

DREAM update

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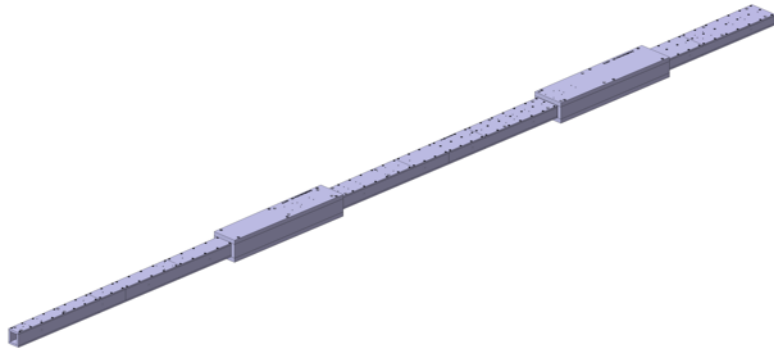
New TG dates

- Driven by guide procurement
- No change of TG5 date

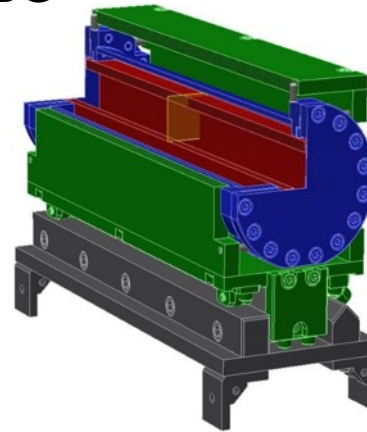
Oct '20	Dec'20	Jan'21	Feb'21	Mar'21	April' 21	May' 21	Aug' 21
<u>Sub-TG3.2</u>	<u>Sub-TG3.3</u>	<u>Sub-TG3.4</u>	<u>IDR</u>	<u>Sub-TG3.5</u>	<u>Sub-TG3.6</u>	<u>Sub-TG3.7</u>	<u>Final TG3</u>
Beam monitors	BC Chopper	Common shielding (ESS)	Cave	BWI	Cave	Neutron guides (in-bunker)	Neutron guides (out-of-bunker)
PSC + OC choppers	BBG				Beam stop		Drawing package of complete system
Heavy Shutter (ESS)					Sample environment	Hutch + Sample preparation lab	Instrument control systems (EPICS)
					Relevant MCA		PSS
					Vacuum systems (ESS solution)	Facility infrastructure connections and utilities	
					Interface of the ESS vacuum system	T0 Chopper (ESS)	

Neutron Beam Optics Assembly / Bridge Beam Guide / Bi-spectral Switch

NBOA



BBG



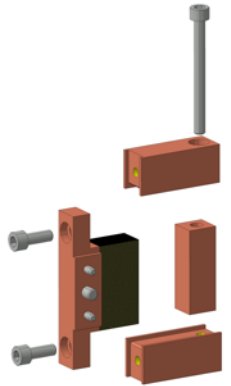
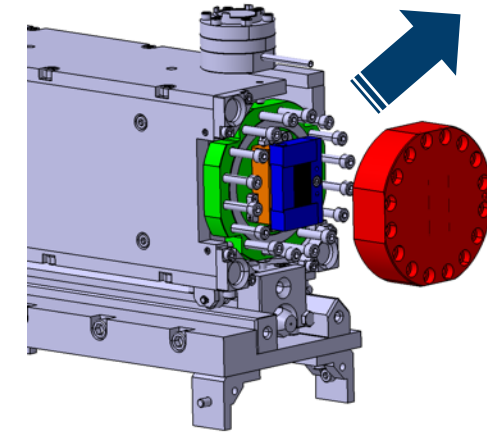
Optics

Pressure vessel

Alignment frame

Rail assembly

Bi-spectral switch



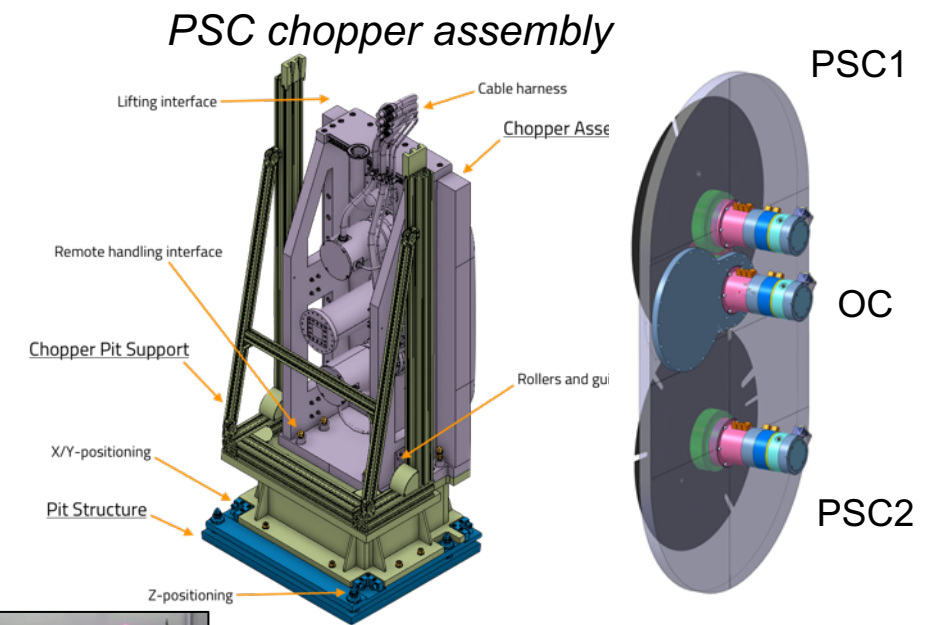
- Neutron tests of NBOA are still pending
- BBG kick-off meeting next week
- Neutron tests of first wafers are complete
- No effects on hot commissioning dates

Bi-spectral switch manufactured	NBOA delivered to ESS	BBG installed	Bi-spectral switch installed
Dec. - 2020	Dec. - 2020	Aug. - 2021	Aug. - 2021

Chopper system

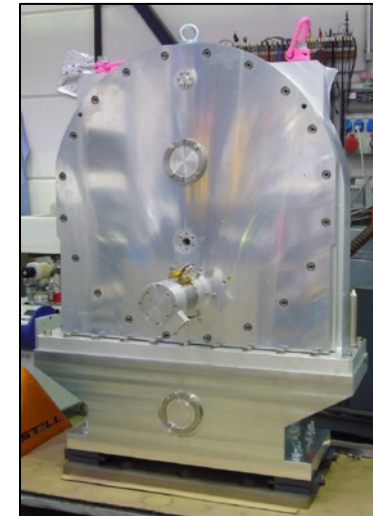
Pulse Shaping Chopper (PSC, 308 Hz) & Overlap Chopper (OC, 14 Hz)

- Procurement completed.
- Manufacturing and installation by Jülich Chopper Group
- Interfaces with guides and ODIN are defined
- IDR in June 2020,
- SubTG3 is planned for October/November



Band Control Chopper (BC, 112 Hz)

- Procurement completed.
- Manufacturing and installation by Jülich
- Remote handling w/o breaking guide vacuum
- SubTG3 is planned for December

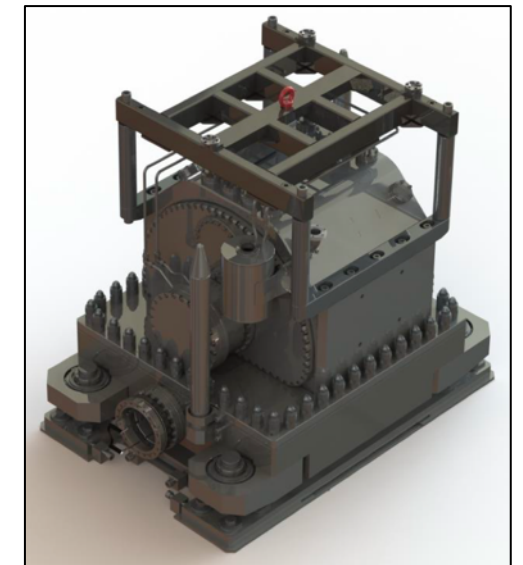


BC (POWTEX@FRM2)

T0-Chopper

- ESS prototype will be used (CTV approved)
- COVID-19 delays
- SubTG3 is planned for October/November

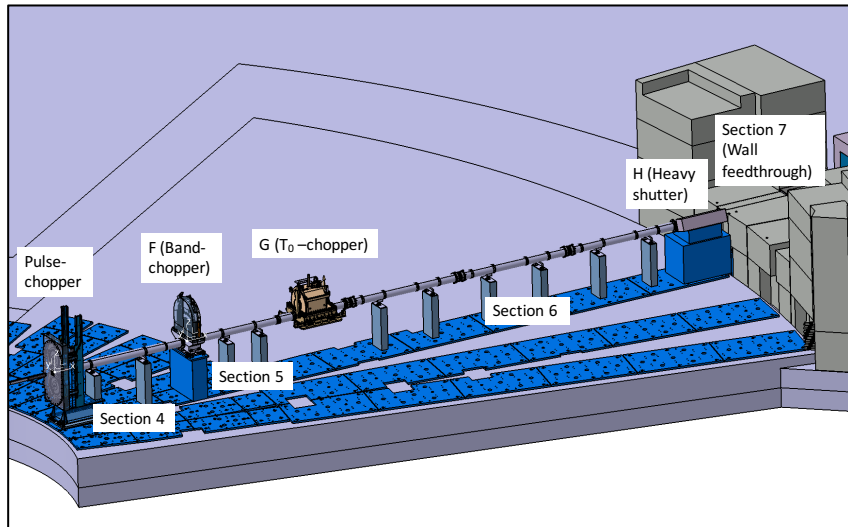
T0 prototype (ESS)



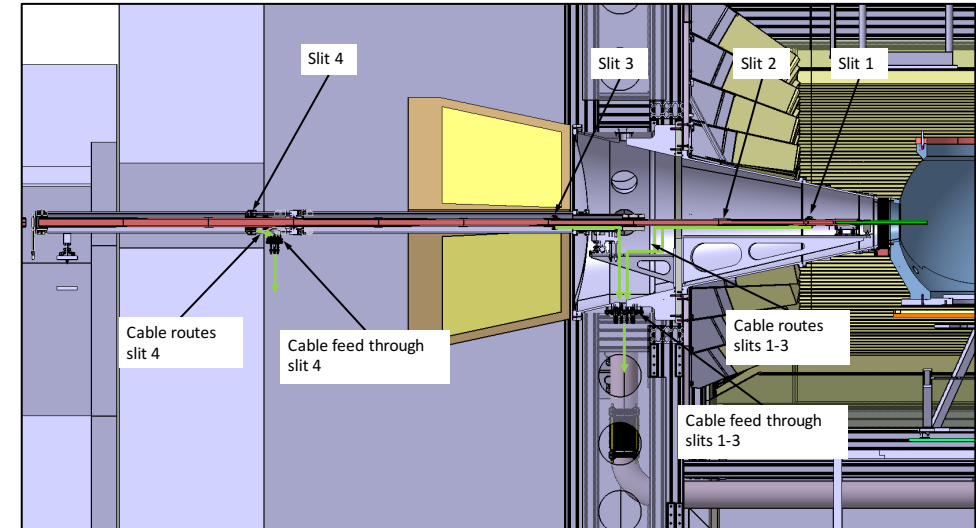
Neutron guides

- Procurement is completed
- SwissN will deliver in- and out-bunker guides
- Installation for in-bunker guides is prioritized to meet bunker access dates
- Out-bunker guides will be delivered later, but installation is still on time

Inside bunker



Outside bunker



Bunker access	Chopper base	In-bunker guides
Oct.21* May.22	Oct. - Dec. 2021	Sept. - Oct. 2021

**latest ESS estimate*

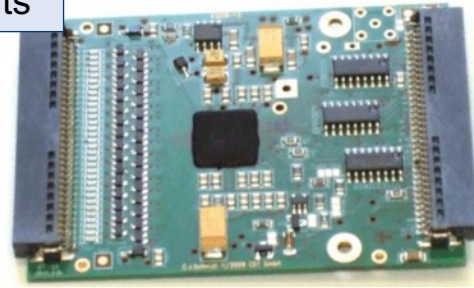
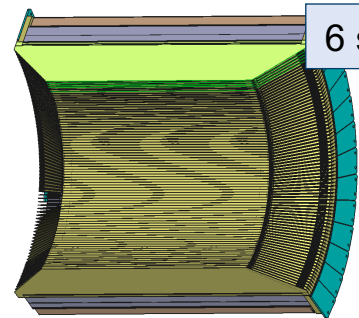
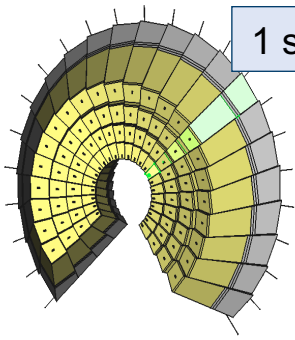
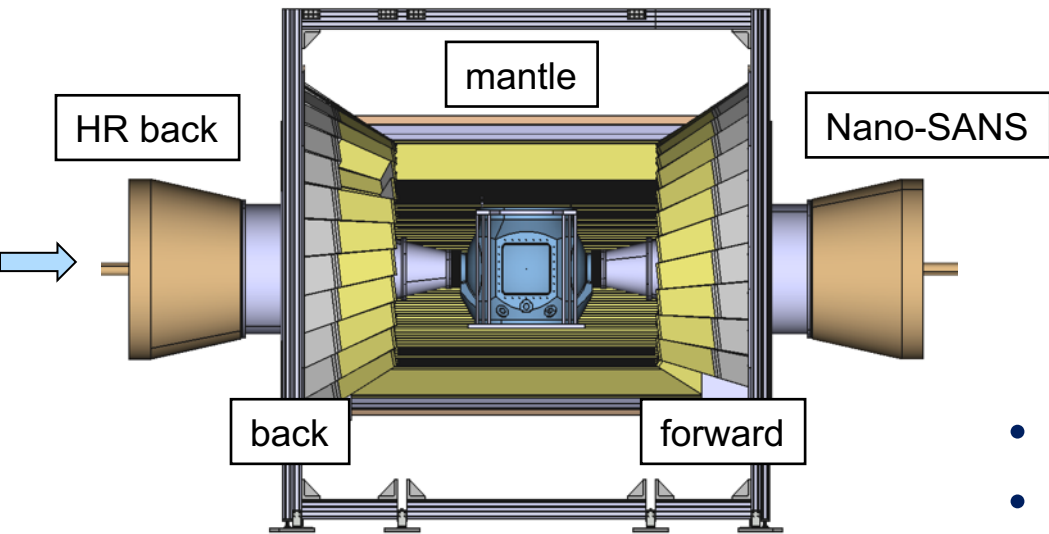
D01 available to Partners	Out-bunker guides	Guide shielding installed	Cave
03.06.2021	Apr. 22 - Jul. 22**	Jun. 22	Jun.21 – Jun.22

***last piece inside the cave*

Detectors

- Development of first modules and readout electronics (Sept. 2017)

Complete detector coverage



- End-cap is successfully tested with neutrons (July 2019)
- Procurement is complete, except for HR detector
- Finalizing HR det. requirements

	back/forward	mantle	HR back	Nano-SANS**
Manufactured	May - 2021	May - 2021	Apr. - 2022	Q3 - 2023

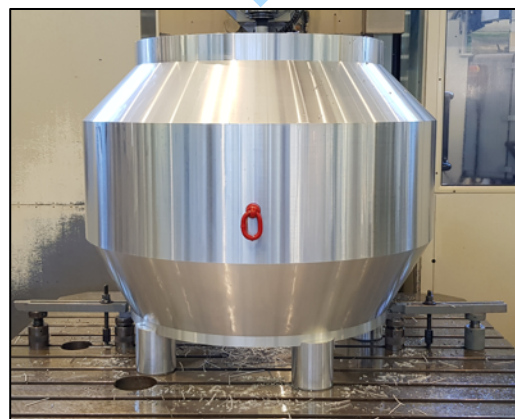
** not part of the scope, external funding

Cave installed	Detector support installed	SubTG4	Detectors installation completed	Hot commission/ First science
Jun. - 2022	Jun. - 2022	Jun. - 2022	Sept. - 2022	Jan. - 2023

Sample vessel

- Pre-milled manufacturing completed
- Dimensions verified
- Milling is delayed by 3 months, priority is given to moderator
- No effect on installation date

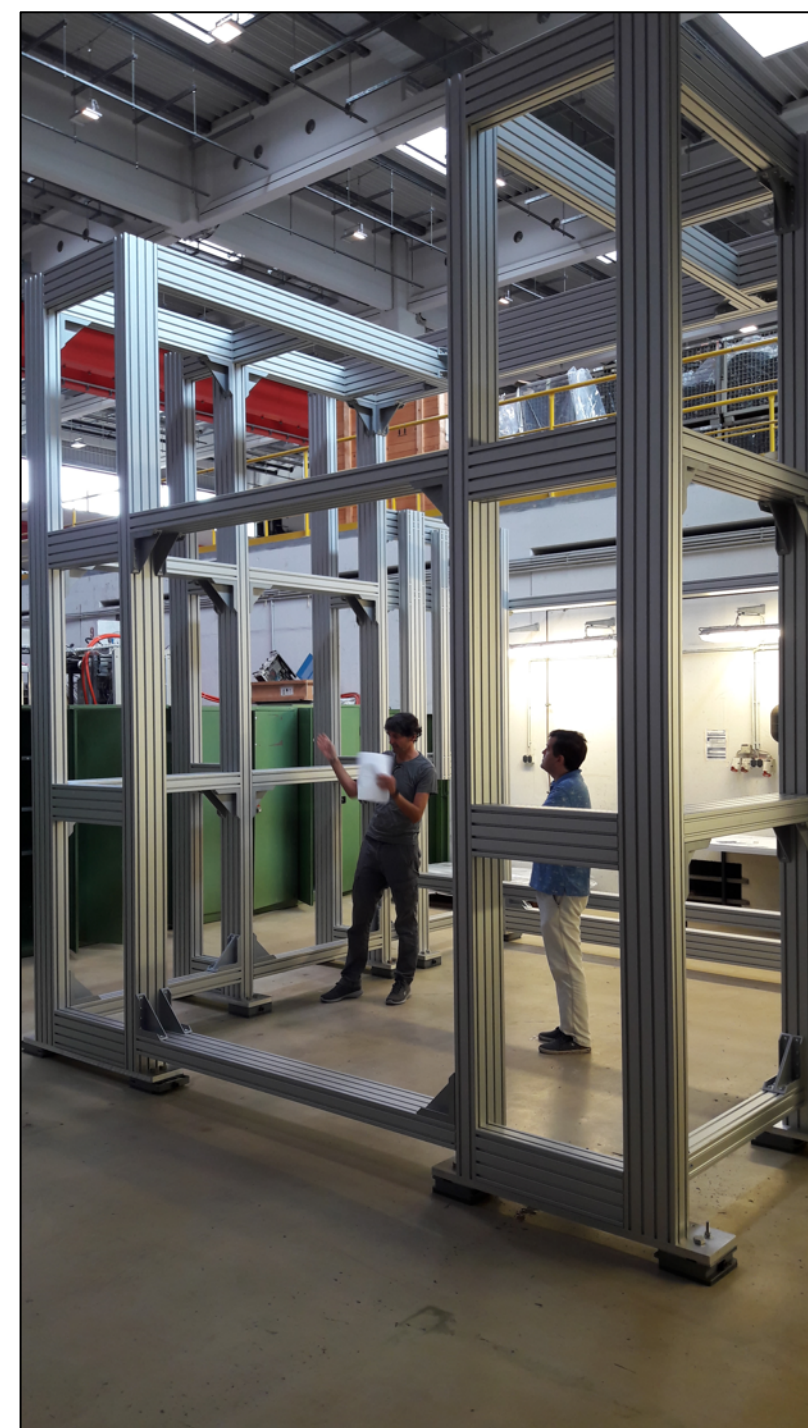
Last STAP



Detector support

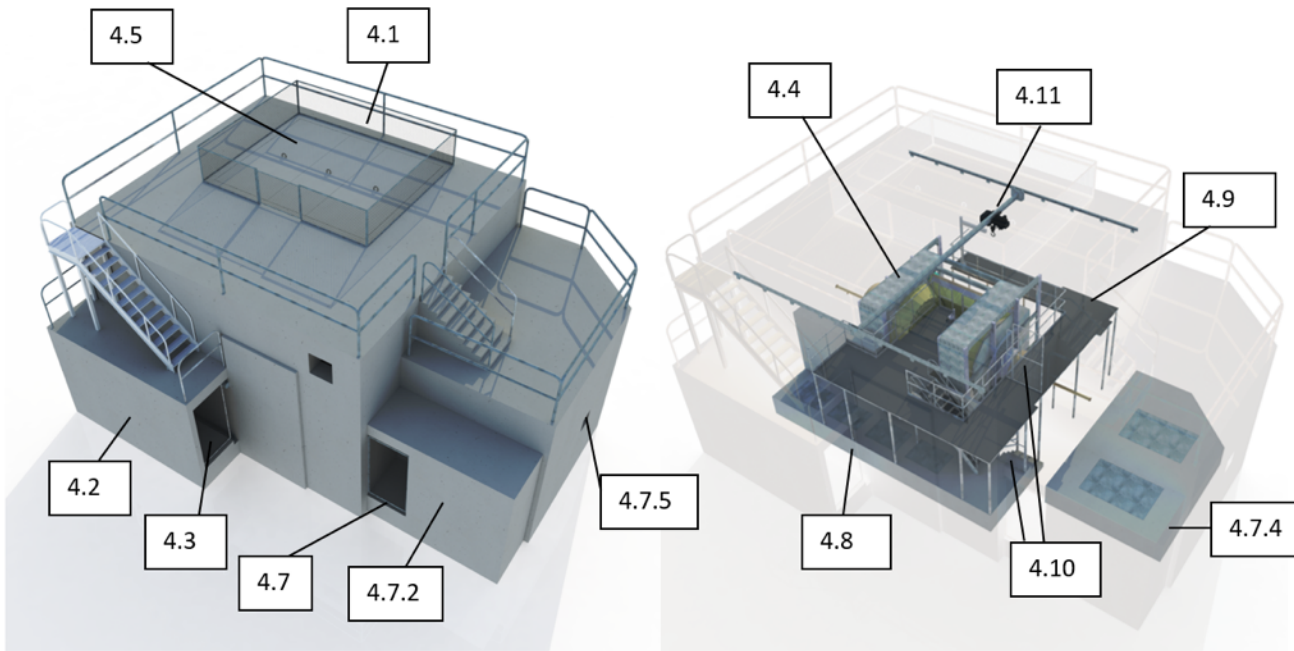
- Designed for full detector coverage
- FAT at ITEM in June 2020
- Installation in Jülich is ongoing
- Pre-installation with sample vessel & support is planned

Cave installed	Detector support installed	Sample vessel & support installed	Detectors installation starts	Detectors installation completed
Jun. - 2022	Jun. - 2022	Jun. - 2022	Jun. - 2022	Sept. - 2022



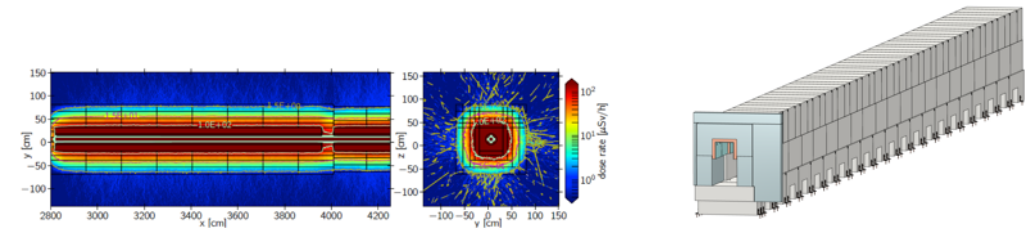
Experimental cave

- Call for tender is closed on Oct 5th
- Bids are being evaluated
- Bids include options for one and two experimental caves



Neutron guide shielding

- SubTG3 in Jan. 2021



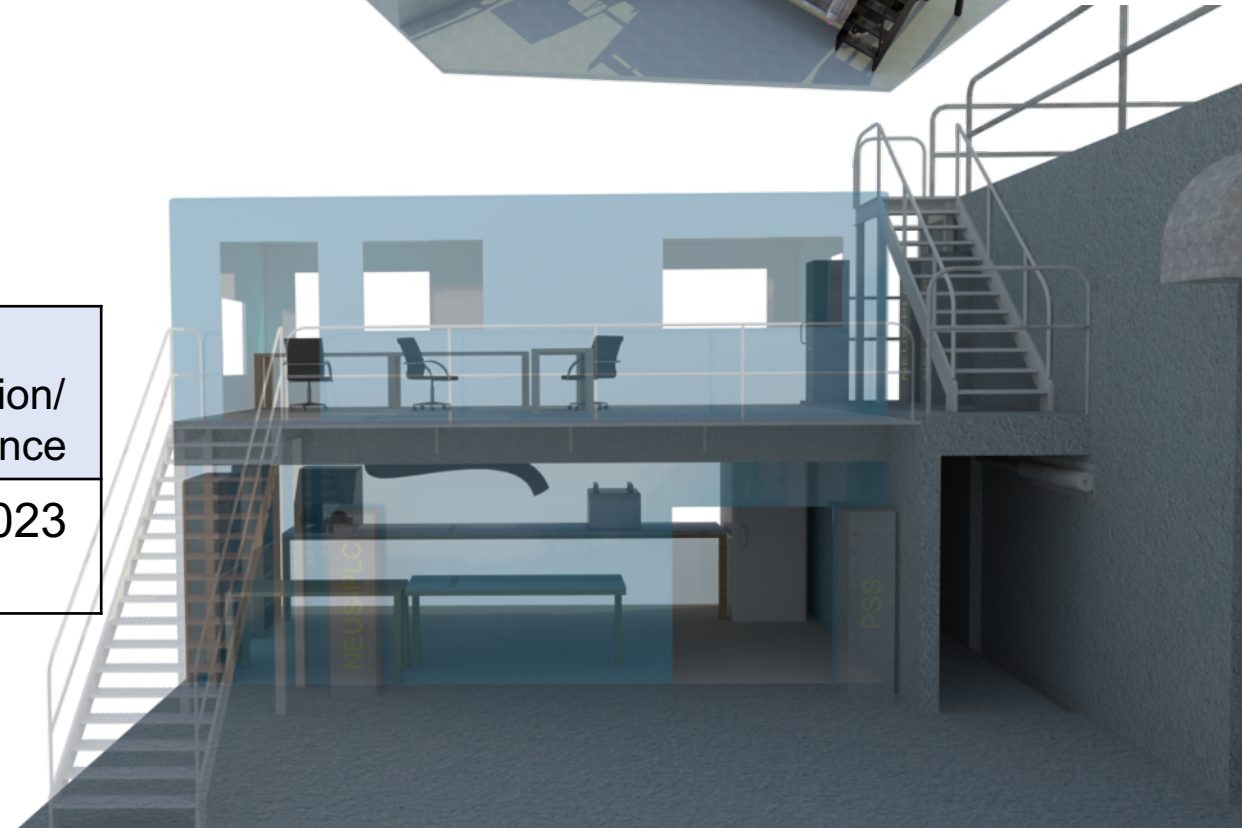
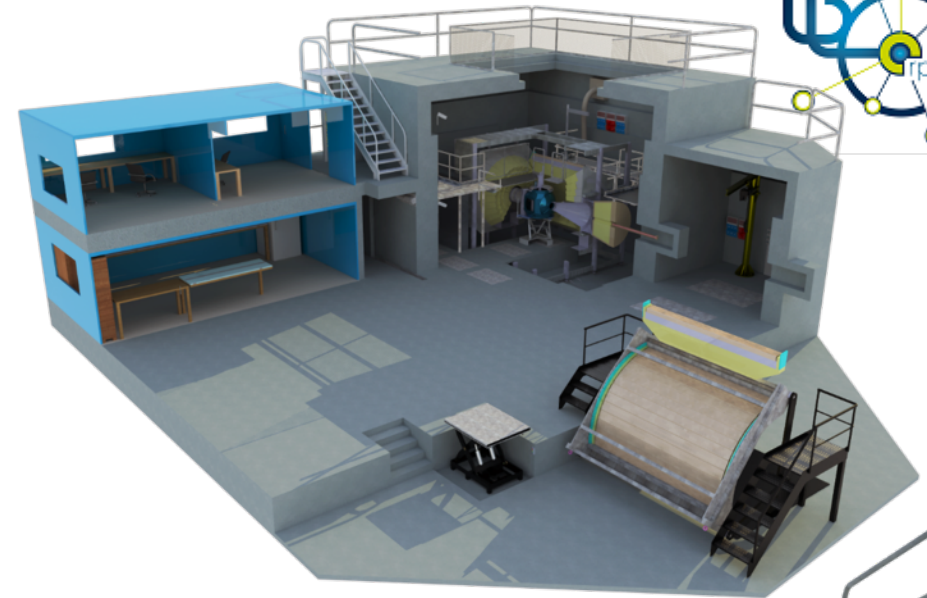
Personnel Safety System

- Last meeting: Sept. 30, 2020
- PSS team will create PSS Concept of Operation for DREAM
- Risk assessment will be evaluated
- Application for the instrument installation permit in Dec. 2020
- No longer a risk of delaying TG3

Hutch & Sample preparation lab



- Now part of FZJ WP
- CTV was accepted by ESS
- Internal design review at FZJ before procurement
- First quote is received
- Second one is requested



D01 available to Partners (with crane)

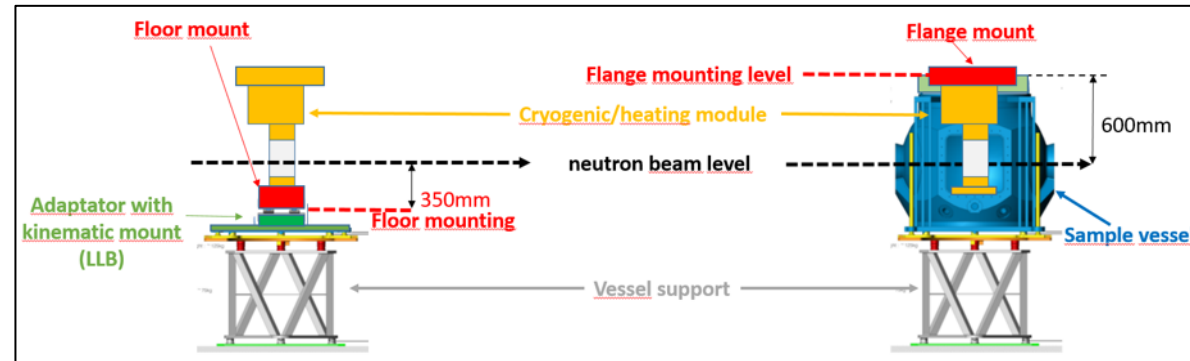
26.07.2021

Cave installed	Hutch & sample lab installed	Hot commission/ First science
Jun. - 2022	Jun. - 2022	Jan. - 2023

DREAM Specific SEE: Cryofurnace with Sample Changer



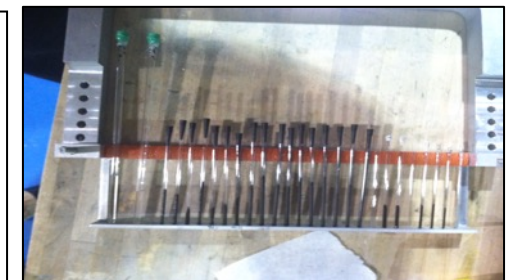
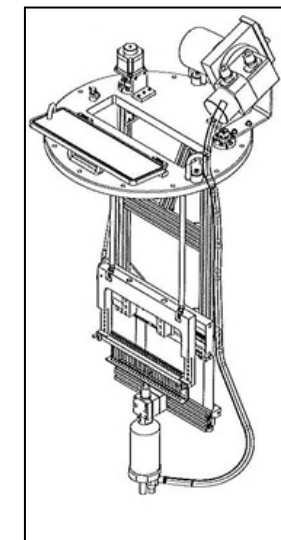
- T = 4 - 800K
- 20 samples
- Flange & floor mounts



SEE Procured	SEE Manufactured	SEE delivered to ESS	Sample vessel & support Installed	Detectors Installation completed
Nov. - 2020	May - 2021	Sept. - 2021	Jun. - 2022	Sept. - 2022

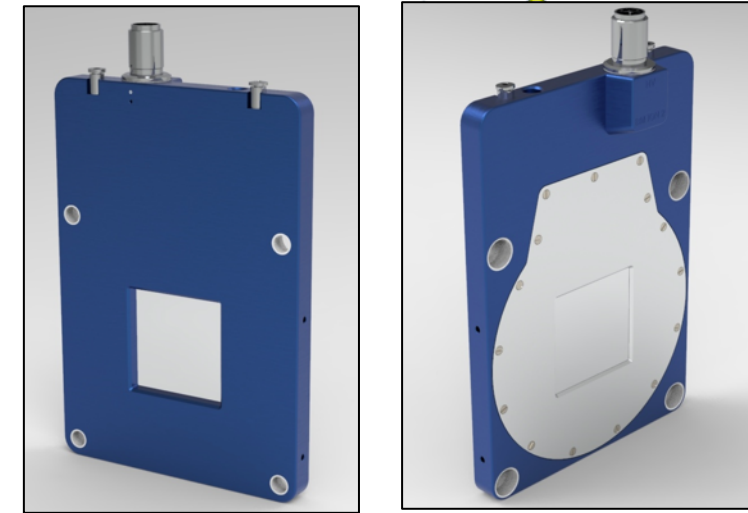
NOMAD @ SNS

- New Call for tender is published on Oct. 7th
- Relaxed requirement: samples are not pre-cooled
- Fallback option: simple stage with cryo-jet and/or heat gun
- Sample changer capability is crucial for a fallback option

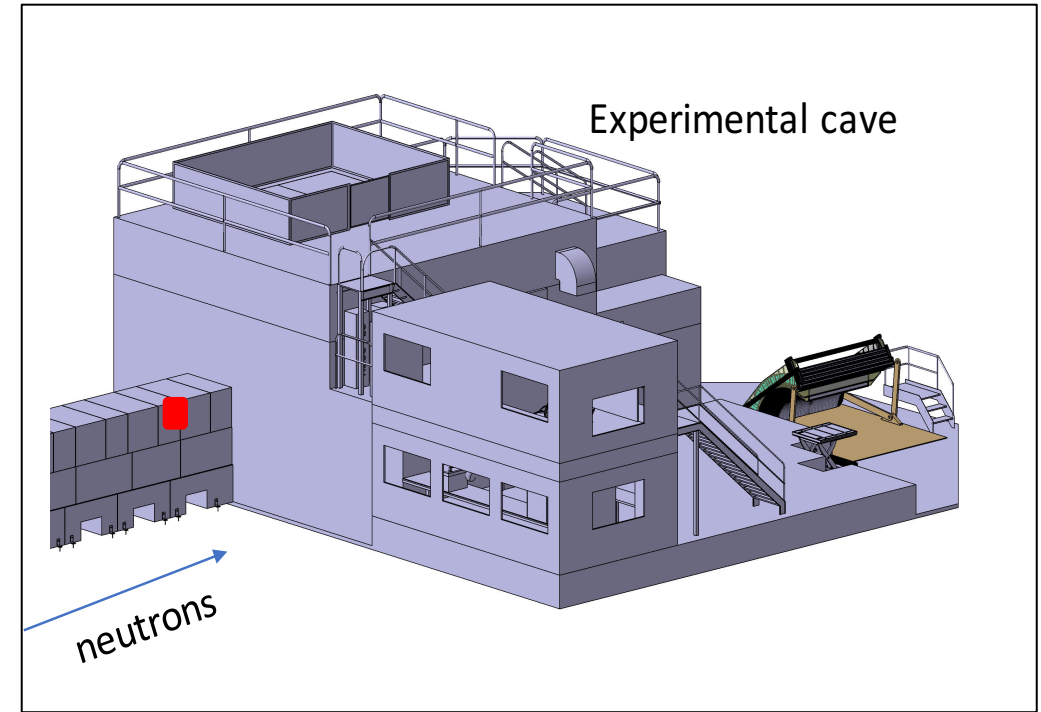
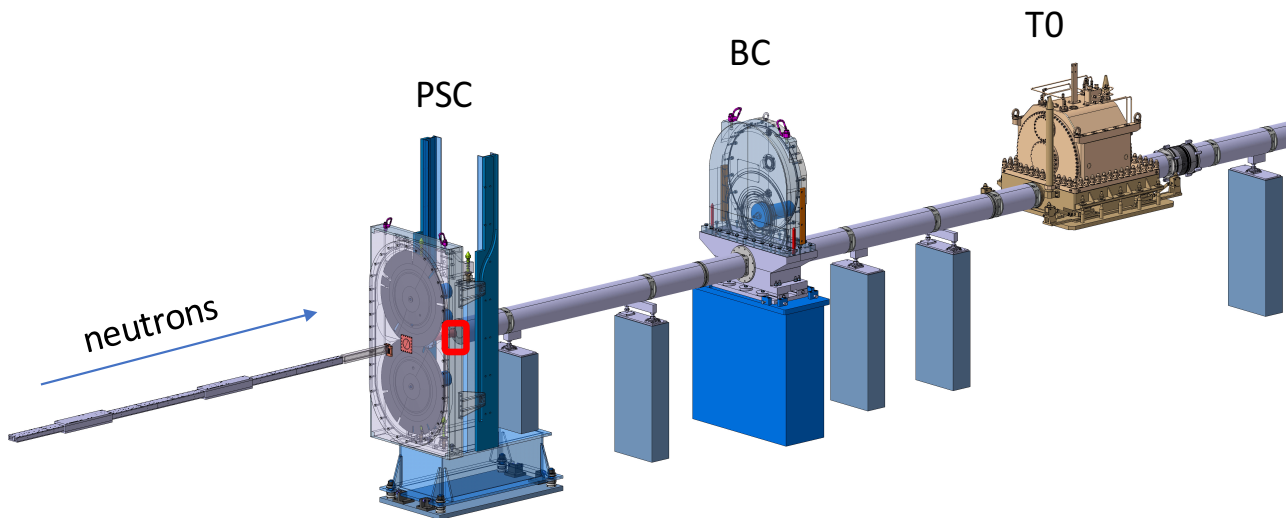


Beam Monitors

- Not part of ESS Common Monitor project
- Solution: ionization chamber technology CDT (Detector supplier)
- Procurement is complete
- SubTG3 documents are submitted on Oct. 19th



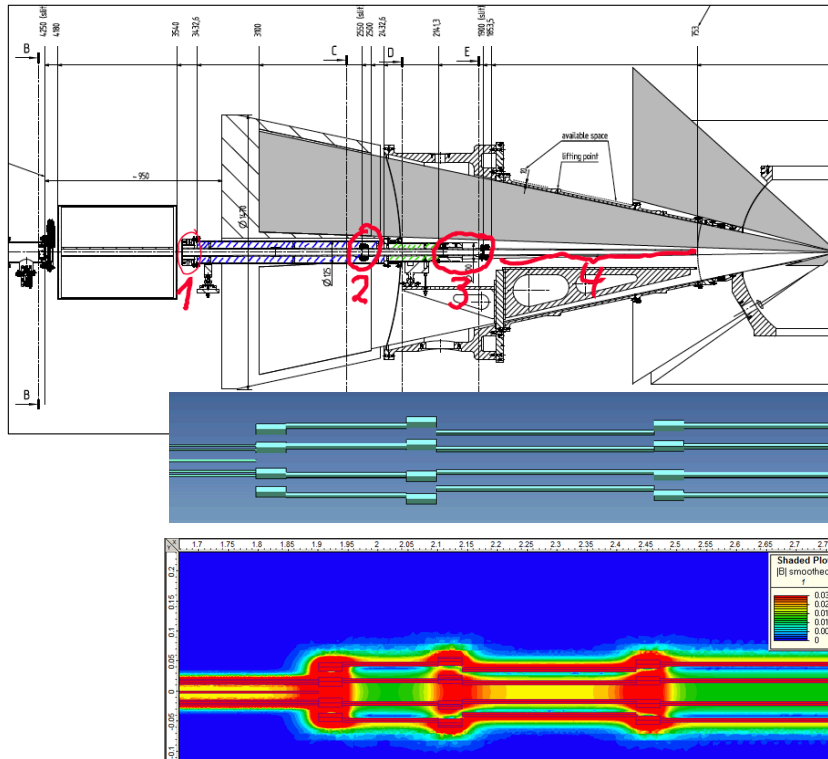
Side view



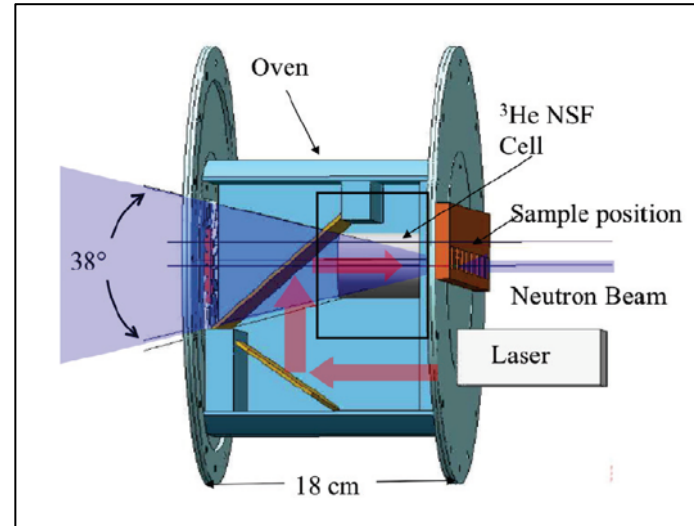
Polarizer setup at DREAM (RAC funding)

- Guiding field concept is finalized
- Magic-box solution is under development
- Movable stage for cold neutrons polarizer cell, thermal neutrons polarizer and neutron guide
- Upgrade options: thermal neutron cell and analyzer (polarization analysis)

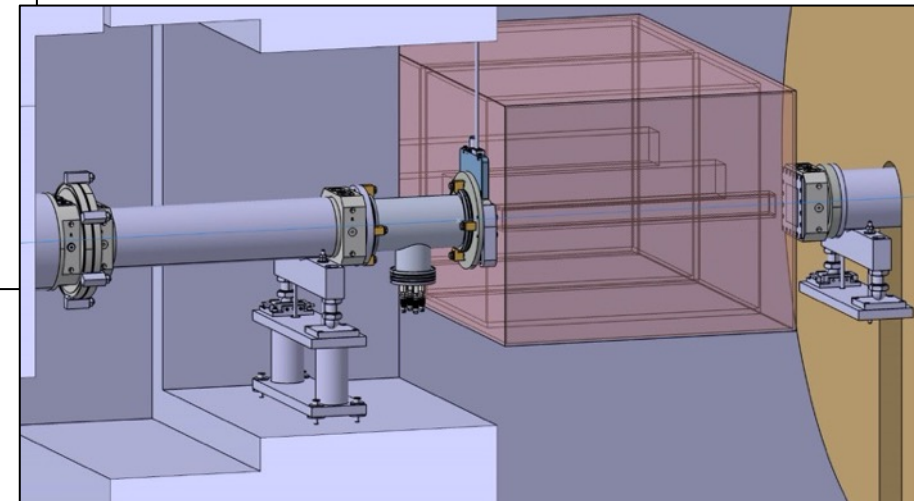
Guiding field solution



Magic-box of KWS2

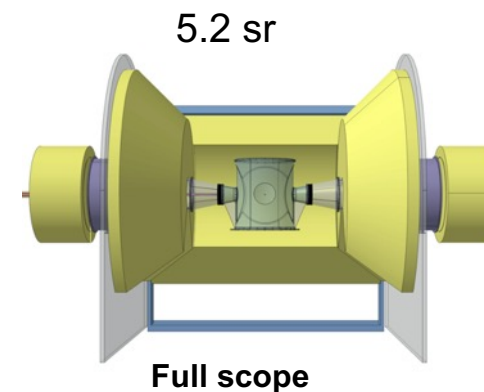
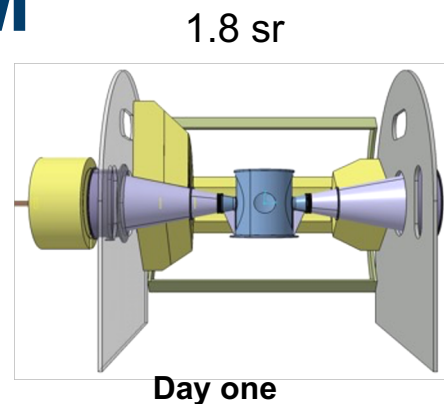


Movable stage with three positions



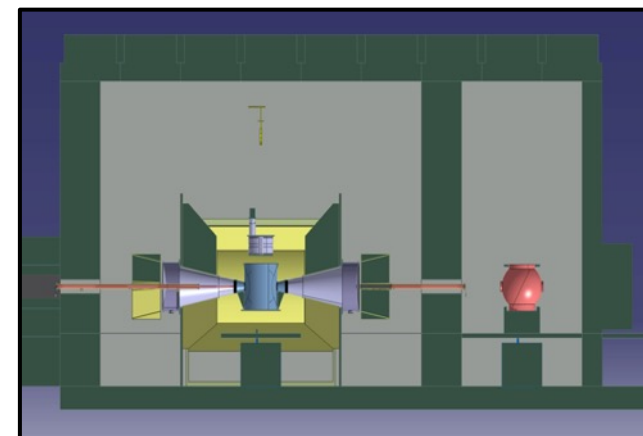
Upgrade priorities for DREAM

1. Complete detector coverage (partly funded by RAC)



2. Second sample station

- High-pressure
- Laue camera
- Multi purpose station



3. Polarizer cell for thermal neutrons and analyzer

(cold neutron polarizer is funded by RAC)

