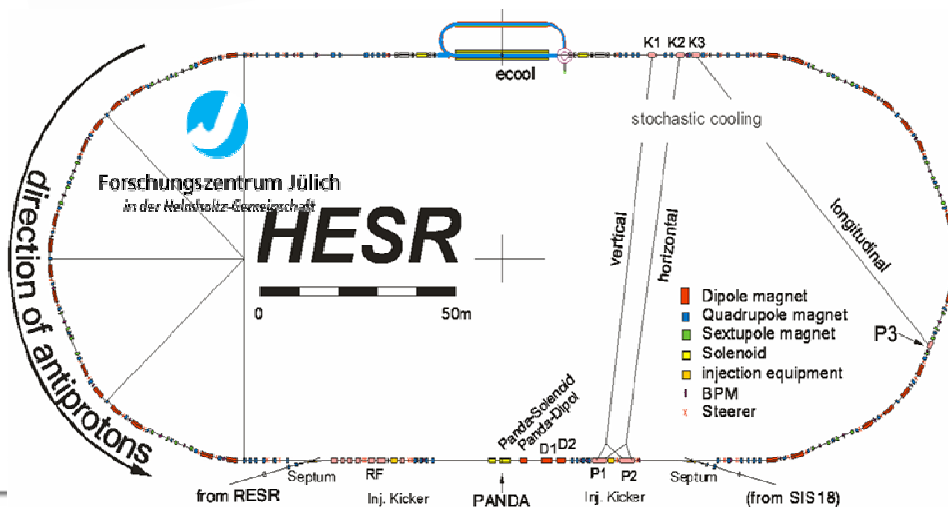
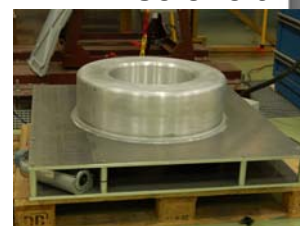
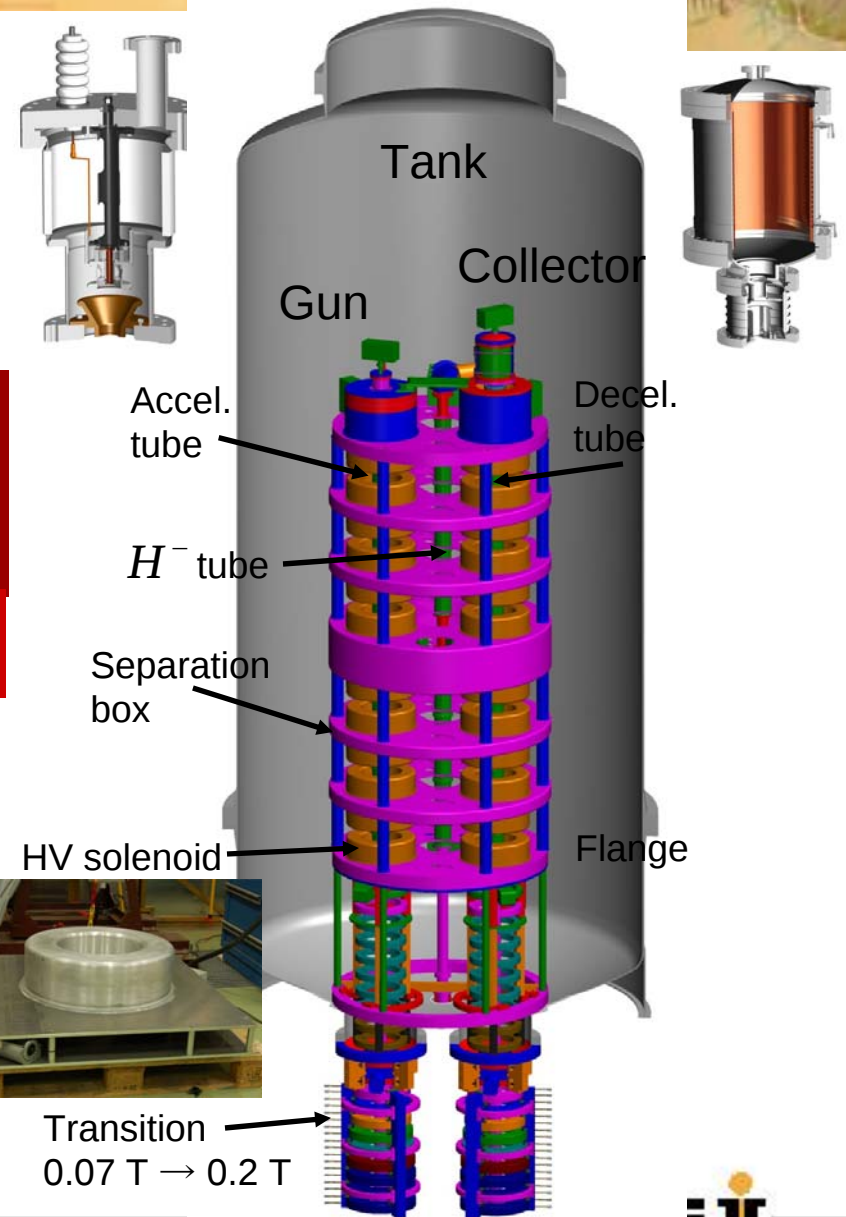
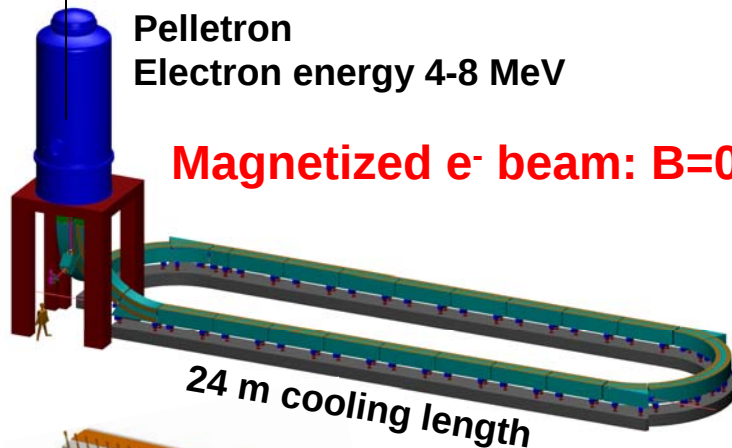
**CR: fast stochastic cooling (1-2 GHz)
of antiprotons (10 s) and RIBs (1.5 s)**



prototype electrode
($\beta = 0.83-0.97$)

GSI

HESR High-energy Electron Cooler





SIS300 Prototyping Review

ISTITUTO NAZIONALE DI FISICA NUCLEARE



Sezione di Genova
Sezione di Milano
Laboratori Nazionali di Frascati



THE TECHNICAL DESIGN REVIEW OF THE SUPERCONDUCTING MODEL DIPOLE FOR FAIR SIS300

Review Committee

L. Rossi – CERN (Chair)
L. Bottura – CERN
S. Saspi – LBNL
A. Devred – ITER
D. Tommasini - CERN

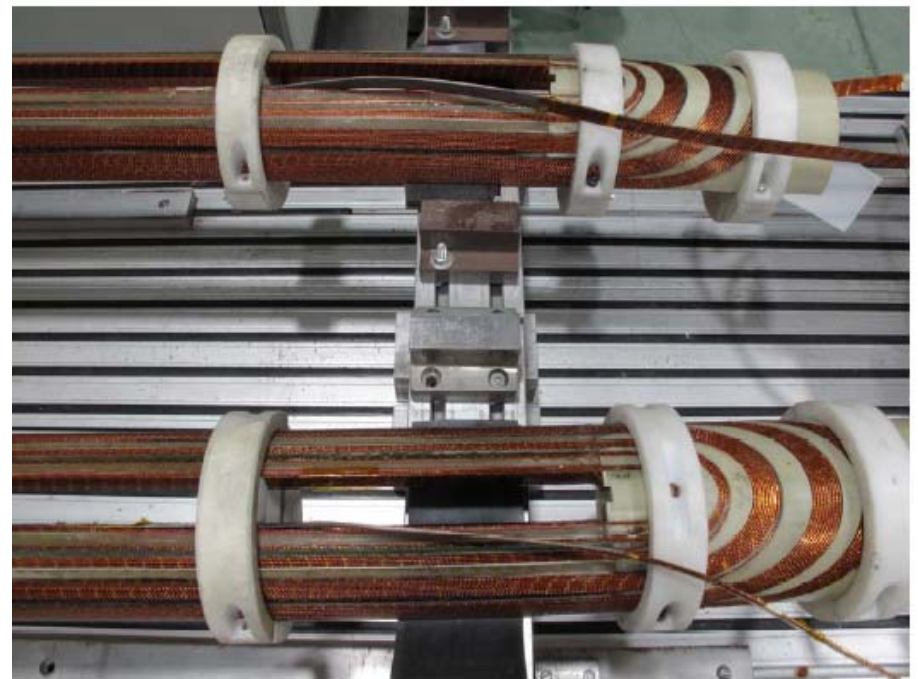
Genova, November 12-13, 2008



Excellent Coils Manufactured at INFN & ASG



The two curved poles



Detail of the coil ends

Mechanical excellent coils built
Filaments of sc wire not final ..



FAIR Civil Construction progresses

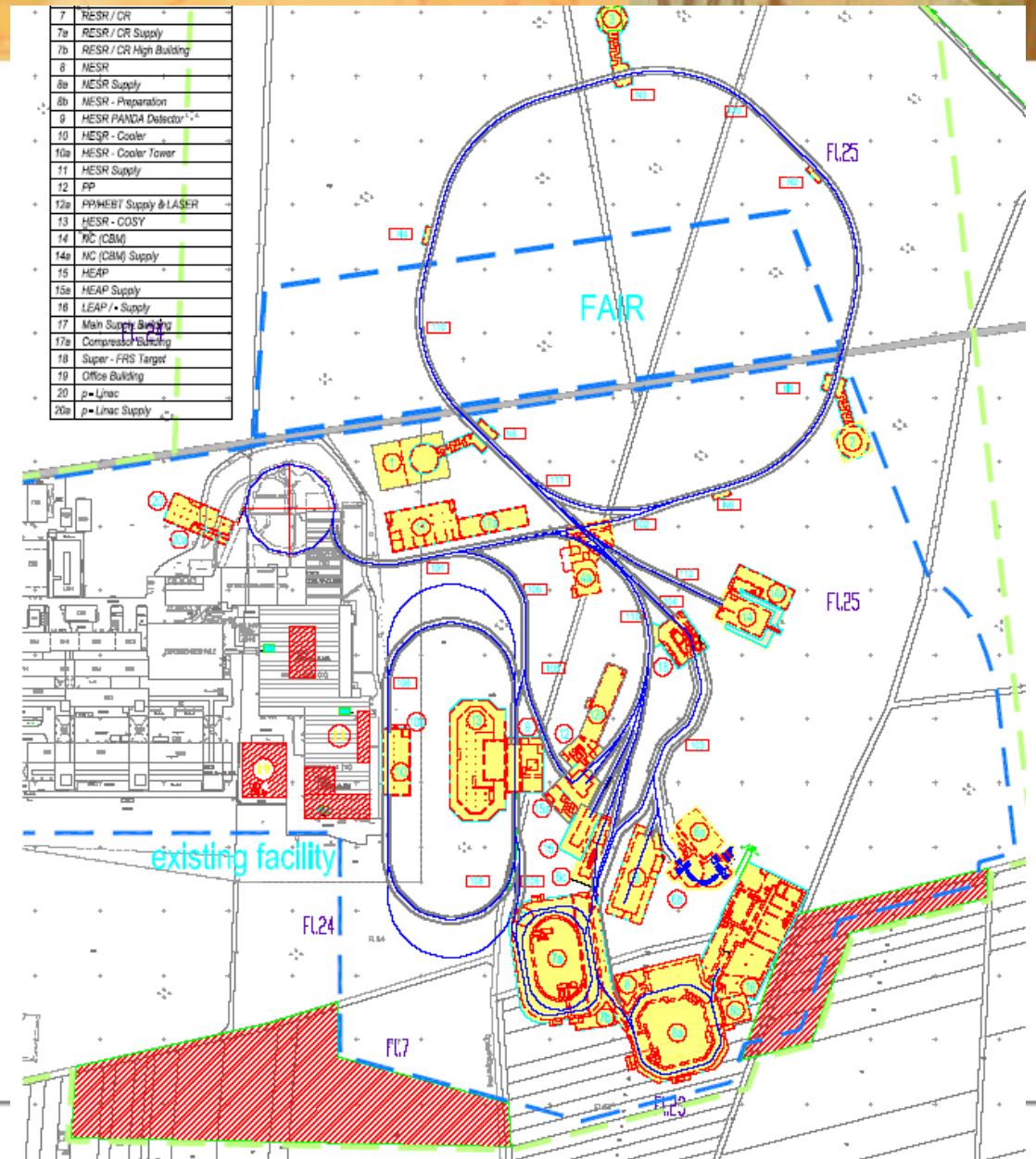
“Latest” FAIR-Topology

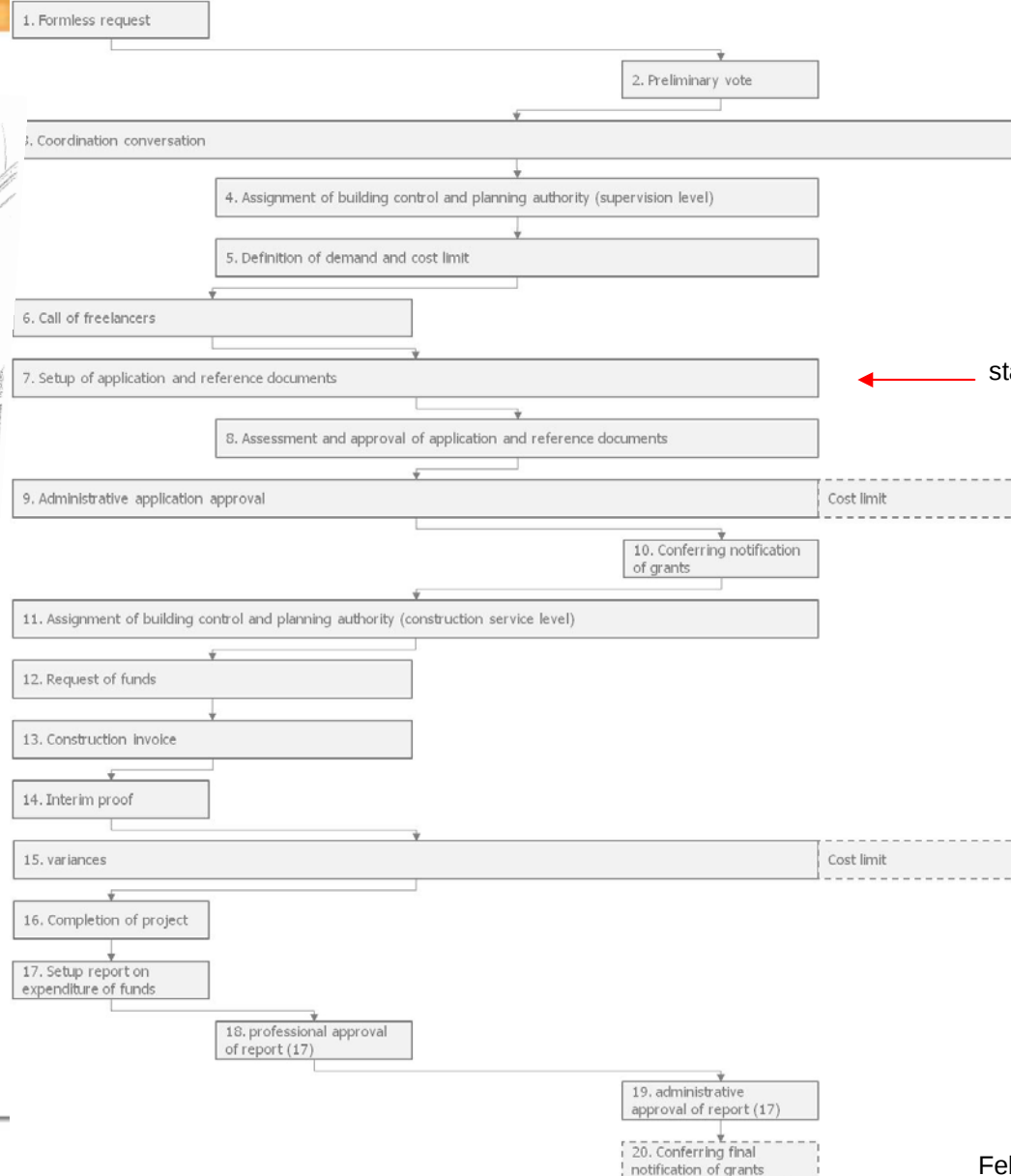
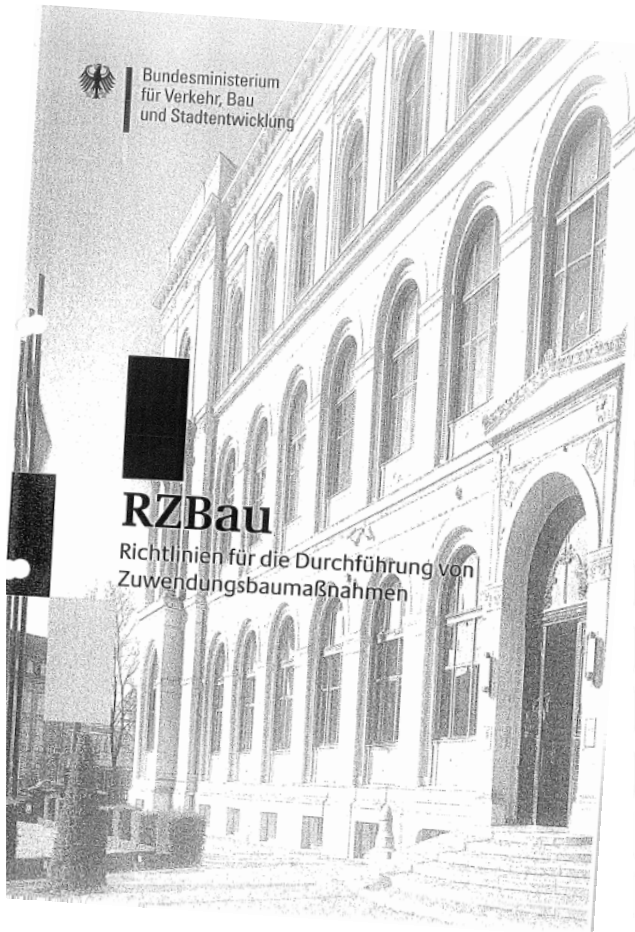


Optimized optics

- latest Super FRS layout
- latest HESR layout
- option for HESR upgrade
- p-transfer line to NESR
- option for p-bar transfer line to ER

Frozen since April 2008





mid 2008

March 2009

Feb. 2010

Detailing of Civil Construction in Progress

By FCC Group within GSI FAIR Division

CC Steering Co.

after EU wide tender
process (VOF) decided.
(Drees & Sommer)

CC Planning Co.

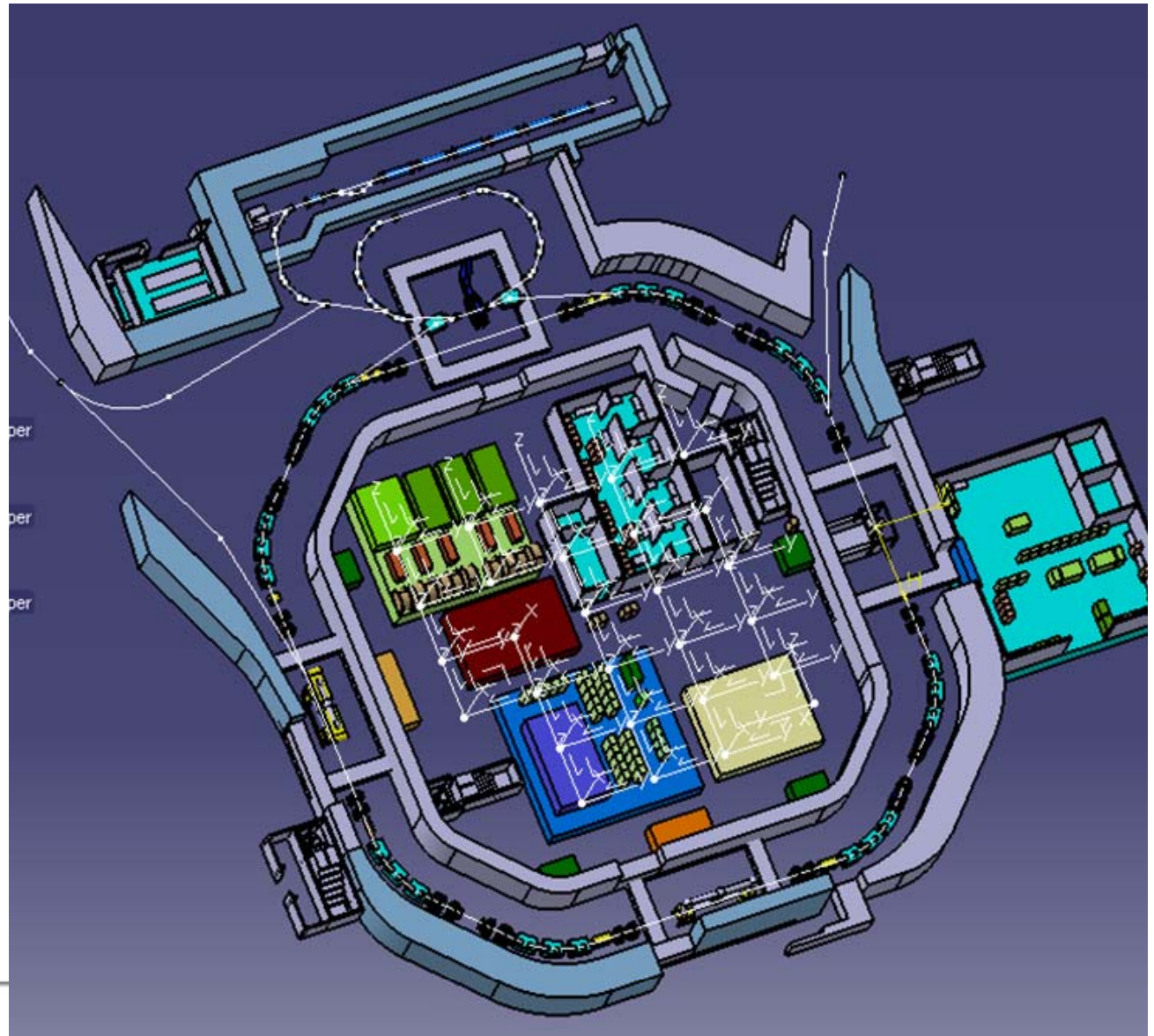
Starting in May 08
EU wide tender in progress

Application to **start legal**
ZBau procedure handed to
BMBF/BMVBS/BMF

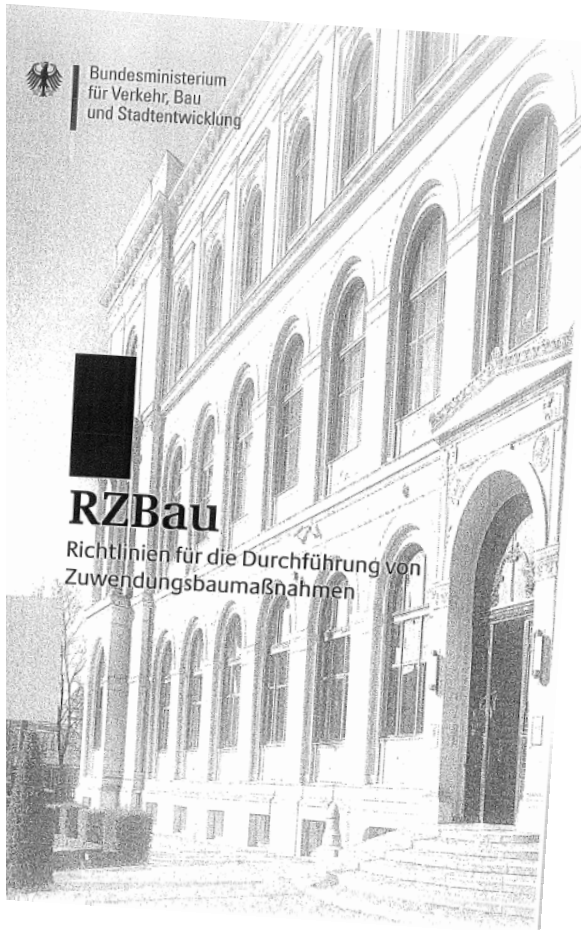
Aiming for:

All permits available end of
2008

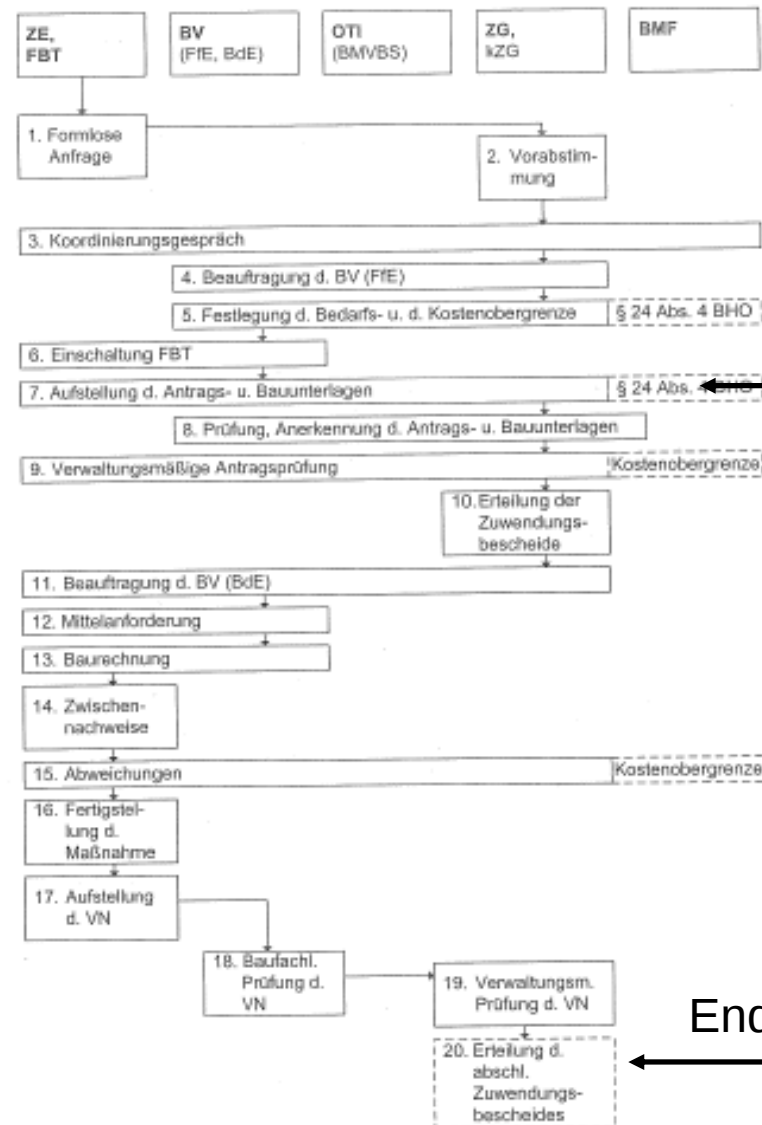
Should allow FAIR GmbH to
start of site preparation and
ground breaking in 2009
– CC within 36 month
(2010 – 2013).



Legal Process in Civil Construction



Verfahrensschema



Status as of today

Aim for Feb 2009

End of CC (2013)

Architect Contract Awarded

on July 22, 2008

Beauftragte Planungsbüros

Ion42 GBR, Frankfurt am Main
bestehend aus:
DGI Bauwerk – Gesellschaft von Architekten mbH,
Berlin und
Schneider + Schumacher Architekturgesellschaft mbH,
Frankfurt



GSI Director & FCC Head signing the
Contract with Architects “Ion42 GBR”

Also contracts with „planners“
signed in the meanwhile

Contracts to 14 Engineering Co. Awarded

Nach VOF (Verdingungsordnung für freiberufliche Leistungen) vergebene Planungsleistungen	Beauftragte Planungsbüros	Nach VOF (Verdingungsordnung für freiberufliche Leistungen) vergebene Planungsleistungen	Beauftragte Planungsbüros
Architektenleistungen: Leistungen bei Gebäuden und raumbildenden Ausbauten	Ion42 GBR, Frankfurt am Main bestehend aus: DGI Bauwerk – Gesellschaft von Architekten mbH, Berlin und Schneider + Schumacher Architekturgesellschaft mbH, Frankfurt	Ingenieurleistungen: Leistungen der Technischen Ausrüstung für den Bereich Fernmelde- und Informationstechnische Anlagen in Gebäudeteilen und in der nichtöffentlichen Erschließung	Steinigeweg Planungs GmbH Co.KG, Darmstadt
Ingenieurleistungen: Tragwerksplanung	Leonhardt, Andrä und Partner Beratende Ingenieure VBI, GmbH, Stuttgart	Ingenieurleistungen: Leistungen der Technischen Ausrüstung für die Bereiche „Kältetechnische Anlagen“, „Wärmeversorgungsanlagen“ und „Technische Gase und Druckluft“	ARGE JMP Jaeger, Mornhinweg + Partner Ingenieurgesellschaft mbH, Stuttgart und Scholze Ingenieurgesellschaft mbH, Stuttgart
Architekten- und Ingenieurleistungen: Leistungen bei Freianlagen, Leistungen bei Ingenieurbauwerken und Verkehrsanlagen	ARGE H.P. Gauff Ingenieure GmbH & Co. KG –JBG, Frankfurt und WGF Objekt Landschaftsarchitekten GmbH, Nürnberg	Ingenieurleistungen: Leistungen der Technischen Ausrüstung für den Bereich „Sanitärtechnische Anlagen und Feuerlöschanlagen“	ARGE JMP Jaeger, Mornhinweg + Partner Ingenieurgesellschaft mbH, Stuttgart und Scholze Ingenieurgesellschaft, Stuttgart
Ingenieurleistungen: Vermessungstechnische Leistungen	Öffentlich bestellte Vermessungsingenieure Bernd Heinen & Thilo Fischer, Großzimmern	Ingenieurleistungen: Leistungen der Technischen Ausrüstung für den Bereich Gebäude- und Prozessautomation in Gebäudeteilen und in der nichtöffentlichen Erschließung“	Ebert-Ingenieure GmbH & Co.KG, Frankfurt/ München
Leistungen der Sicherheits- und Gesundheitsschutz-Koordination	DEKRA U	Ingenieurleistungen:	Müller + Bleher Filderstadt GmbH, Filderstadt

According to regulations:

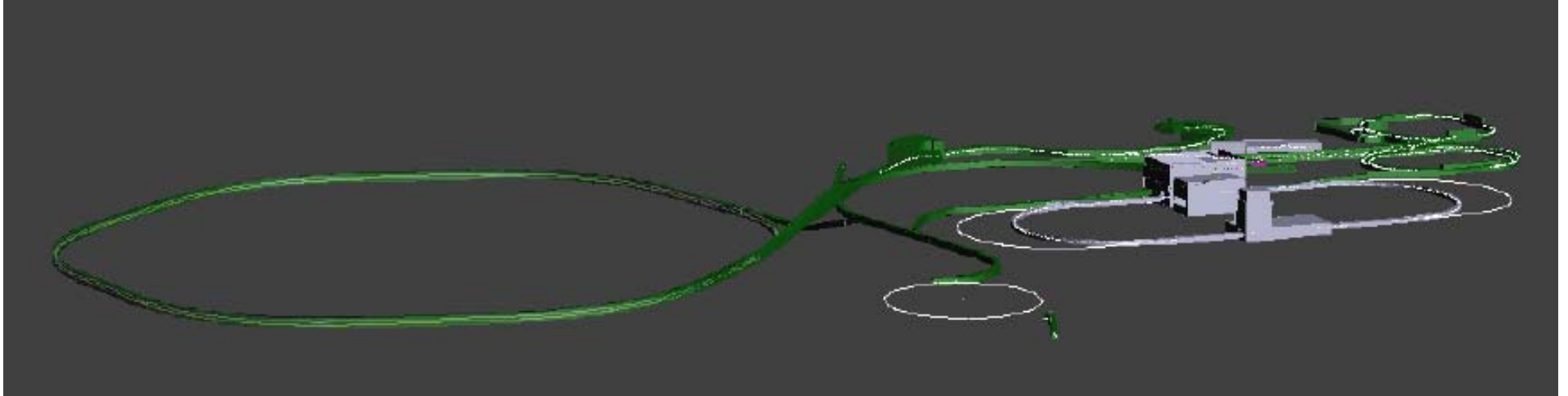
- EU wide call for tenders
- 9 month of preparation
- all tenders by hbm CC Fulda



3D Basis for Buildings

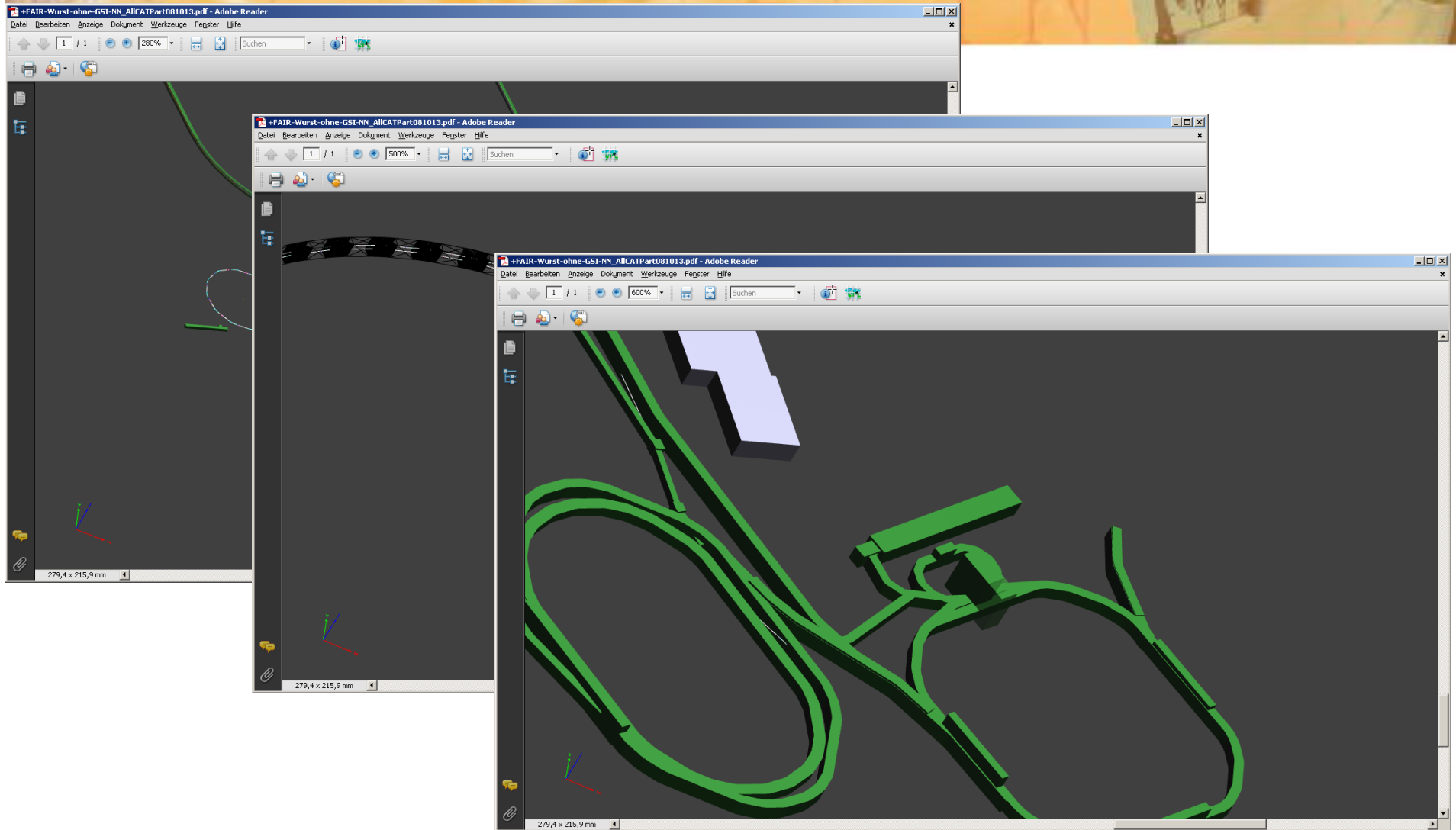
Presently 72 external planners at work.

Derive buildings from beam axis, element volume, equipment space
add: space for transportation, escape routes space and equipment for
ventilation, cooling, space and equipment for energy distribution, space for
Cryogenic installations, etc. ...



True 3d pdf-file visible to all

3D Basis for Buildings



Planning is for all buildings (Startversion & Phase B)

Aiming for Approval Documents (Building Permit)



Working-out required planning documents now

Schedule Civil Construction

Achieved:

Application to start ZBau procedure July 2007

ISC mandate for GSI to take measures on CC (Sept. 2007)

EU-wide call for Steering company

Contract award to Drees&Sommer (July 2007)

EU-wide call for construction planning (Sept. 2007)

- Contract award to engineering companies (July 2008)

- Start planning phase (August 2008)

• Next Steps

- Approval documents incl. Drawings for review (Feb. 2009)

- Date for final check by experiment collaborations

- Actual cost estimate as part of approval documents (March 2009)

- Decision (#10 ZBau): Commitment on cost coverage

- Building permit

- Call for tender site preparation

- Begin site preparation

- Prepare execution documents

- Call for tender construction work

- Award construction contracts (earliest: end 2009 – beginning 2010...)

- Begin executive work (early 2010).

Summary

On the int. level important steps were achieved
Documents (Convention) is with governments for approval
Signing expected for early 2009

Accelerators are shared between partner labs
> 80% of FAIR Startversion accelerators are covered

R&D on key components is successful coming to an end

Civil construction planning is smoothly on-going

What we need: founding of Project Owner FAIR GmbH
to really start with production of components of accelerators
and experiments!

FAIR in 2016

Observers:



Thank you !

Austria China Finland France Germany Greece India Italy Poland Slovenia Spain Sweden Romania Russia UK



Schedule – FAIR Start Version

Is the schedule still realistic ? We accumulated 12 month delay

