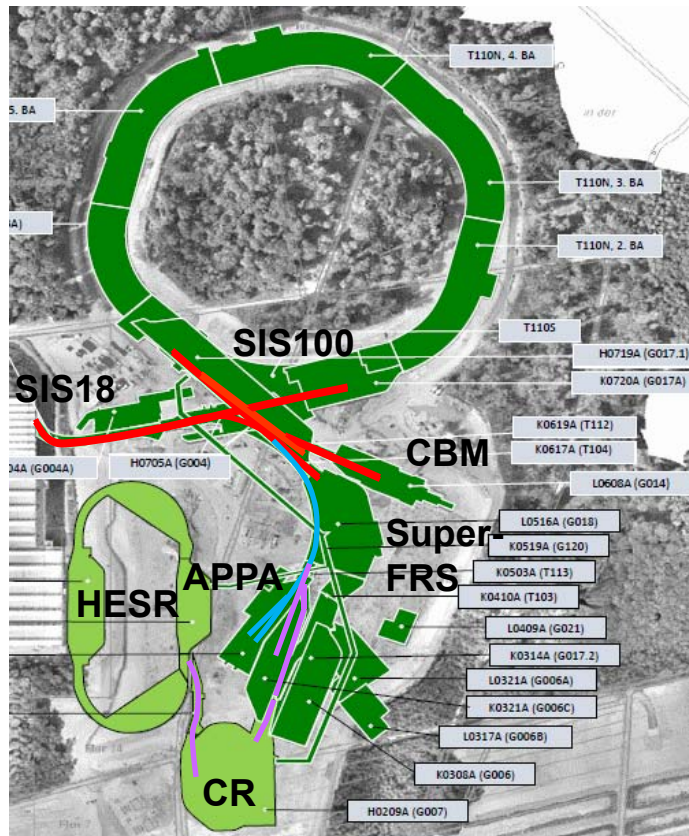


HEBT (Pre-)Assembly

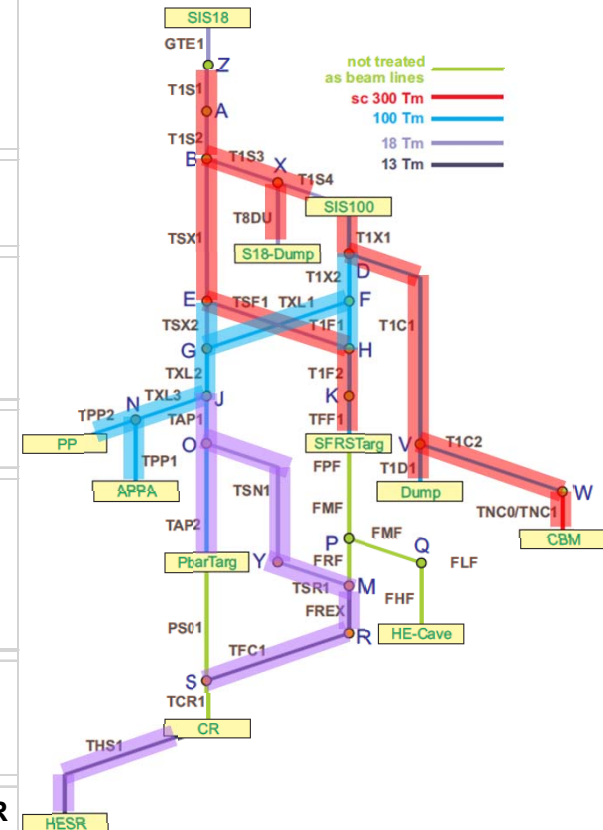
F. Hagenbuck

7th joint BINP-FAIR Collaboration Coordination Workshop

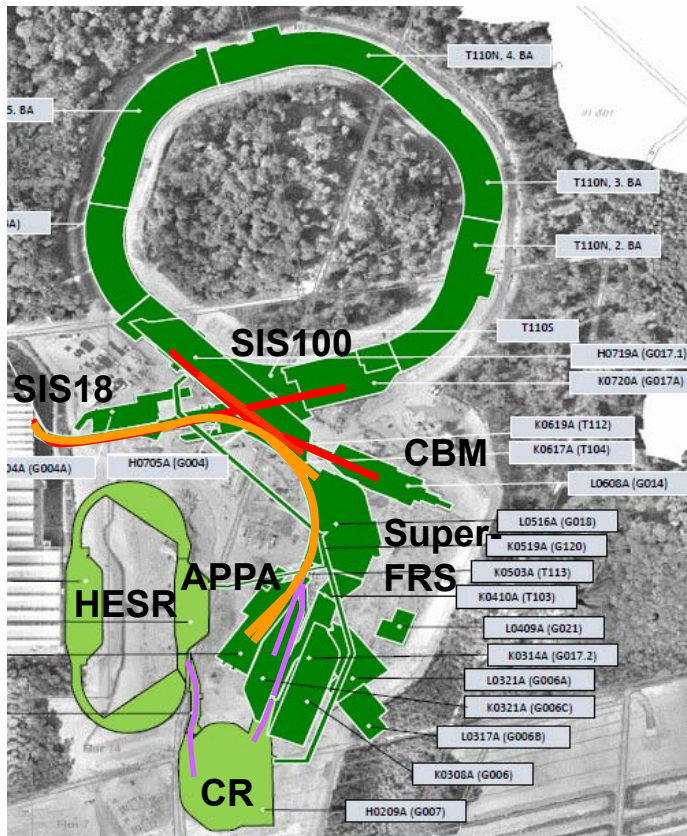
Intermediate Objective for HEFT



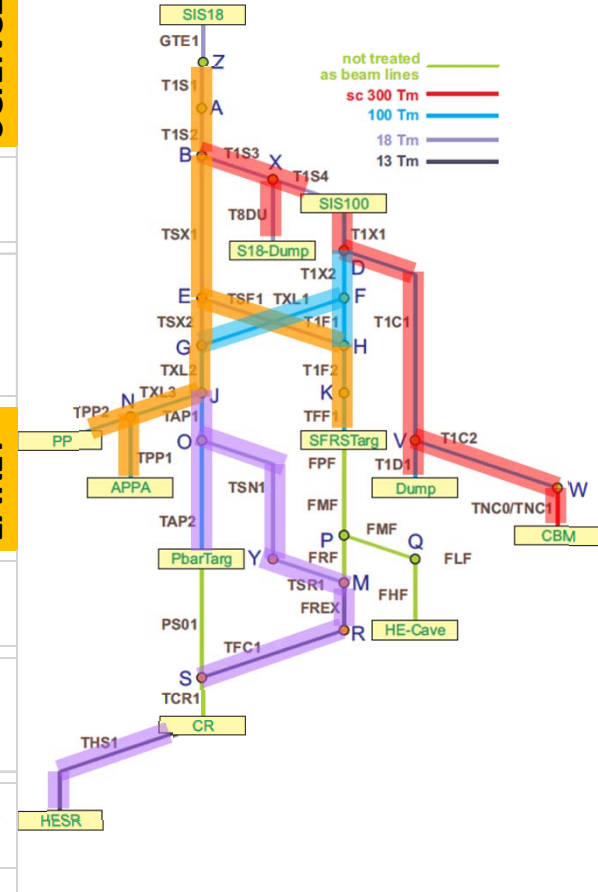
Intermediate Objective	T*101, G004, T110, T104, T112	HEBT A	T1S1 T1S2 TSX1 TSF1 T1F2 TFF1	SIS18 - SFRS (NUSTAR)
			T1S3 T1S4 T8DU	SIS18 - SIS100 + Dump
			T1X1 T1C1 T1C2 TNC0 T1D1	SIS100 - CBM + Dump (CBM/HADES)
	T113, G050	HEBT B	T1X2 T1F1	SIS100 - SFRS
			TSX2 TXL1 TXL2 TXL3 TPP1 TPP2	SIS18/SIS100 - APPA (APPA)
			TAP1 TAP2 TSN1 TSR1	to pbar to CR (FBL)
	T103, G006C	HEBT C	FREX TFC1 THS1	to CR & HESR (NUSTAR + PANDA)
	T106, G007, T108			



Early Science for HEBT

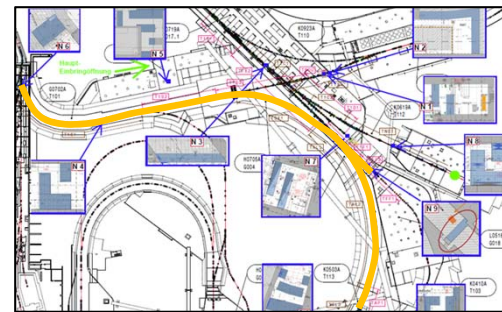


Intermediate Objective	T101, G004, T110, T104, T112	HEBT A	T1S1 T1S2 TSX1 TSF1 T1F2 TFF1	SIS18 - SFRS (NUSTAR)	SCIENCE
			T1S3 T1S4 T8DU	SIS18 - SIS100 + Dump	
			T1X1 T1C1 T1C2 TNC0 T1D1	SIS100 - CBM + Dump (CBM/HADES)	
	T113, G050	HEBT B	TSX2 TXL2 TXL3 TPP1 TPP2	SIS18 - APPA	EARLY
			T1X2 T1F1 TXL1	SIS100 - SFRS/APPa/pbar	
	T103, G006C	HEBT C	TAP1 TAP2 TSN1 TSR1	to pbar to CR (FBL)	
	T106, G007, T108		FREX TFC1 THS1	to CR & HESR (NUSTAR + PANDA)	

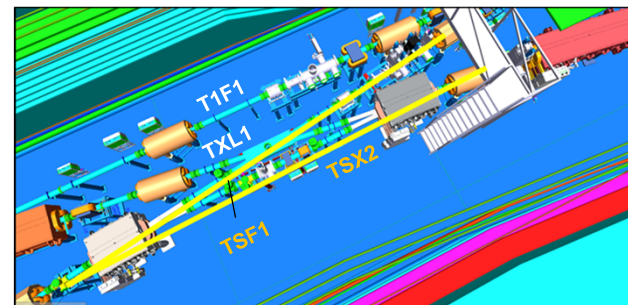
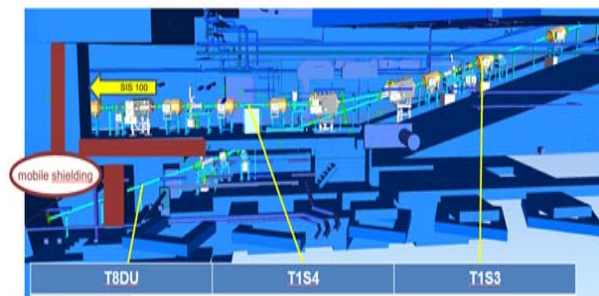


Early Science for HEBT

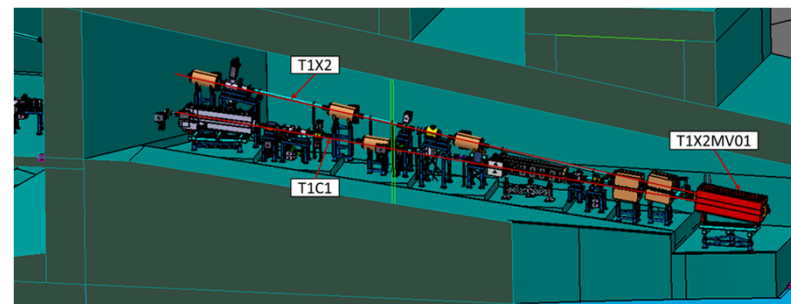
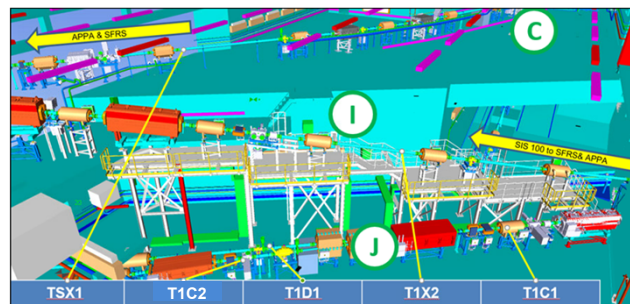
- Beam line from SIS18 to APPA and SFRS (Early Science)
- Mobile shielding blocks in beam line
- Prerequisite / efficiency for (further) installation



T1S1
T1S2
TSX1
TSF1
T1F2
TFF1
TSX2
TXL2
TXL3
TPP1
TPP2/
XPP2



T1S3
T1S4
T8DU



T1X1
T1C1
T1C2
T1D1
TNC0/
TNC1

T1X2
T1F1
TXL1

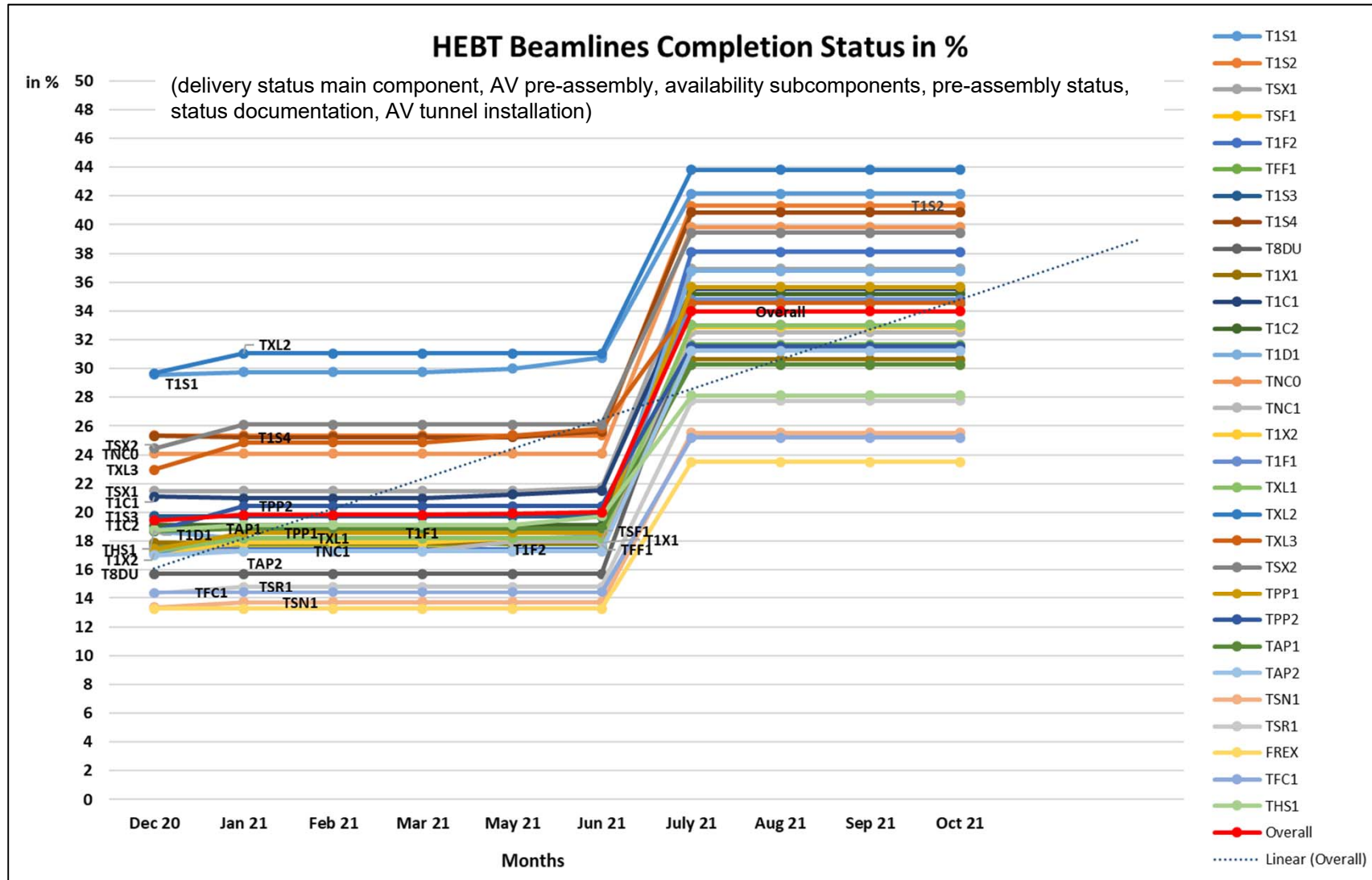
Time Schedule Installation

Early Science	Anfang	Ende	2022			2023				2024				2025		
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<ul style="list-style-type: none"> HEBT - Section: SIS18-SFRS 	Mit 22.02.23	Die 08.07.25				[Yellow bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS18-SFRS - Installation 	Mit 22.02.23	Don 16.01.25				[Yellow bar]										
<ul style="list-style-type: none"> HEBT - Section: APPA 	Mon 18.09.2	Fre 05.09.25							[Yellow bar]							
<ul style="list-style-type: none"> HEBT - Section: APPA - Installation 	Mon 18.09.2	Don 16.01.25							[Yellow bar]							

HEBT B, HEBT C	Anfang	Ende	2022			2023				2024				2025		
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<ul style="list-style-type: none"> HEBT - Section: SIS18-SIS100 	Mon 20.03.2	Die 01.04.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS18-SIS100 - Installation 	Mon 20.03.2	Don 16.01.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS100-CBM 	Mit 22.02.23	Don 20.03.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS100-CBM - Installation 	Mit 22.02.23	Don 16.01.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS100-SFRS 	Mit 22.02.23	Mon 24.02.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: SIS100-SFRS - Installation 	Mit 22.02.23	Don 16.01.25				[Red bar]										
<ul style="list-style-type: none"> HEBT - Section: pbar 	Mon 18.09.2	Fre 03.10.25							[Purple bar]							
<ul style="list-style-type: none"> HEBT - Section: pbar & connection CR - Installation 	Mon 18.09.2	Don 16.01.25							[Purple bar]							
<ul style="list-style-type: none"> HEBT - Section: CR & HESR 	Mit 14.08.24	Fre 01.05.26										[Purple bar]				
<ul style="list-style-type: none"> HEBT - Section: CR & HESR - Installation 	Mit 14.08.24	Don 08.05.25										[Purple bar]				

HEBT-Dashboard

Status of pre-assemblies



Status HEBT Magnets & Vacuum Chambers Batch1

51 Dipole Magnets (11types) (NII-EFA) and Vacuum Chambers (BINP)

- 50 dipole magnets and 10 sets of spare coils delivered to GSI/FAIR.
- Last magnet and last set of spare coils will be delivered in December 2021.
- All 51 vacuum chambers since end 2018 at GSI/FAIR.
- 45 vacuum chambers installed into magnets and pre-assemblies transported to storage hall in Weiterstadt



dip13_0 with vacuum chamber



Batch1 pre-assemblies in Weiterstadt

Status HEBT Magnets & Vacuum Chambers Batch2&3



24 Dipole- (9 types), 181 Quadrupole- (5 types), 98 Steerer Magnets (3 types) and Vacuum Chambers (BINP)

- 83 magnets (7 dipole-, 46 quadrupole-, 30 steerer magnets) delivered to GSI/FAIR
- Another 22 magnets (14 quadrupole, 8 steerer magnets) released for delivery
- Currently FAT of 12 magnets (1 dipole-, 3 quadrupole-, 8 steerer magnets)
- Contracts for raw material for all vacuum chambers signed, material partly at BINP
- FAT of 3 vacuum chambers for dipole magnets successfully completed
- No pre-assemblies up to now



s100 during SAT at GSI



quad2 during FAT at BINP

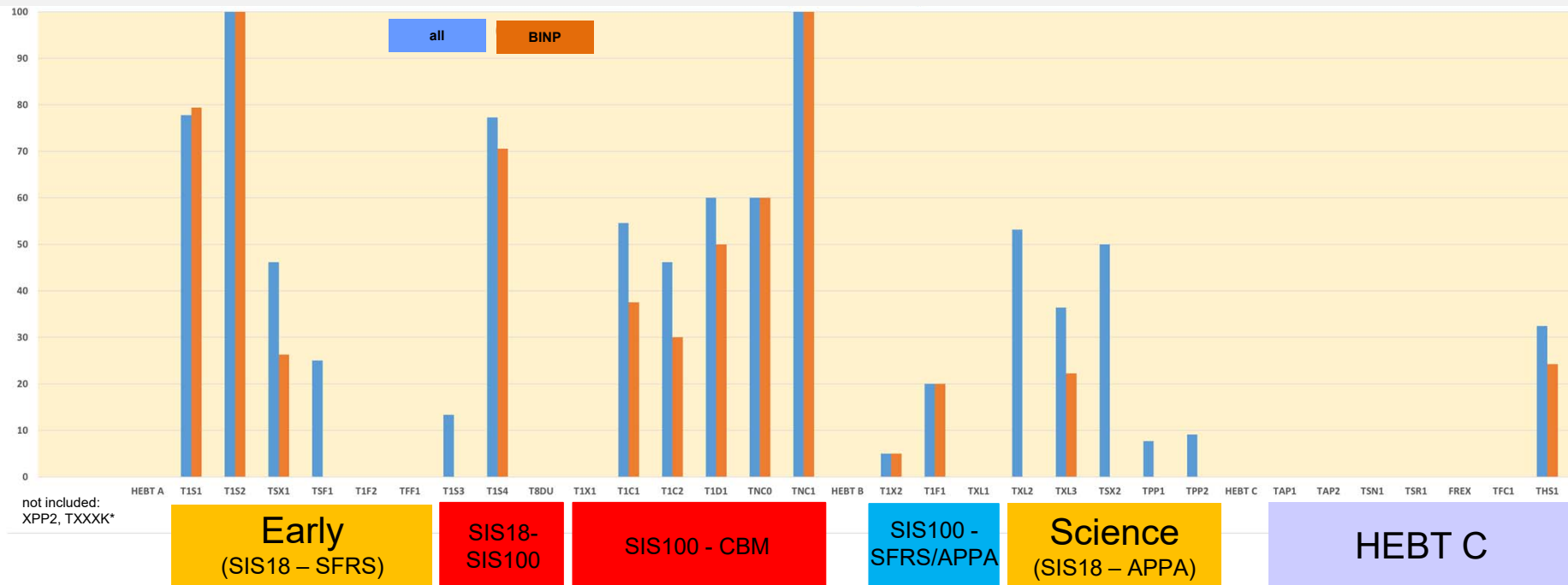


Vertical deflecting dip10 at GSI



HEBT Magnets Delivery Status

delivered (all)	28/	10/	12/	1/	0/	0/	2/	17/	--	0/	6/	6/	3/	3/	4/	1/	1/	0/	17/	4/	2/	1/	1/	0/	0/	0/	0/	0/	0/	12/
needed	36	10	26	4	1	5	15	22	--	11	11	13	5/	5	4	20	5	5	32	11	4	13	11	6	12	13	3	6	9	37



83 (+ 22) magnets Batch2&3 at GSI
 → Vacuum chambers Batch2&3 urgently needed to start pre-assembly

Requirements

Start installation in tunnel in 02/2023

- All magnets and vacuum chambers for **Early Science** and other sections of **HEBT A/B** should be at GSI/FAIR in 09/2022
- All drawings for pre-assembly have to be prepared in time **before pre-assembly**
- Start pre-assembly Batch2&3 after delivery and SAT of 1st lot (9 sections) of vacuum chambers **in spring** (04/) 2022
- Pre-Assembly of 2nd lot (10 sections) in **early summer** (06/) 2022, of 3rd lot (7 sections) in autumn (09) 2022 and 4th lot beginning (02) 2023
- **Support needed from BINP** for pre-assembly and transport & installation in the tunnel

