

HEIMDAL and BIFROST

Niels Bech Christensen

Senior Scientist – Department of Physics – Technical University of Denmark

Mogens Christensen (participating in STAP meeting 22-23/6)

Associate Professor – Department of Chemistry – Aarhus University

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HEIMDAL – cost category B

AU and KU (DK); PSI (CH); IFE (NO)

CORE TEAM

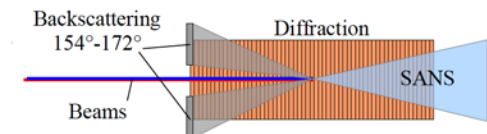
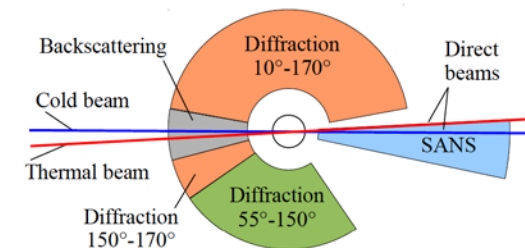
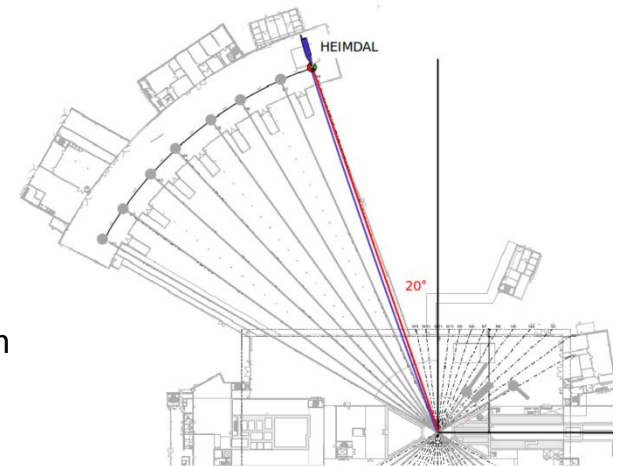
- Lead Scientist: Paul Henry (ESS)
- Lead Engineer: Recruitment underway (AU)

PROGRESS SINCE LAST ICB

- Feasibility study on extraction of two guides from upper moderator only (3 cm) – Critical for reaching full scope.
 - Performance feasibility: No significant loss (<10%) compared to 6 cm moderator for thermal guide.
 - Engineering feasibility: Dual extraction concept identified from geometrical considerations.
 - Some cold guide losses due to proximity to the thermal guide.
- Costing towards category B target: On day 1 HEIMDAL will be a diffraction instrument only. Work is ongoing to deliver an instrument that provides a large part of original scope on day 1 and is upgradable to the full scope.

CURRENT ISSUES

- Performance: Cost/performance optimization of dual guide extraction needed to address the usability of the thermal beam. Divergence homogeneity is a challenge.
- Engineering: A full extraction/guide study is needed to realize a beam transport system satisfying requirements at the sample position
- ESS Scintillation development work unit was cancelled. New detector technology (inclined boron detectors) carries cost and schedule risks.
- STAP meeting (22-23/6) will form the basis for the work to be performed until the scope setting meeting in October



Scope-setting: 10-10-2016

Tollgate 2: Q1 2017

BIFROST – cost category B

DTU and KU (DK); PSI and EPFL (CH); LLB (FR); IFE (NO); Wigner (HU)

CORE TEAM

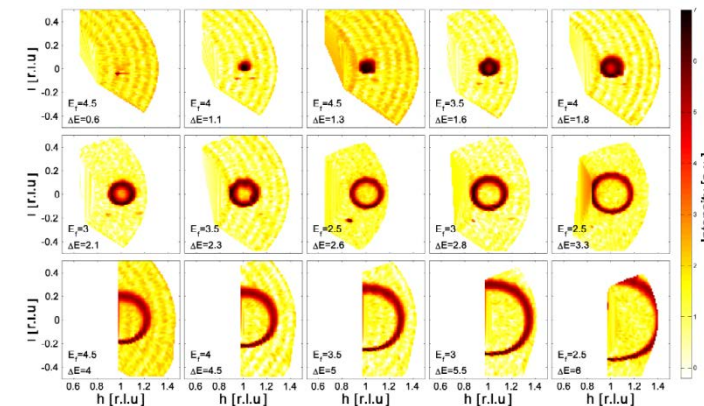
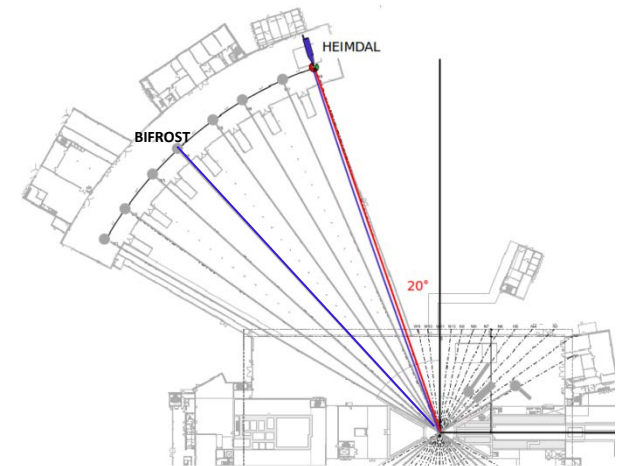
- Lead Scientist: Rasmus Toft-Petersen (DTU)
- Lead Engineer: Giuseppe Aprigliano (ESS) / Finn Saxild (DTU) / Engineer to be recruited (DTU)

PROGRESS SINCE LAST ICB

- Extensive high-flux prototyping on the triple axis spectrometers PANDA and FLEXX provide proof of the power of the concept for the secondary spectrometer
- Tests of VTI background issues and radial collimator (FLEXX)
- A Basic Be-filter design in place (PSI/EPFL)
- The Guide-bot McStas optimization tool is being upgraded to take guide costing into account (KU)
- Quote for double-disc PS chopper obtained (LLB)
- Participation in ESS guide/shielding workshop provided kickoff for guide update/redesign (KU) and shielding work (IFE with ESS)

CURRENT ISSUES

- Initiation of detector work (LLB). Knowledge transfer from PSI
- Guides and shielding need to be cost optimized, while keeping engineering realities in mind
- An upgrade path to include an order sorting chopper and polarization option needs to be defined ahead of scope setting
- BIFROST is looking into the possibility of applying for funds for a suitable high-field magnet together with other instruments



Scope-setting: 12-10-2016

Tollgate 2: January 2017