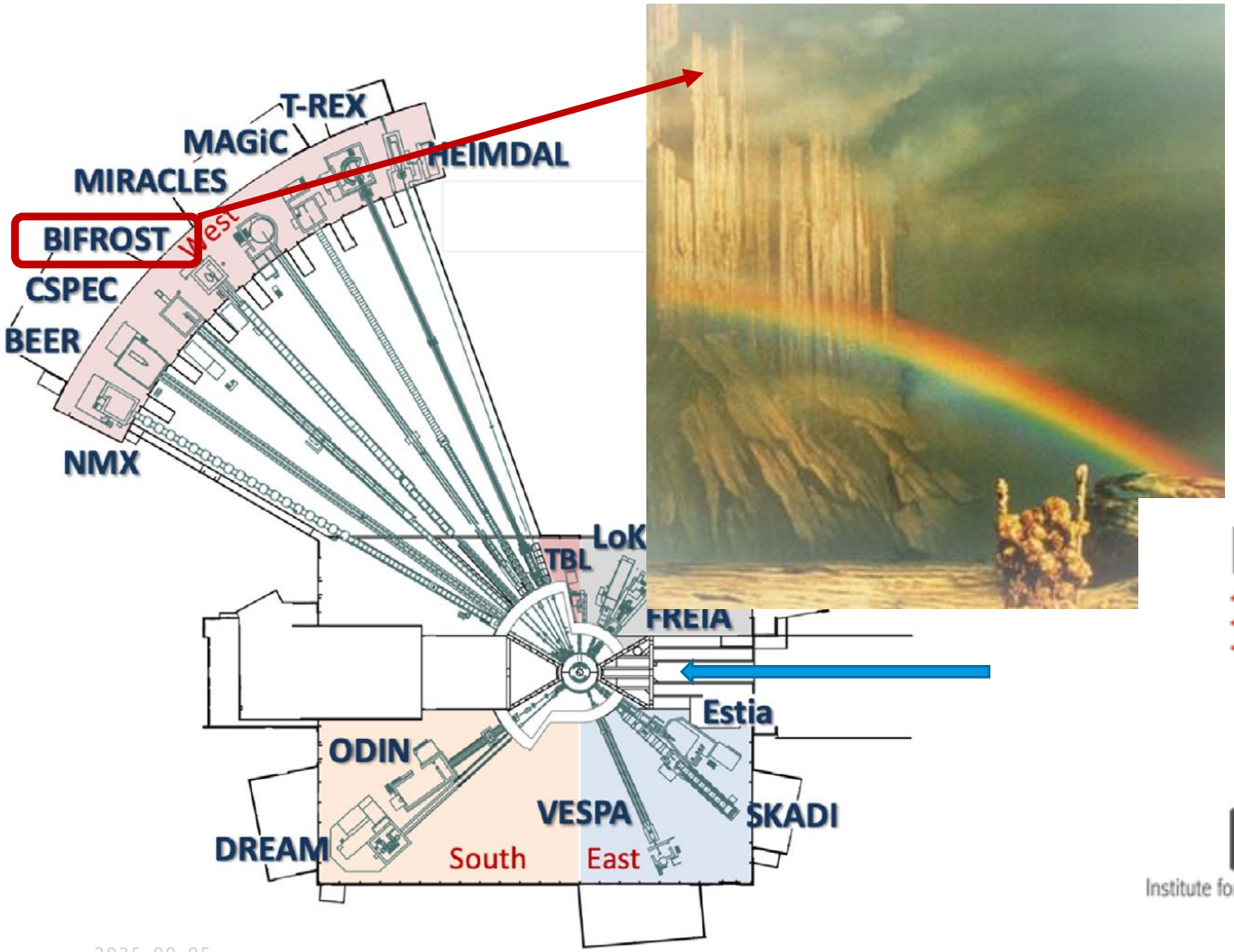
System Acceptance Review
BIFROST

Pascale Deen

Head of Spectroscopy Division, European Spallation Source

5th September 2025

Bifrost : Extreme environment spectrometer



BIFROST: Norse mythology,
a rainbow bridging the gap
between
triple axis spectroscopy and
time-of-flight spectroscopy

Partners

Institute for Energy Technology

PAUL SCHERRER INSTITUT

Instrument team

Core operational team:

Instrument scientist: Rasmus Toft-Petersen (DTU/ESS)
Instrument data scientist: Greg Tucker (ESS)
Instrument Operational Engineer: Manon Chesneau (November 2025) (ESS)

Engineering team:

Lead engineer: Liam Whitelegg (ESS)
Finn Saxild (DTU)
Keld Theodor (KU)
Sylvain Rodrigues (LLB)
Pascale Lavie (LLB)

Dennis Vedelgart (ESS)
Grant Wallace (ESS)
Hans Ekmark (ESS)
Stuart Sandilands (ESS)
Alex Bollhalder (ESS)

And all the technology teams

Consultant Scientists:

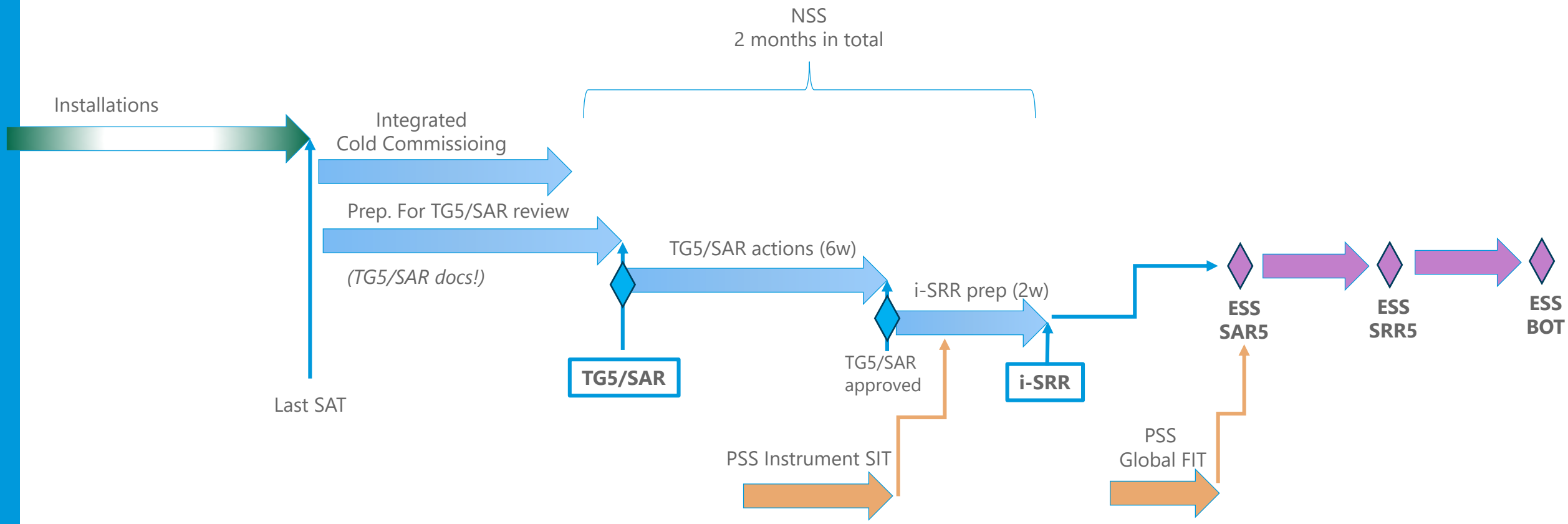
Kristine Krighaar (KU)
Jonas Okkels Birk (KU)
Nicolai Lindaa Amin (DTU)
Bjørn Hauback (IFE)
Philippe Bourges (LLB)

Christof Niedermayer PSI)
Daniel Mazzone (PSI)
Kim Lefmann (KU)
Niels Bech Christiensen (DTU)
Henrik Rønnow (EPFL)

Road to Science: NSS high-level schedule

- **SAR (**System Acceptance Review): Are all components installed properly?
  Is the instrument ready for Hot Commissioning?

- **i-SRR** (Instrument Safety Readiness Review): PSS, Motion Safety, Fire suppression, REMS.



Courtesy to Sofie Ossowski

Purpose of SAR review meeting

1. It is the informational session to provide the reviewers with an overview of the readiness of BIFROST
2. Status of the local site acceptance tests (SAT) of each component, presented by NSS technical groups
3. Results of the integrated tests
4. Readiness for the hot commissioning
5. Outstanding issues and their proposed solutions

What is not covered

1. Safety readiness (subject of i-SRR)
2. Reasons behind the technical solutions for each component
3. Science case and future user program

SAR - Charge

1. Validate that all system components, as defined by the Instrument FBS, are present and installed. This ensures that all project scopes have been delivered.
2. Validate that all system documentation has been delivered and is in CHESS.
3. Validate that all technical documentation has been delivered, stored in CHESS, and is appropriately linked to the FBS structure.
4. Review the integrated cold commissioning report and ensure that it represents a sufficient test of the instrument systems, showing that all requirements that are testable during cold commissioning have been addressed.
5. Confirm that the performed testing has verified performance against the requirements that are testable during the cold commissioning.
6. Review the operating processes of the instrument and Hot Commissioning plan.
7. Review the list of non-conformities and their actual or proposed resolution and determine if they are appropriate.
8. Prepare a review report.

Review Committee: ESS wide acceptance

Pascale Deen (Chair)

Robert Connatser (Head of NSS Division)

Giuseppe Aprigliano (NSS Engineering Representative)

Sofie Ossowski (Project Manager NSS)

Helen Boyer (Occupational Health and Safety Representative)

Mattias Skafar (Quality Representative)

Per Roos (Radiation Protection Representative)

Observers

Thomas Hansson (Radiation Safety Representative)
Andreas Jansson (Facility Commissioning Coordinator)
Lali Tchelidze (Head of Operations Division)
Magnus Täcklind on behalf of Peter Rådahl (Chief Engineer /Technical Office Manager)

Remarks

1. 2nd SAR for NSS, 1st with partners. Still learning.
2. The use of the instrument is different from the use of the target and accelerator
3. Readiness of transition from NSS to Spectroscopy is being evaluated
4. We evaluate two parts: what was built & readiness for HC.

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Rules

1. Only reviewers & observers are allowed to ask questions during the meeting (please, mute yourself on Zoom).
2. All others are welcome to ask questions during coffee breaks/lunch.
3. Any feedback is welcome after the meeting.
4. We are not discussing the scientific scope of the instrument.
5. We are not discussing technical solutions (see TG3 docs).

Agenda

08:45 - 09:15	**Closed Session for Review Committee* / Presentation of charge**	**(I)**
09:15 – 09:20	Welcome / Meeting Rules (Pascale Deen)	(I)
09:20 – 09:35	Scientific Overview of Instrument - High Level Requirements (Rasmus Toft-Petersen)	(I)
09:35 – 10:35	Instrument Components (Liam Whitelegg)	(I)
10:35 – 11:00	Coffee Break	
11:00 – 11:20	CIDL (Joakim Meyer)	(I)
11:20 – 11:40	Status of the Documentation. NIT / NCR's Overview (Raveesh Kshema)	(I)
11:40 – 12:00	List of NIT / NCR and proposed resolutions (Liam Whitelegg)	(I)
12:00 – 13:00	Lunch	
Technical Groups presentations of local SATs and corresponding documentations		
13:00 – 13:10	Choppers (Erik Nilsson)	(I)
13:10 – 13:20	Motion Control and Automatization (Federico Rojas)	(I)
13:20 – 13:30	Detectors & Beam monitors (Ourania Sidiropoulou)	(I)
13:30 – 13:40	ICS (Johan Christensson)	(I)
13:40 – 13:55	ECDC (Jonas Petersson, George Kontogiorgos)	(I)
13:55 – 14:05	Radiation Shielding: Shielding SAT, Primary and Secondary Spectrometer (Senad Kudumovic, Alan Takibayev)	(I)
14:05 – 14:15	Vacuum (Laurence Page)	(I)
14:15 – 14:45	Coffee Break	
14:45 – 15:30	Integrated Tests & Scientific Hot Commissioning - Validation (Rasmus Toft-Petersen)	(I)
15:30 – 15:45	DMSC: IDS Slot / Data Acquisition (Gregory Tucker)	(I)
15:45 – 16:15	**Closed session for the Review Committee / Verification of the action items**	**(D)**
16:15 – 16: 20	Initial feedback and closing of the meeting (Pascale Deen)	(I)

* BIFROST Site Tour to be offered on 2 September 2025

nature communications

Article

https://doi.org/10.1038/s41467-025-58380-7

Fingerprints of supersymmetric spin and charge dynamics observed by inelastic neutron scattering

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Björn Wehinger[1,2,10] ✉, Franco T. Lisandrini[3], Noam Kestin[1], Pierre Bouillot[1], Simon Ward[2,11], Benedikt Thielemann[2], Robert Bewley[4], Martin Boehm[5], Daniel Biner[6], Karl W. Krämer[6], Bruce Normand[7,8], Thierry Giamarchi[1], Corinna Kollath[3], Andreas M. Läuchli[7,8] & Christian Rüegg[1,7,8,9]

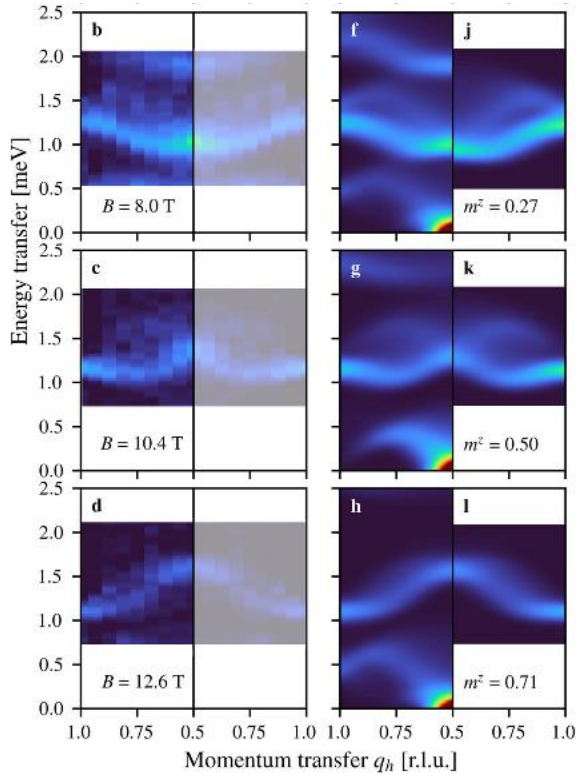

Fig. 2 | Field-induced evolution of the magnetic excitation spectrum in BPCB.

iSSR (Instrument Safety Readiness Review) November 2025

1. Are the safety systems of the instrument installed and operational?
2. Are the safety systems of the instrument adequately documented?
3. Is all the shielding on the instrument installed and correctly configured?
4. Are the safety systems of the instrument ready for hot commissioning and operations?
5. Are the necessary operations procedures in place?

PSS, REMS, Fire suppression, Motion control safety,