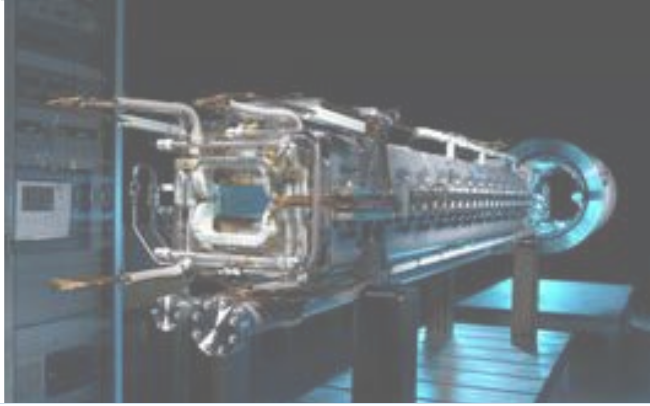




NUSTAR financial status

12th FAIR-NUSTAR Resources Review Board
FAIR/GSI, Darmstadt, Germany

Alexander Herlert
NUSTAR Resource Coordinator
FAIR

Finland France Germany India Poland Romania Russia Slovenia Sweden UK Czech Republic

Outline

- **NUSTAR funding**
  - Recent main changes (since 11th meeting)
  - Status of secured funding and intended funding
    - New FAIR staging steps
    - Focus on Early and First Science
  - NUSTAR Construction Common Fund and item list
    - Updated expenditure plan and item list
    - Present status of payments

Recent main changes

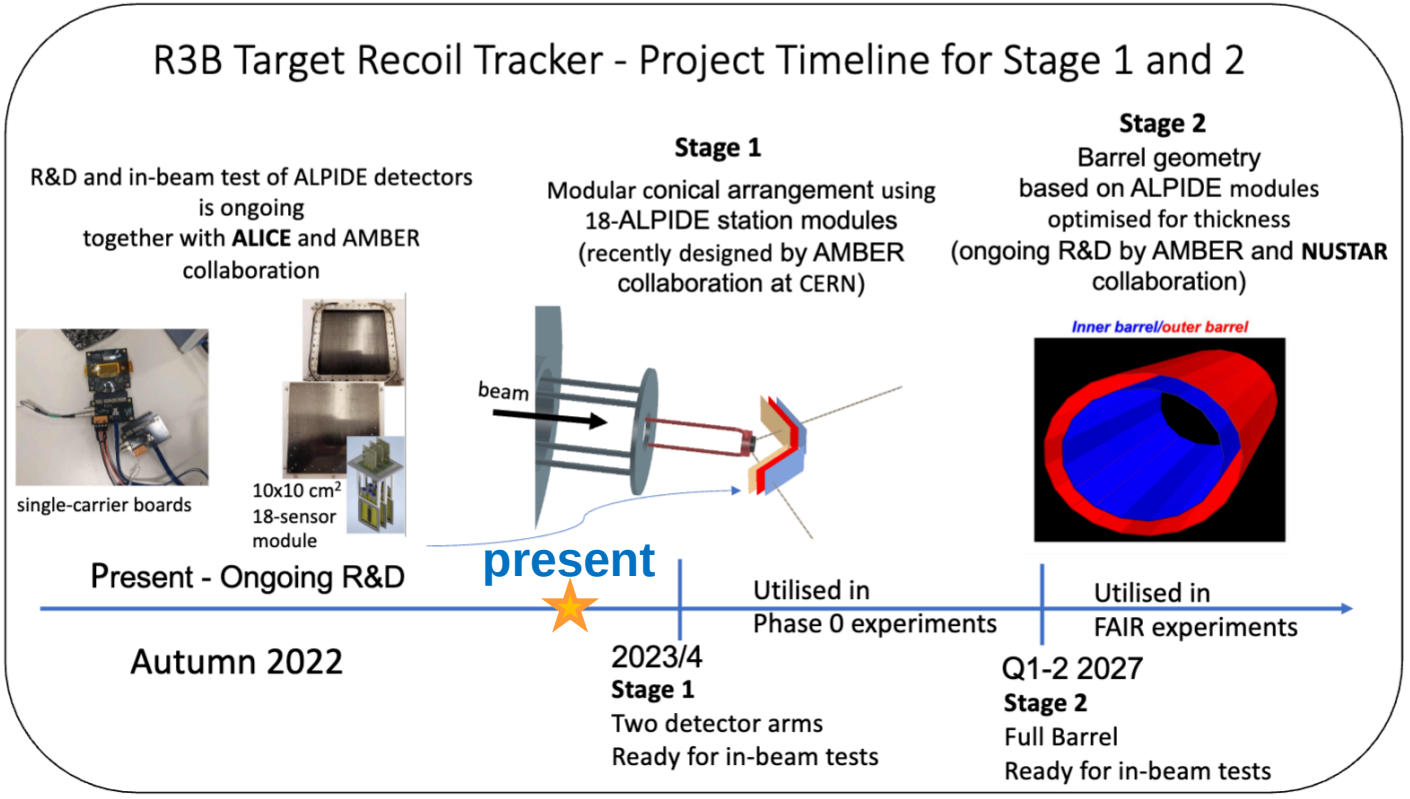
- LEB infrastructure
  - Sub-system **renamed to "Common infrastructure"** since most components will be used in the High-Energy Branch of Super-FRS as part of Early and First Science
  - TDR for LEB infrastructure **approved**
- HISPEC/DESPEC
  - The detector system **gSPEC** has been **added to the Day-one configuration** – TDR is expected **11/2023**
- R^3B
  - TDR of **Si tracker** almost completed (expected **06/2023**)
  - Funding for overhaul of GLAD magnet safety system **secured via Common Fund**
  - **Additional funding** for NeuLAND (INFN Catania, INFN LNS, Italy)
- Super-FRS EC
  - **Secured funding** for plastic scintillator (SMU, Canada)

Additional issues with funding

- Termination of Collaboration Contracts (Russian in-kind)
  - Concerns only work packages of R^3B
  - Work on mitigating actions in progress
- New FAIR staging steps
  - All contributions (PSPs) to work packages assigned to one of the new FAIR staging steps
  - Prioritize in-kind contracts and contributions from shareholders
  - Minor modification of Construction Common Fund

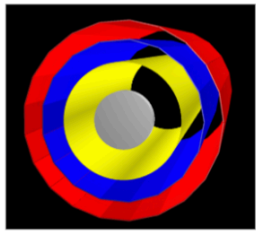
Si tracker: Target Recoil Tracker (TRT) project

Project timeline – **on track**



Far-Future Stage

A layer of fully flexible Silicon wafer (current R&D by ALICE) fitted inside the barrel geometry

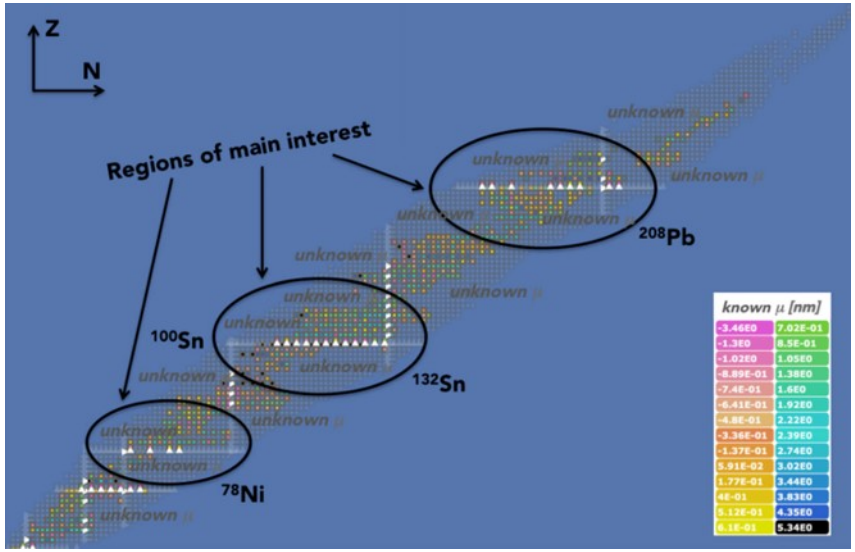


Si tracker: some project details

- The TRT device is planned to be **funded mostly through STFC**
- The UK teams will work primarily on
  - the production and characterization of the detector modules,
  - procurement of readout electronics,
  - and mechanical design
- UK groups are currently funded through an interim STFC fund to work on the preparations for the full project.
- Other important contributors:
  - R^3B local team (GSI)
  - TU Munich (Germany)
  - USC and Univ. Coruna (Spain)
- **Ready to start construction in Sept 2023**
- The TRT array is planned to **be completed and commissioned within 2027**
- The total cost of the TRT device is estimated to be **of the order of €4M (2022 values)**
- TRT TDR expected soon … **06 / 2023**

Nuclear moments with gSPEC@GSI/FAIR

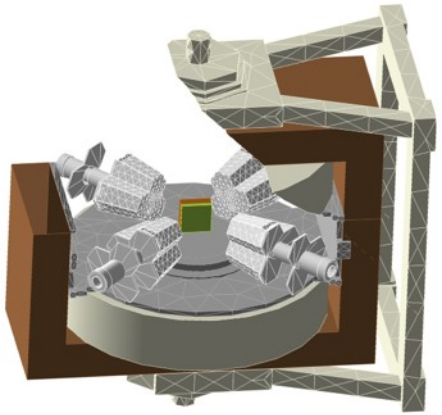
gSPEC



- Regions around the doubly-magic nuclei
- Nuclear m moments of excited isomeric states
- Single-particle structure and M1 operator
- Collective properties and deformation

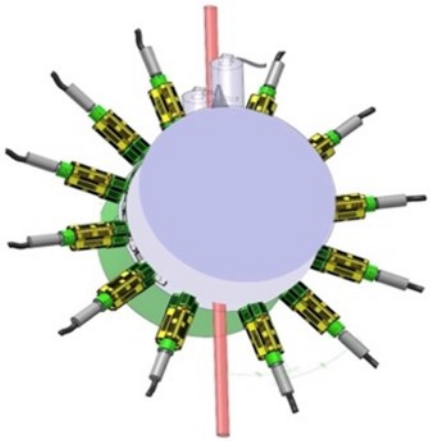
TDR expected 11/2023

gSPEC0



secured funding
IJCLab and IPHC Strasbourg:
65 kEUR (2023)

gSPEC1



funding from CNRS/IN2P3
expected (EoI)
360 kEUR (2023)

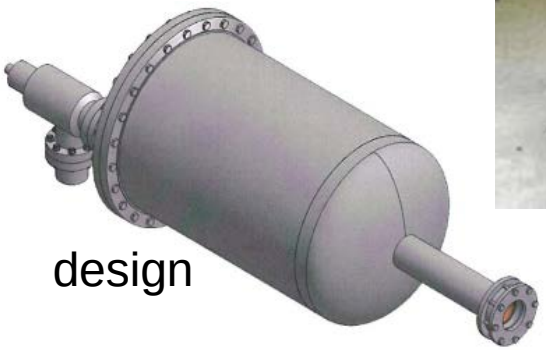
gSPEC: R. Lozeva et al., HI 240, 55 (2019)

Termination of Collaboration Contracts (Russia)

- FAIR Council decision **XXXVI.3.3** (September 2022)
  - On request of the Management - as an implementation step of the sanction rules - the Council withdraws all assignments (contracted and remaining) to Russian Institutions concerning Accelerators and Experiments with immediate effect. This does not imply the Assignments to the Joint Institute for Nuclear Research (JINR) in Dubna as an international Institution.
  - As a result, all components of the withdrawn Assignments (not delivered yet) must be considered as open.
- Split former PSP codes x.x.x.x
  - PSP x.x.x.x.1: **Components usable on-site**
  - PSP x.x.x.x.2: **Re-procurement (components not delivered)**
  - PSP x.x.x.x.8: spent&lost (correction due to escalation)
  - PSP x.x.x.x.9: spent&lost (payments to Russian institutes without delivery of components)

Re-procurement for Russian in-kind (NUSTAR)

Active target ACTAF2



design

chamber at PNPI

Proton Arm Spectrometer (PAS)

gas system for PAS at PNPI

straw tubes at PNPI

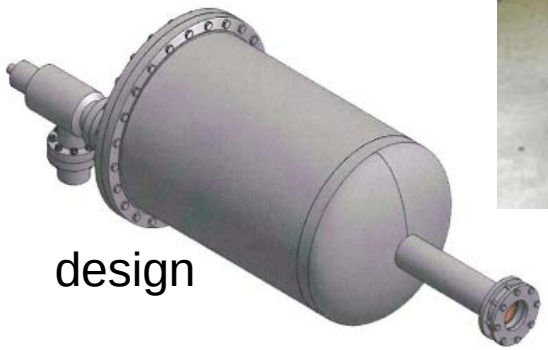
NeuLAND HV

some delivered DB50 modules

HV distribution control board

Re-procurement – ACTAF2

Active target ACTAF2



design

chamber at PNPI

- **Nothing delivered**
- **226 kEUR (2005)** requested to allow re-procurement of full system

- R^3B collaboration is looking into mitigating action
- **Idea:** Use exisiting ACTAF1 chamber and take available parts from ACTAF 2

Re-procurement – PAS

Proton Arm Spectrometer (PAS)

gas system for PAS at PNPI

straw tubes at PNPI

- **Nothing delivered**
- **587 kEUR (2005)** requested to allow re-procurement of full system

- R^3B collaboration is looking into new technical design
- Probably new TDR depending on outcome of study

Re-procurement – NeuLAND HV

NeuLAND HV

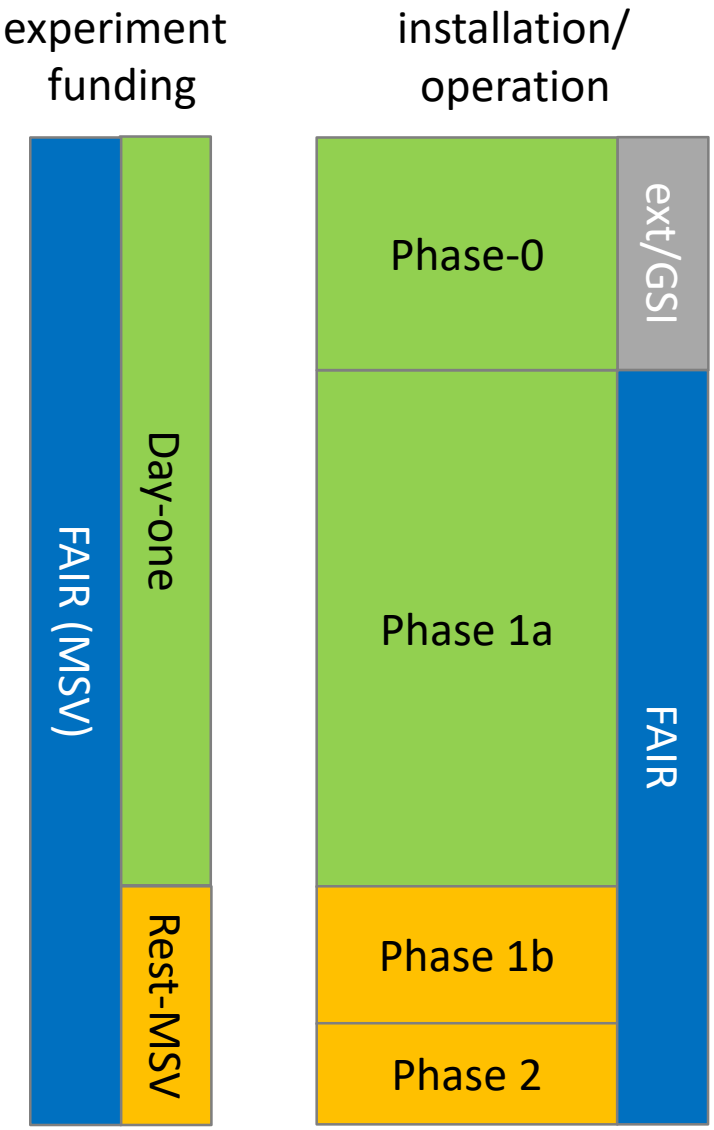
some delivered DB50 modules

HV distribution control board

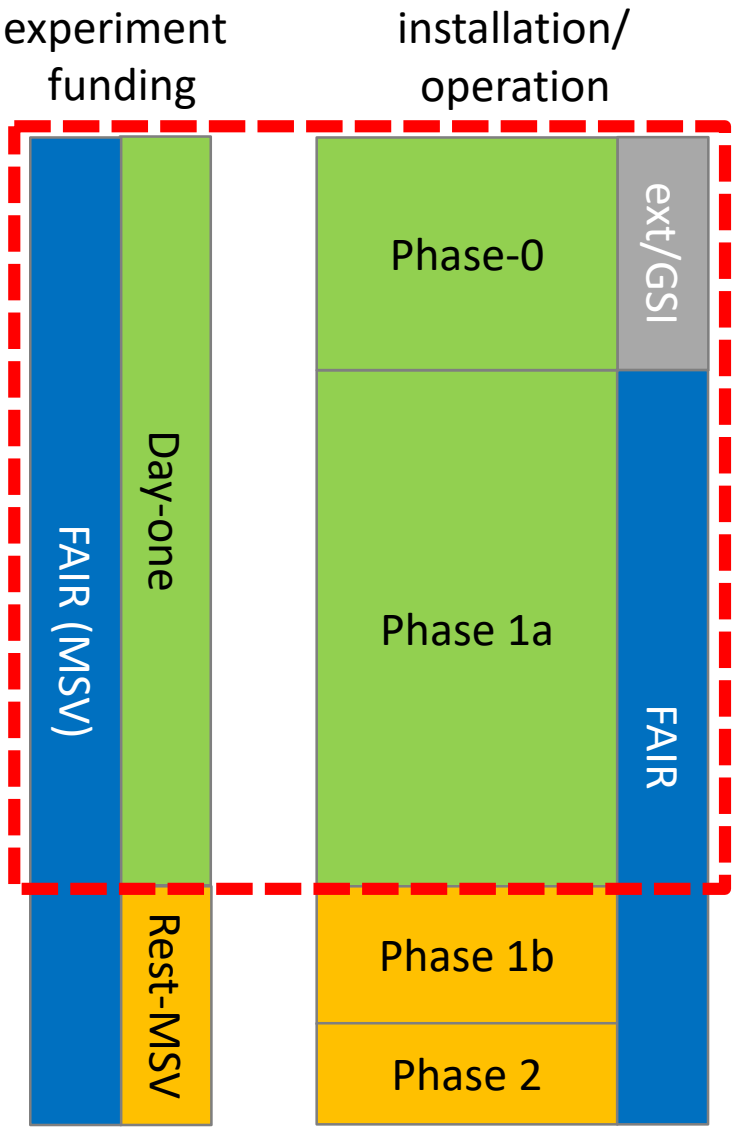
- **all modules and control boards delivered**
- **quality issue (repair required)**
- **31.4 kEUR (2005)** requested to allow procurement of material for repair

- Reverse engineering in progress
- GSI experiment-electronics group has idea for repair
- Required cost for full repair not yet clear

Funding vs. installation/operation at FAIR



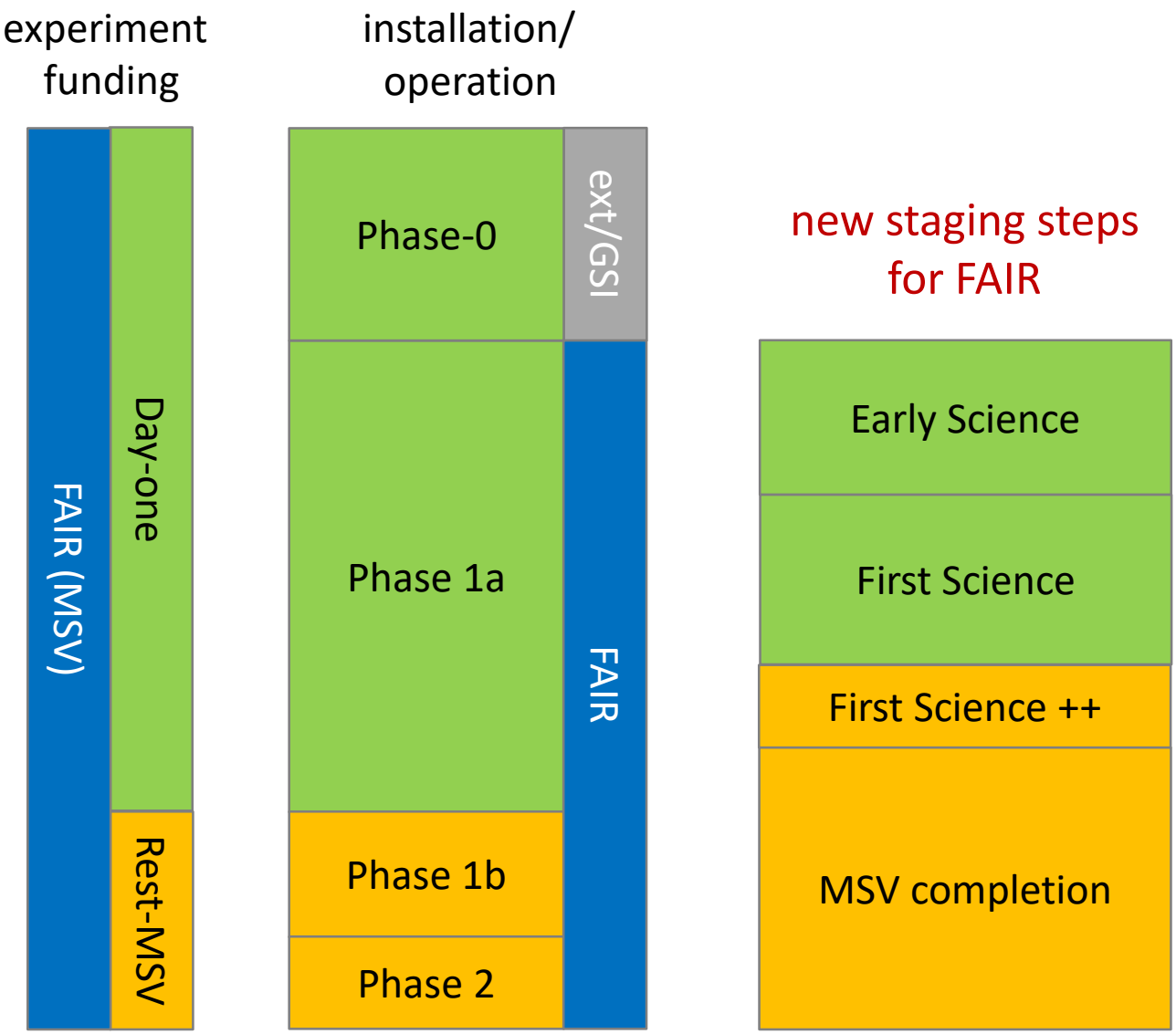
Funding vs. installation/operation at FAIR



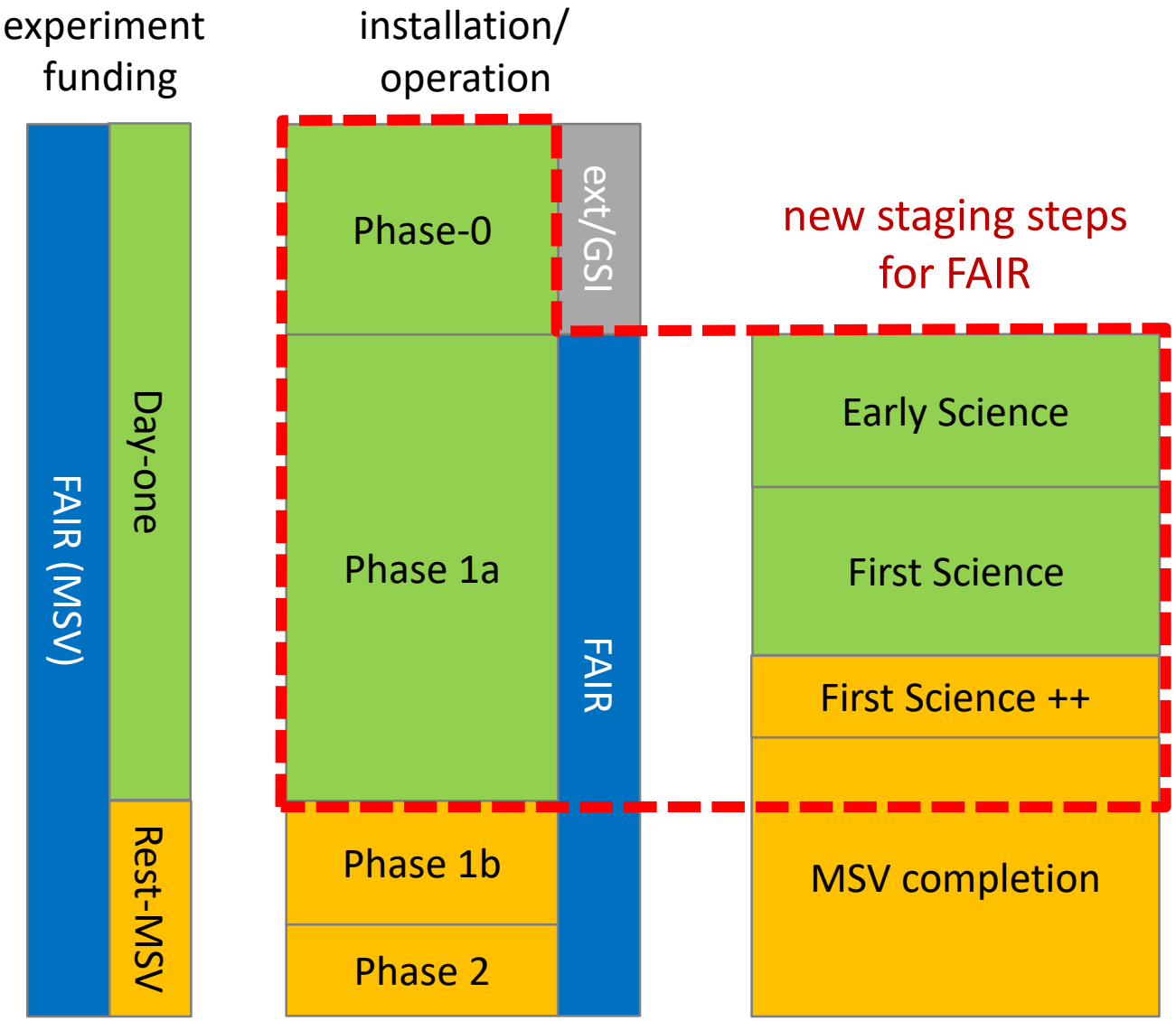
"Day-one" score card

	NUSTAR sub-system	TDR	Cost [k€ 2005]	Funding	Construction	Date completion	Test/ Commissioning
Day 1	Cave infrastr.		1,985			12/2028	
	HISPEC/DESPEC		11,111			11/2025	
	MATS		1,173			09/2026	
	LaSpec		253			05/2026	
	R3B		18,159			03/2026	
	ILIMA		1,101			07/2030	
	Super-FRS EC		568			12/2025	
		92.2% *value weighted*	34,351	90.9% *secured*	63.5% *value weighted*		49.0% *value weighted*
Change since report 2022 II		**- 0.7%**	**+ 526**	**- 2.7%**	**- 0.2%**		**+ 3.2%**

Funding vs. installation/operation at FAIR



Funding vs. installation/operation at FAIR



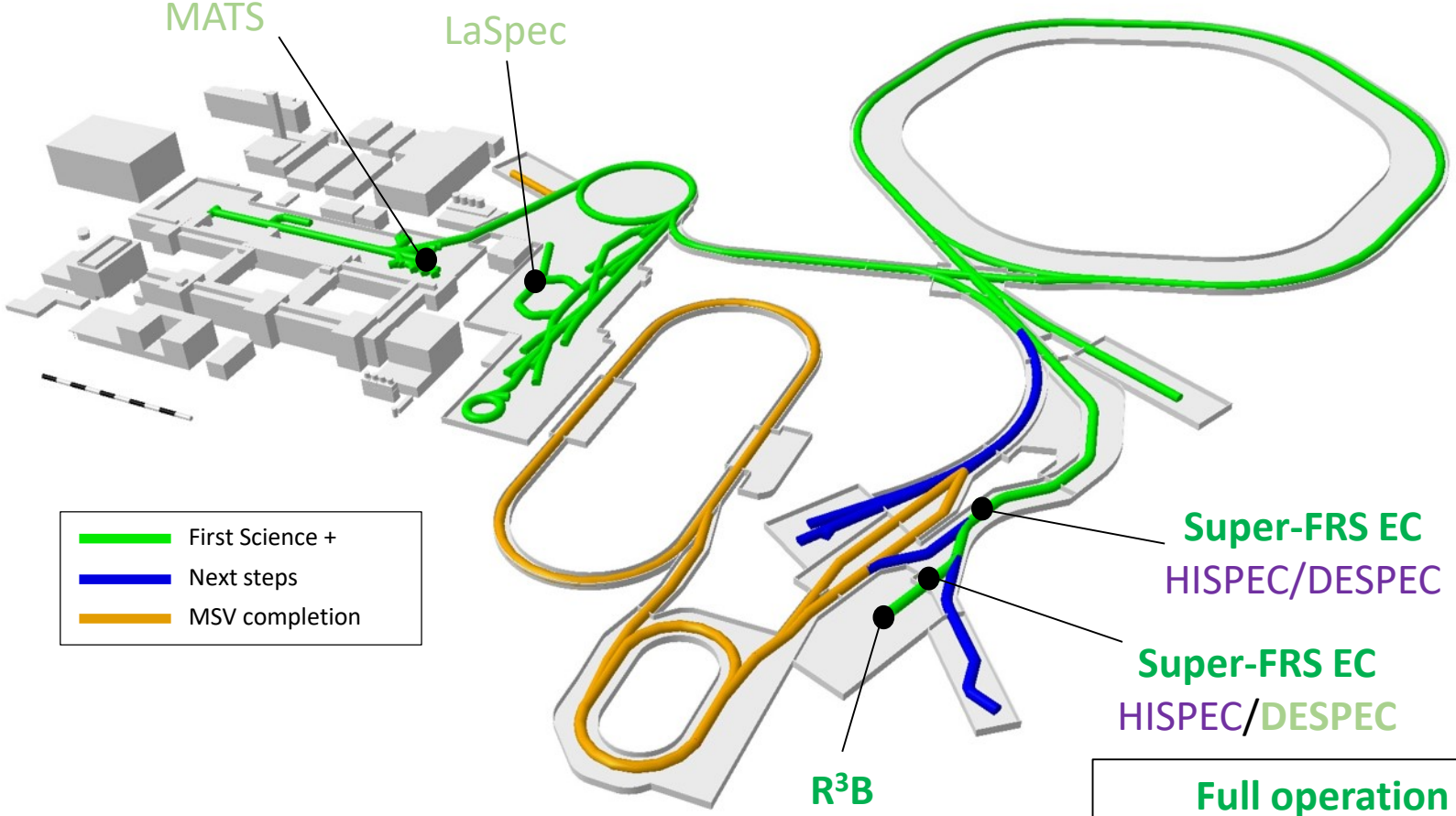
new score card

		NUSTAR sub-system	TDR	Cost (kE 2005)	Funding	Construction	Date completion	Test/ Commissioning
Day-one configuration		Early and First Science (ES / FS)						
	ES / FS	Cave infrastr.		1,633			12/2026	
		HISPEC/DESPEC		11,111			11/2025	
		MATS		535			09/2025	
		LaSpec		67			06/2021	
		R3B		18,159			03/2026	
		ILIMA		424			06/2025	
		Super-FRS EC		568			12/2025	
			91.8% value weighted	32,497	92.5% secured	65.7% value weighted		50.7% value weighted
		First Science ++ LEB (FS++LEB)						
	FS++LEB	Cave infrastr.		352			12/2028	
		MATS		638			09/2026	
		LaSpec		186			05/2026	
			100.0% value weighted	1,176	66.6% secured	39.3% value weighted		30.2% value weighted
	MSVC	Modularized Start Version Completion (MSVC)						
		ILIMA		678			07/2030	
			100.0% value weighted	678	58.5% secured	0.0% value weighted		0.0% value weighted
		NUSTAR	TDR	Cost (kE 2005)	Funding	Construction	Date completion	Test/ Commissioning
			92.2% value weighted	34,351	90.9% secured	63.5% value weighted		49.0% value weighted
		Change since report 2022 II	- 0.7%	+ 526	- 2.7%	- 0.2%		+ 3.2%

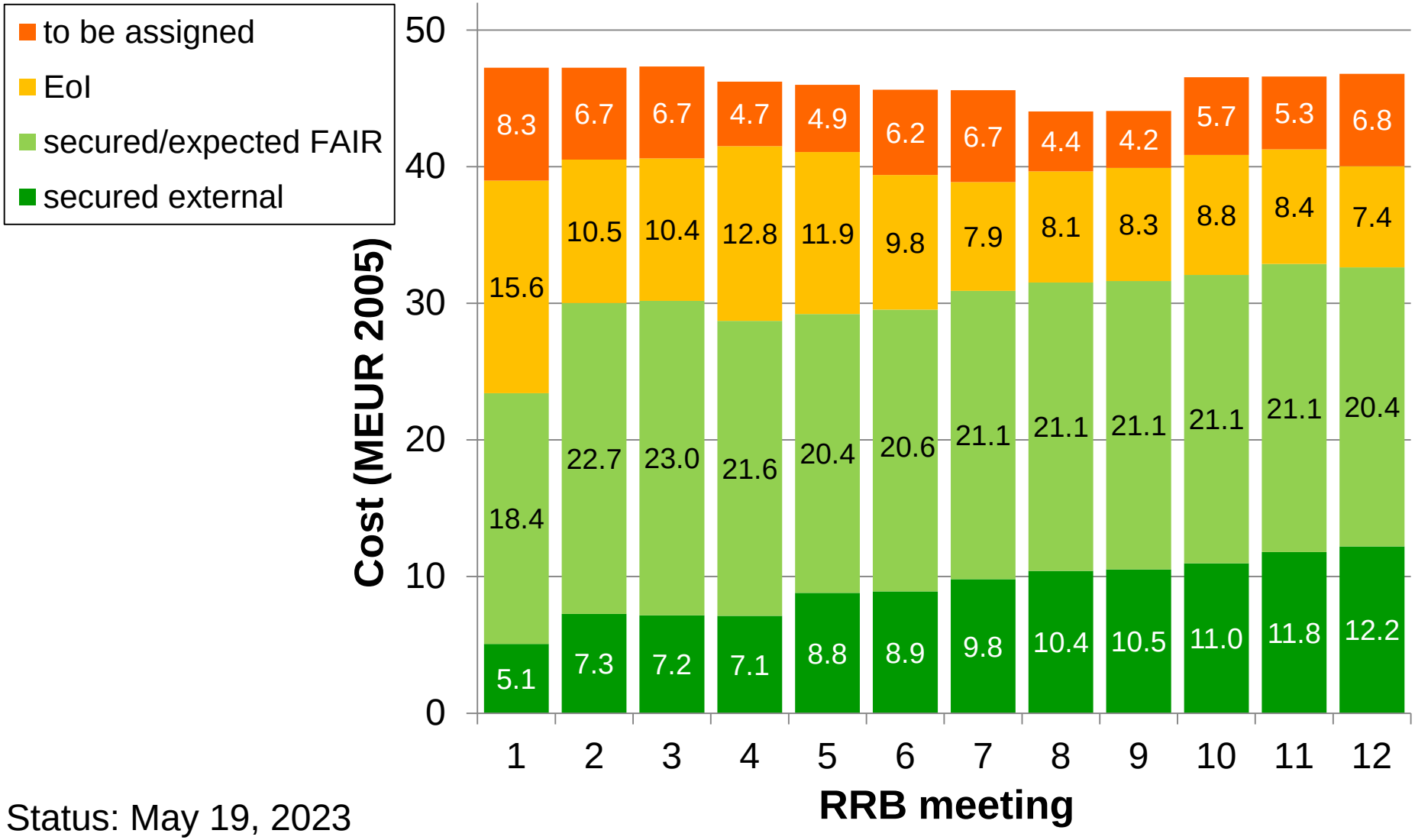
New score card

		NUSTAR sub-system	TDR	Cost [k€ 2005]	Funding	Construction	Date completion	Test/ Commissioning
Day-one configuration		**Early and First Science (ES / FS)**						
	ES / FS	Cave infrastr.		1,633			12/2026	
		HISPEC/DESPEC		11,111			11/2025	
		MATS		535			09/2025	
		LaSpec		67			06/2021	
		R3B		18,159			03/2026	
		ILIMA		424			06/2025	
		Super-FRS EC		568			12/2025	
			91.8% *value weighted*	32,497	92.5% *secured*	65.7% *value weighted*		50.7% *value weighted*
		First Science ++ LEB (FS++LEB)						
	FS++LEB	Cave infrastr.		352			12/2028	
		MATS		638			09/2026	
		LaSpec		186			05/2026	
			100.0% *value weighted*	1,176	66.6% *secured*	39.3% *value weighted*		30.2% *value weighted*
		Modularized Start Version Completion (MSVC)						
	MSVC	ILIMA		678			07/2030	
			100.0% *value weighted*	678	58.5% *secured*	0.0% *value weighted*		0.0% *value weighted*
		NUSTAR	TDR	Cost [k€ 2005]	Funding	Construction	Date completion	Test/ Commissioning
			92.2% *value weighted*	34,351	90.9% *secured*	63.5% *value weighted*		49.0% *value weighted*
		Change since report 2022 II	**- 0.7%**	**+ 526**	**- 2.7%**	**- 0.2%**		**+ 3.2%**

NUSTAR Early and First Science



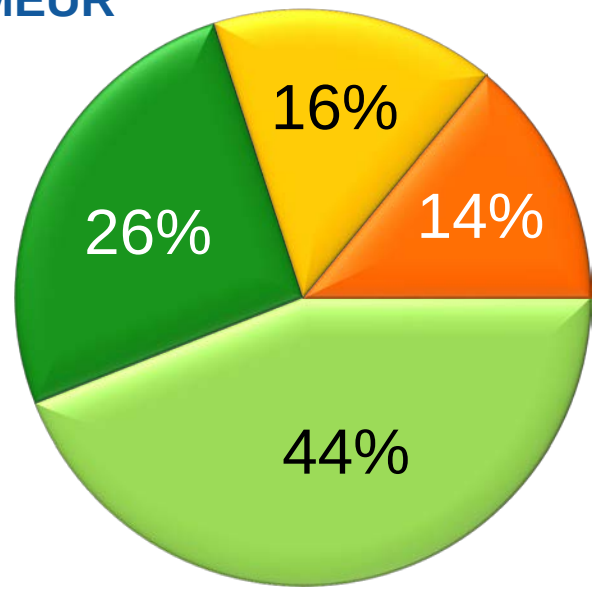
Evolution of NUSTAR project funding (MSV)



Status: May 19, 2023

NUSTAR MSV – funding status

46.8 MEUR



Status: May 19, 2023

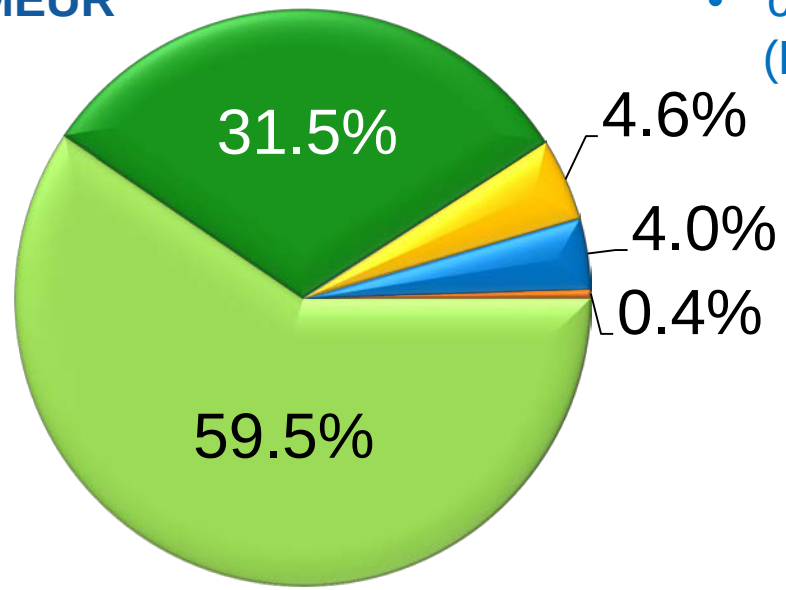
- core funding (secured and expected) from: (**FAIR funding** in bold face)

- Australia
- Belgium+
- Bulgaria
- Canada
- Czech Republic
- **FAIR****
- **Finland**
- **France**
- **Germany**
- Hungary
- **India**
- Israel
- Italy+
- Japan
- Netherlands
- **Poland**
- **Romania**
- **Russia***
- Slovenia
- Spain
- **Sweden**
- Turkey+
- **United Kingdom**

+Beyond Day-one configuration
*suspended
**cash contribution

Day-one configuration – funding status

34.4 MEUR



Status: May 19, 2023

- core funding (secured and expected) from: (**FAIR funding** in bold face)

- Australia
- Belgium+
- Bulgaria
- Canada
- Czech Republic
- **FAIR****
- **Finland**
- **France**
- **Germany**
- Hungary
- **India**
- Israel
- Italy+
- Japan
- Netherlands
- **Poland**
- **Romania**
- **Russia***
- Slovenia
- Spain
- **Sweden**
- Turkey+
- **United Kingdom**

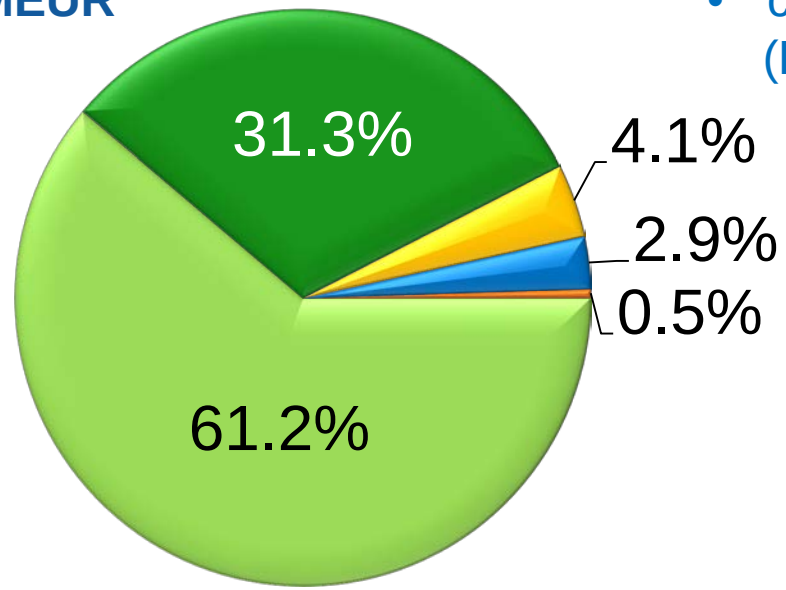
+Beyond Day-one configuration

*suspended

**cash contribution

ES / FS staging steps – funding status

32.5 MEUR



Status: May 19, 2023

- core funding (secured and expected) from: (**FAIR funding** in bold face)

- Australia
- Belgium⁺
- Bulgaria
- Canada
- Czech Republic
- **FAIR****
- **Finland**
- **France**
- **Germany**
- Hungary
- **India**
- Israel
- Italy⁺
- Japan
- Netherlands
- **Poland**
- **Romania**
- **Russia***
- Slovenia
- Spain
- **Sweden**
- Turkey⁺
- **United Kingdom**

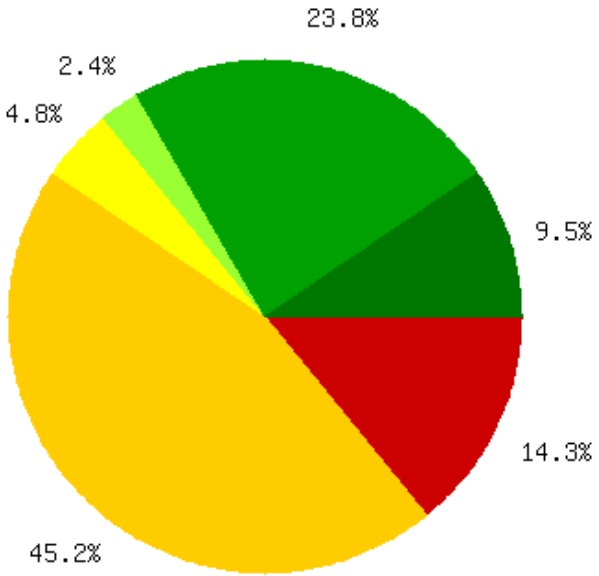
⁺Beyond Day-one configuration

*suspended

**cash contribution

In-kind and Collaboration Contracts

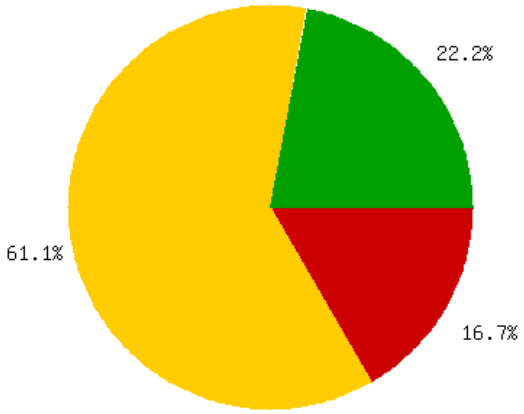
- 42 contracts
  - Two more contracts signed
    - Cryogenic Stopping Cell (GSI)
    - R^3B vacuum (GSI)



contract phase	number of contracts	in-kind value (kEUR)
final acceptance	4	5759.2
signed**	10	4626.9
full draft contract	1	343.5
specs completed	2	278.7
Council decision	19	6371.7
not yet requested	6	3721.1
total	**42**	**21101.1***

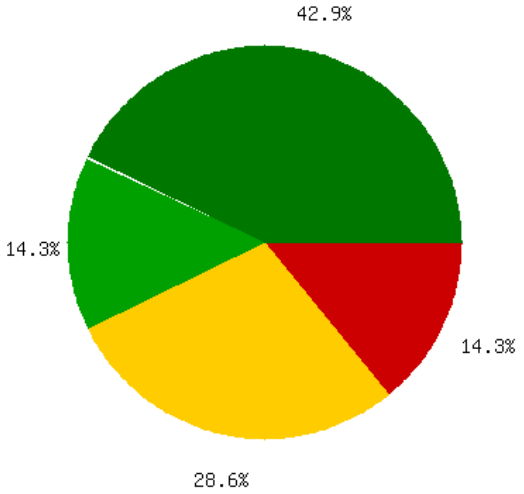
* contracted value
** 3 contracts terminated before completion

In-kind contracts – Early and First Science



HISPEC/DESPEC

… still some work ahead



R^3B

FAIR in-kind: final acceptance

- Final acceptance **completed** for four contracts (R^3B)
  - CALIFA barrel crystals – Lund University (Sweden)
  - CALIFA forward endcap crystals – JINR Dubna (Russia)
  - GLAD magnet – CEA Saclay (France) and GSI (Germany)
- Additional final acceptance for contribution from Czech Republic
  - GADAST modules (batch 1) – 32 CsI detector modules (Super-FRS EC, EXPERT)

Construction Common Fund – update

- FAIR timeline shifted + new staging steps
  - Prioritize components for ES/FS staging steps
  - Prioritize spending depending on project schedule
  - Adapt costs taking into account FAIR escalation factors
- Additional items due to one-branch operation
  - Technical survey identified a few additional items
- Contribution per senior member
  - Take latest NUSTAR Collaboration member list (status May 2, 2023)
  - Update table in Annex 8 of C-MoU accordingly

Construction Common Fund – **new items**

PSP-Code	Description	data from approved TDR	cost (2005) kEUR	comment
1.2.1.2.4	Detectors and slit system for FLF6	yes	135.7	
1.2.1.2.5	Beam line to MATS-LaSpec hall	yes	154.0	
1.2.1.7	Beam line to MATS RFQ	yes	198.4	
1.2.1.8	**Media supplies**	yes	**110.5**	**additional 30 kEUR for LN2 line**
1.2.1.9	Safety	yes	25.7	
1.2.1.10	IT infrastructure	yes	16.1	
1.2.1.11	Mechanics and alignment	yes	28.4	
1.2.2.1.8	Scintillators at FLF2 in vacuum	yes	28.6	
1.2.2.3.6	**Adaption of platforms for ES/FS operation**	yes	**10.0**	**additional item**
1.2.2.5	Safety	yes	59.2	
1.2.5.1.1.3.3	GLAD feedbox	yes	135.7	
1.2.5.1.1.3.4	GLAD warm piping	yes	6.8	
1.2.5.1.1.3.5	GLAD infrastructure		193.3	**secured (via collected CF cash)**
1.2.5.1.3.4	Vacuum systems (4th share)	yes	114.9	
1.2.5.1.5.1	Mechanics and alignment	yes	112.0	
1.2.6.4.4	ToF detectors - infrastructure CR	yes	63.8	
1.2.6.6.4	DAQ - common infrastructure	yes	24.4	
1.2.10.1.1.2	DAQ infrastructure (share 2)	yes	74.3	
1.2.10.1.2.1.1	Pendulum valves (share 1)	yes	66.0	
1.2.10.1.2.3	60L dewar	yes	24.8	
1.2.10.1.2.4	LN2 piping	yes	5.0	
		Total	**1587.6**	

R³B – GLAD infrastructure

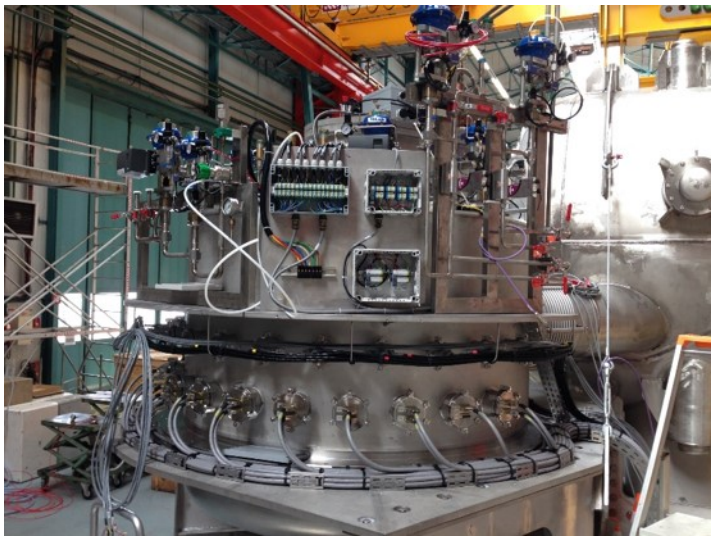
PSP-Code	Description	data from approved TDR	cost (2005) kEUR
1.2.5.1.1.3.3	GLAD feedbox	yes	135.7
1.2.5.1.1.3.4	GLAD warm piping	yes	6.8
1.2.5.1.1.3.5	GLAD infrastructure	no	193.3

funding secured via Common Fund

MSS cabinet (magnet safety system)

front view rear view

cabling



GLAD satellite

controls

initial infrastructure to be upgraded (technical assistance contract)

Construction Common Fund – staging steps

PSP-Code	Description	data from approved TDR	cost (2005) kEUR	FAIR staging step
1.2.1.2.4	Detectors and slit system for FLF6	yes	135.7	ES
1.2.1.2.5	Beam line to MATS-LaSpec hall	yes	154.0	FS++LEB
1.2.1.7	Beam line to MATS RFQ	yes	198.4	FS++LEB
1.2.1.8	Media supplies	yes	110.5	ES
1.2.1.9	Safety	yes	25.7	ES
1.2.1.10	IT infrastructure	yes	16.1	ES
1.2.1.11	Mechanics and alignment	yes	28.4	ES
1.2.2.1.8	Scintillators at FLF2 in vacuum	yes	28.6	ES
1.2.2.3.6	Adaption of platforms for ES/FS operation	yes	10.0	ES
1.2.2.5	Safety	yes	59.2	ES
1.2.5.1.1.3.3	GLAD feedbox	yes	135.7	ES
1.2.5.1.1.3.4	GLAD warm piping	yes	6.8	ES
1.2.5.1.1.3.5	GLAD infrastructure		193.3	ES
1.2.5.1.3.4	Vacuum systems (4th share)	yes	114.9	ES
1.2.5.1.5.1	Mechanics and alignment	yes	112.0	ES
1.2.6.4.4	ToF detectors - infrastructure CR	yes	63.8	MSVC
1.2.6.6.4	DAQ - common infrastructure	yes	24.4	MSVC
1.2.10.1.1.2	DAQ infrastructure (share 2)	yes	74.3	ES
1.2.10.1.2.1.1	Pendulum valves (share 1)	yes	66.0	ES
1.2.10.1.2.3	60L dewar	yes	24.8	ES
1.2.10.1.2.4	LN2 piping	yes	5.0	ES
		Total	**1587.6**	

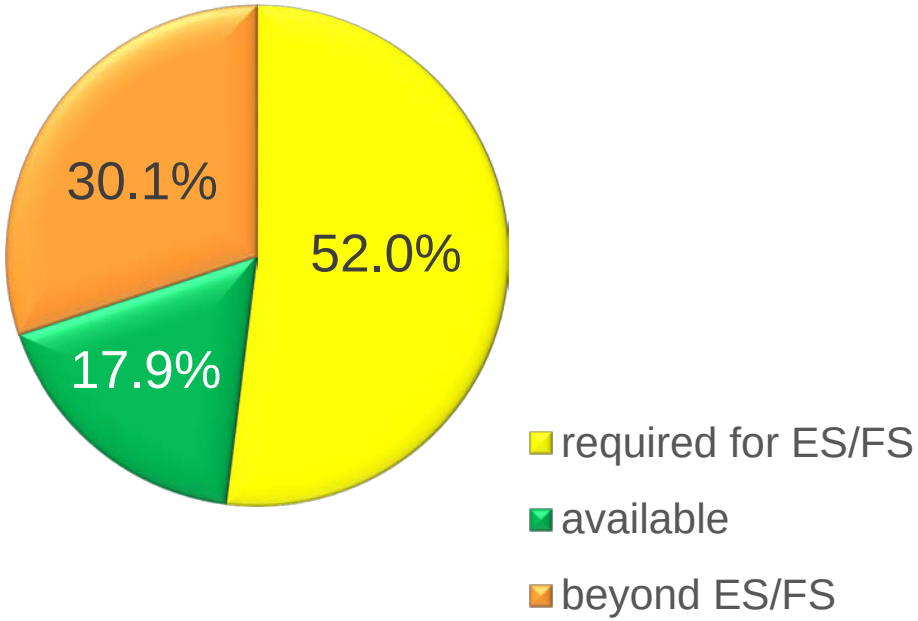
Expenditures per year (updated)

PSP-Code	Description	2023	2024	2025	2026	2027	2028	2029	2030	total
1.2.1.2.4	Detectors and slit system for FLF6				239.7					239.7
1.2.1.2.5	Beam line to MATS-LaSpec hall							294.0		294.0
1.2.1.7	Beam line to MATS RFQ							378.8		378.8
1.2.1.8	Media supplies			190.2						190.2
1.2.1.9	Safety			44.2						44.2
1.2.1.10	IT infrastructure			27.7						27.7
1.2.1.11	Mechanics and alignment			48.9						48.9
1.2.2.1.8	Scintillators at FLF2 in vacuum			49.2						49.2
1.2.2.3.6	Adaption of platforms for ES/FS operation			17.2						17.2
1.2.2.5	Safety			101.9						101.9
1.2.5.1.1.3.3	GLAD feedbox		227.6							227.6
1.2.5.1.1.3.4	GLAD warm piping		11.4							11.4
1.2.5.1.1.3.5	GLAD infrastructure	316.0								316.0
1.2.5.1.3.4	Vacuum systems (4th share)			197.8						197.8
1.2.5.1.5.1	Mechanics and alignment			192.8						192.8
1.2.6.4.4	ToF detectors - infrastructure CR								125.0	125.0
1.2.6.6.4	DAQ - common infrastructure								47.8	47.8
1.2.10.1.1.2	DAQ infrastructure (share 2)				131.3					131.3
1.2.10.1.2.1.1	Pendulum valves (share 1)				116.6					116.6
1.2.10.1.2.3	60L dewar			42.7						42.7
1.2.10.1.2.4	LN2 piping			8.6						8.6
		316.0	**239.0**	**921.2**	**487.6**	**0.0**	**0.0**	**672.8**	**172.8**	**2809.4**

Present status of CF contributions

- Germany / GSI
  - **GSI paid 300 kEUR as part of its contribution to CF**
- United Kingdom
  - **STFC paid 204 kEUR as part of UK contribution to CF**

Country	expected [EUR]	share	paid [EUR]
Germany	892704	31.8%	300000
United Kingdom	249432	8.9%	204000
Spain	210048	7.5%	
Italy	196920	7.0%	
France	170664	6.1%	
USA	111588	4.0%	
Poland	105024	3.7%	
China	98460	3.5%	
Japan	98460	3.5%	
Sweden	91896	3.3%	
Finland	85332	3.0%	
India	85332	3.0%	
Romania	72204	2.6%	
others	341328	12.1%	
	2809392	**100.0%**	**504000**



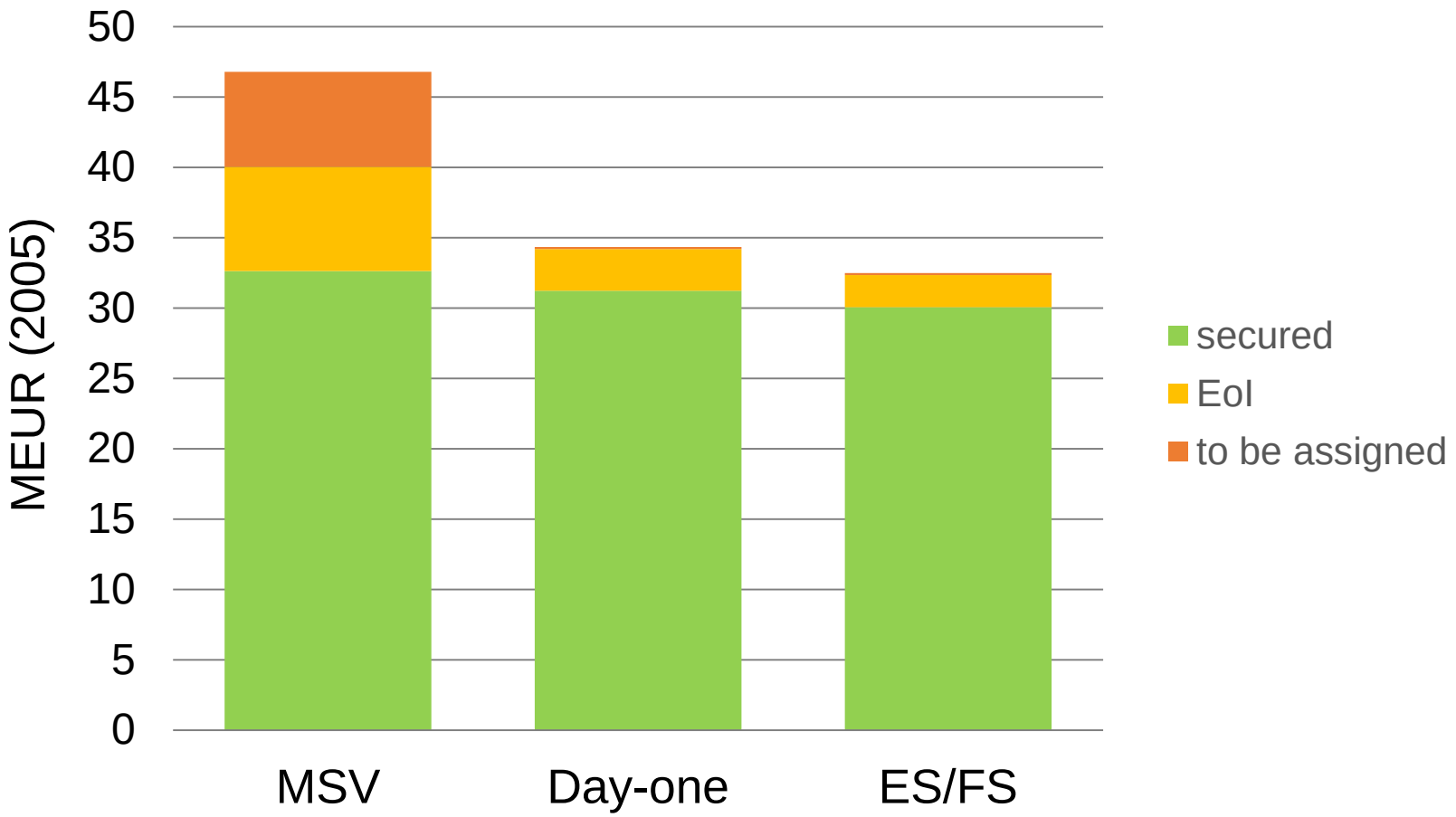
Conclusion

- NUSTAR funding “Early and First Science”
  - 92.5% of Day-one configuration related to Early and First Science **secured**
  - 2.9% (infrastructure) expected via **Construction Common Fund**
  - 2.6% expected as **FAIR tender** for re-procurement of former Russian in-kind contributions
  - 2.0% still to come from partner/member institutes

- NUSTAR Construction Common Fund
  - Construction Common Fund item list updated:
    - **Minor adjustments** for operation in **High-Energy Branch (HEB)**
    - Priority for Early and First Science items (**70% of total CF**)
  - First payments received
    - UK and GSI **(about 25% of ES/FS items covered)**

Additional material

Comparison MSV / Day-one / ES/FS



Status of TDRs (MSV)

27	approved
0	submitted
3	expected
7	beyond “Day one”

Sub-system	TDR #	name	status	
NUSTAR	2_01	LEB infrastructure	**approved**	
LEB infrastructure	2_02	Cryogenic Stopping cell	**approved**	
HISPEC/DESPEC	2_04	HISPEC/DESPEC infrastructure	**approved**	
NUSTAR	2_05	NUSTAR DAQ	**approved**	11/2025
HISPEC/DESPEC	2_07	Active target (India)	expected	
HISPEC/DESPEC	2_08	HYDE	expected	11/2025
HISPEC/DESPEC	2_09	LYCCA	**approved**	
HISPEC/DESPEC	2_10	Plunger	**approved**	
HISPEC/DESPEC	2_11	AIDA	**approved**	
HISPEC/DESPEC	2_12	DEGAS	**approved**	
HISPEC/DESPEC	2_13	FATIMA	**approved**	
HISPEC/DESPEC	2_14	BELEN	**approved**	
HISPEC/DESPEC	2_15	MONSTER	**approved**	
HISPEC/DESPEC	2_16	NEDA	**approved**	
HISPEC/DESPEC	2_17	DTAS	**approved**	
HISPEC/DESPEC	2_18	gSPEC	expected	**11/2023**
NUSTAR	2_19	MATS/LaSpec	**approved**	
R3B	2_21	GLAD	**approved**	
R3B	2_22	R3B tracking	**approved**	
R3B	2_24	CALIFA barrel	**approved**	
R3B	2_25	CALIFA fwd endcap	**approved**	
R3B	2_26	Si tracker	expected	**06/2023***
R3B	2_27	NeuLAND	**approved**	
R3B	2_28	R3B vacuum	**approved**	
R3B	2_29	R3B infrastructure	**approved**	
R3B	2_30	R3B spectrometer	expected	07/2024
R3B	2_32	ACTAF	**approved**	
ILIMA	2_33	ILIMA Schottky	**approved**	
ILIMA	2_34	ILIMA TOF detectors	**approved**	
ILIMA	2_35	ILIMA Heavy ion detector	**approved**	
HISPEC/DESPEC	2_37	Slowed down beam setup	expected	11/2025
Super-FRS Experiment	2_38	EXPERT	**approved**	
Super-FRS Experiment	2_39	Super-FRS Exp infrastructure	**approved**	07/2024
Super-FRS Experiment	2_40	Liquid hydrogen target	expected	
Super-FRS Experiment	2_41	(Ice target and tensor force)	expected	**06/2023***
Super-FRS Experiment	2_42	(future WASA)	expected	07/2025
R3B	2_43	HYDRA	expected	07/2024

*funding available/secured

NUSTAR MSV: Funding distribution (by country)

	Common infrastr.	HISPEC/ DESPEC	MATS	LaSpec	R^3B	ILIMA	Super-FRS EC	total	secured	EoI
Australia		50.0						50.0		50.0
Belgium				153.8				153.8	82.6	71.2
Bulgaria		16.3						16.3	16.3	
Canada						80.0	124.3	204.3	138.2	66.1
Czech Republic							305.5	305.5	160.0	145.5
FAIR	668.8	97.8			1407.1	88.2	170.1	2432.0	193.3	2238.7
Finland		387.9	215.2	106.4			36.3	745.8	745.8	
France		220.0			2935.0			3155.0	2935.0	220.0
Germany	1168.3	1699.3	1675.9	146.2	8077.2	740.0	11.8	13518.7	12935.6	583.1
Hungary					12.1			12.1	12.1	
India		2514.0	40.0					2554.0	2092.2	461.8
Israel	58.5						13.6	72.1	58.5	13.6
Italy					130.0			130.0	130.0	
Japan						193.2	196.8	390.0	196.8	193.2
Netherlands					104.0			104.0	104.0	
Poland		500.0						500.0	500.0	
Romania		1822.5						1822.5	1822.5	
Russia					744.7		1156.0	1900.7	898.8	1001.9
Slovenia		21.4			75.0			96.4	96.4	
Spain		2332.2	317.1		1195.2			3844.5	2139.2	1705.3
Sweden		1027.9			1800.0			2827.9	2817.9	10.0
Turkey		88.5						88.5		88.5
United Kingdom		2813.1		87.1	2213.4			5113.6	4555.1	558.5
to be assigned	1189.6	600.8	684.5	133.8	3247.1	690.2	214.8	6760.8		
total	3085.2	14191.7	2932.7	627.3	21940.8	1791.6	2229.2	46798.5	32630.3	7407.4

NUSTAR MSV: Funding distribution (by country)

	total	secured FAIR	secured external	EoI
Australia	50.0			50.0
Belgium	153.8		82.6	71.2
Bulgaria	16.3		16.3	
Canada	204.3		138.2	66.1
Czech Republic	305.5		160.0	145.5
FAIR	2432.0		193.3	2238.7
Finland	745.8	709.5	36.3	
France	3155.0	2530.0	405.0	220.0
Germany	13518.7	6020.0	6915.6	583.1
Hungary	12.1		12.1	
India	2554.0	2010.0	82.2	461.8
Israel	72.1		58.5	13.6
Italy	130.0		130.0	
Japan	390.0		196.8	193.2
Netherlands	104.0		104.0	
Poland	500.0	500.0		
Romania	1822.5	1822.5		
Russia	1900.7	700.6	198.2	1001.9
Slovenia	96.4		96.4	
Spain	3844.5		2139.2	1705.3
Sweden	2827.9	1575.0	1242.9	10.0
Turkey	88.5			88.5
United Kingdom	5113.6	4555.1		558.5
to be assigned	6760.8			
total	46798.5	20422.7	12207.6	7407.4

FAIR: cash contribution for **re-procurement** former Russian in-kind and **NUSTAR Common Fund** (construction)

Russia: Russian institutes suspended, all activities on hold

NUSTAR experiment-funding overview (MSV)

Experiment	Prices, K Euro				
	2005 prices			2023 prices	
	Secured*	EoI	to be assigned	EoI	to be assigned
Common infrastr.	1226.8	668.8	1189.6	1093.2	1944.5
HISPEC/DESPEC	11111.1	2479.8	600.8	4053.5	982.1
MATS	1596.3	651.9	684.5	1065.6	1118.9
LaSpec	335.2	158.3	133.8	258.8	218.7
R^3B	16923.7	1770.0	3247.1	2893.2	5307.7
ILIMA	820.0	281.4	690.2	460.0	1128.2
Super-FRS EC	617.2	1397.2	214.8	2283.9	351.1
Total	**32630.3**	**7407.4**	**6760.8**	**12108.2**	**11051.2**

(*including expected from FAIR budget)

Status: May 19, 2023

NUSTAR experiment funding (**Day one**)

Experiment	Prices, K Euro				
	2005 prices			2023 prices	
	Secured*	EoI	to be assigned	EoI	to be assigned
Common infrastr.	1226.8	668.8	89.6	1093.2	146.5
HISPEC/DESPEC	10628.9	482.4	0.0	788.5	0.0
MATS	1132.9	40.0	0.0	65.4	0.0
LaSpec	252.6	0.0	0.0	0.0	0.0
R^3B	16774.3	1328.2	56.9	2171.1	93.0
ILIMA	820.0	281.4	0.0	460.0	0.0
Super-FRS EC	398.1	170.1	0.0	278.0	0.0
Total	**31233.6**	**2970.9**	**146.5**	**4856.2**	**239.5**

(*including expected from FAIR budget)

Status: May 19, 2023

NUSTAR experiment funding (ES/FS, Day-one)

Experiment	Prices, K Euro				
	2005 prices			2023 prices	
	Secured*	EoI	to be assigned	EoI	to be assigned
Common infrastr.	1226.8	316.4	89.6	517.2	146.5
HISPEC/DESPEC	10628.9	482.4	0.0	788.5	0.0
MATS	534.7	0.0	0.0	0.0	0.0
LaSpec	67.0	0.0	0.0	0.0	0.0
R^3B	16774.3	1328.2	56.9	2171.1	93.0
ILIMA	423.5	0.0	0.0	0.0	0.0
Super-FRS EC	398.1	170.1	0.0	278.0	0.0
Total	**30053.3**	**2297.1**	**146.5**	**3754.8**	**239.5**

(*including expected from FAIR budget)

Status: May 19, 2023