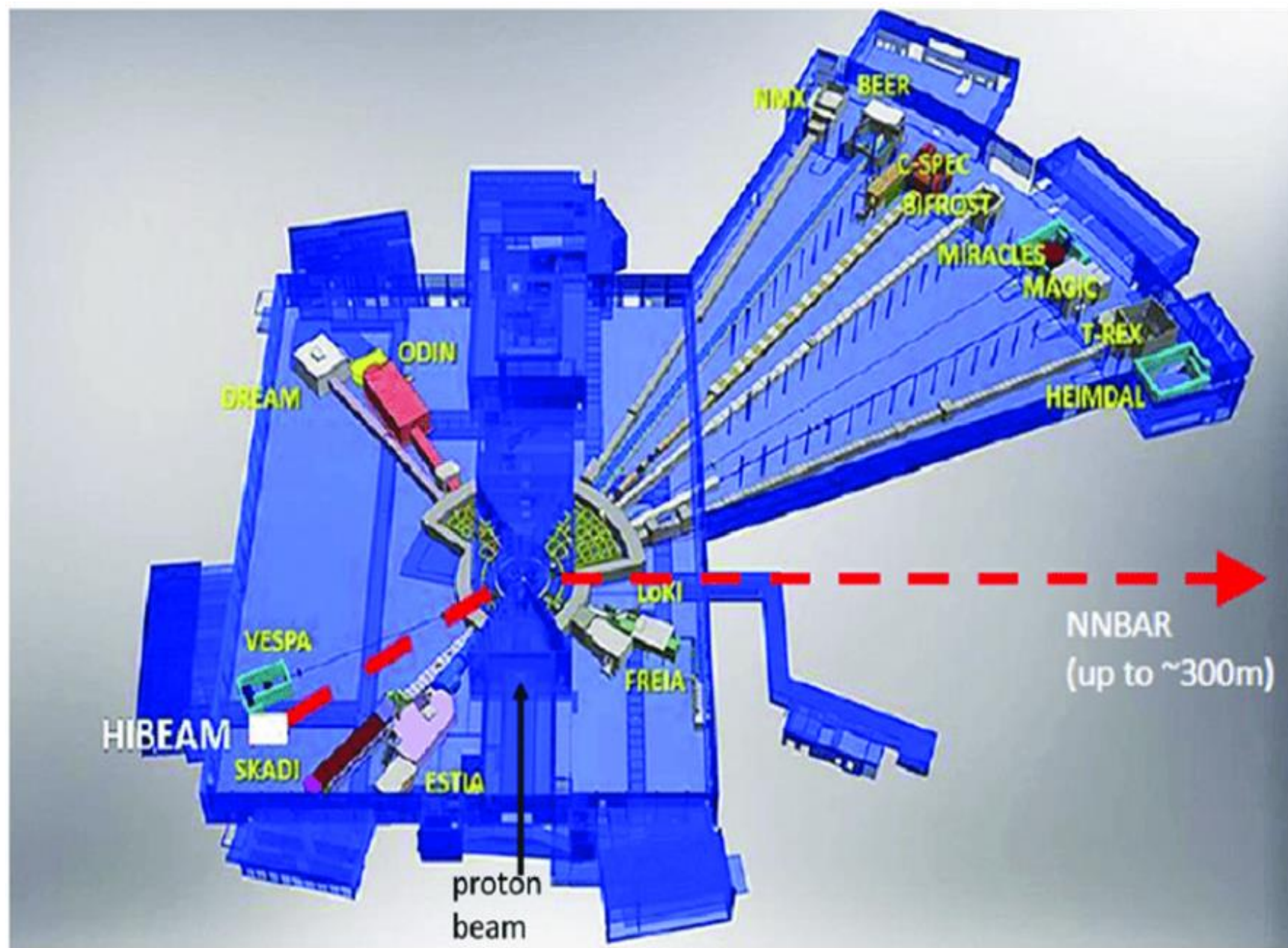


nn' ORNL-UT meeting
December 20, 2022, YK

ESS news December 2022

News

- Swedish Royal Academy and Swedish Research Council support NNbar and HIBEAM at ESS
Sweden would like to have a contribution to ESS physics (NNbar, HIBEAM, neutrinos)
- They meet with ESS management
- Helmut Schober has been named as the next Director General of ESS by the ESS Council
- NNBAR = 200m long full experiment with factor 1000 sensitivity improvement
- HIBEAM= (n-n' and nnbar via n-n') + ("baby NNBAR" i.e., first search at a spallation source for free n-nbar, depending on the beamline design can achieve >10 x ILL)
- HiNess Conceptual Design report (lower D2O moderator, LBP implementation for NNbar) due end of 2023 at ESS (Valentina Santoro)
- NNbar conceptual design report due end of 2023 – University of Stockholm (David Milstead)
- There is a possibility to use use LBP (test beam) with small opening (as Small Beam Port) after 2027 for HIBEAM
- Redesign of E5 ANNI beamline for needs of HIBEAM (! Urgent need by early spring 2023)



Old E5 ANNI beamline

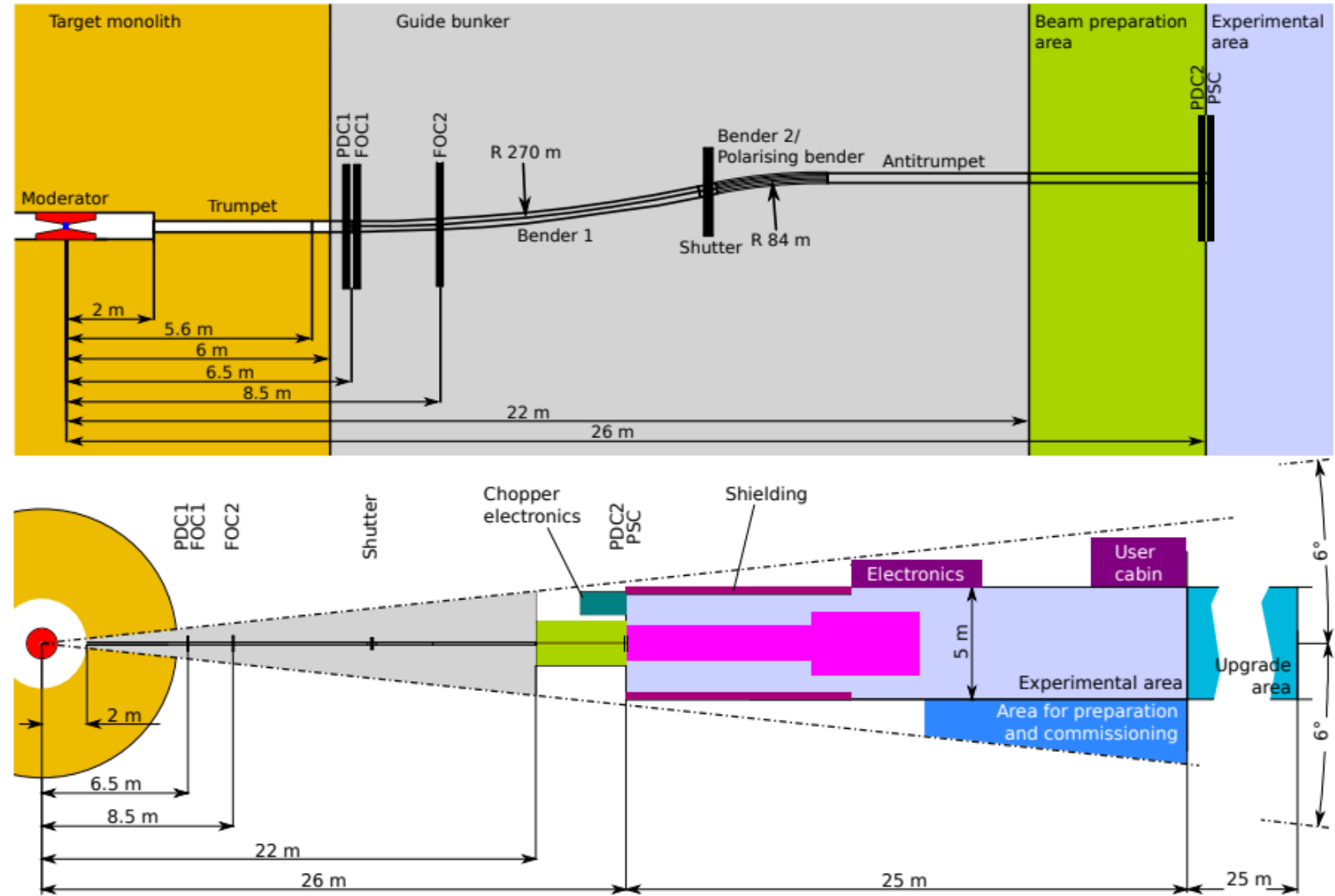
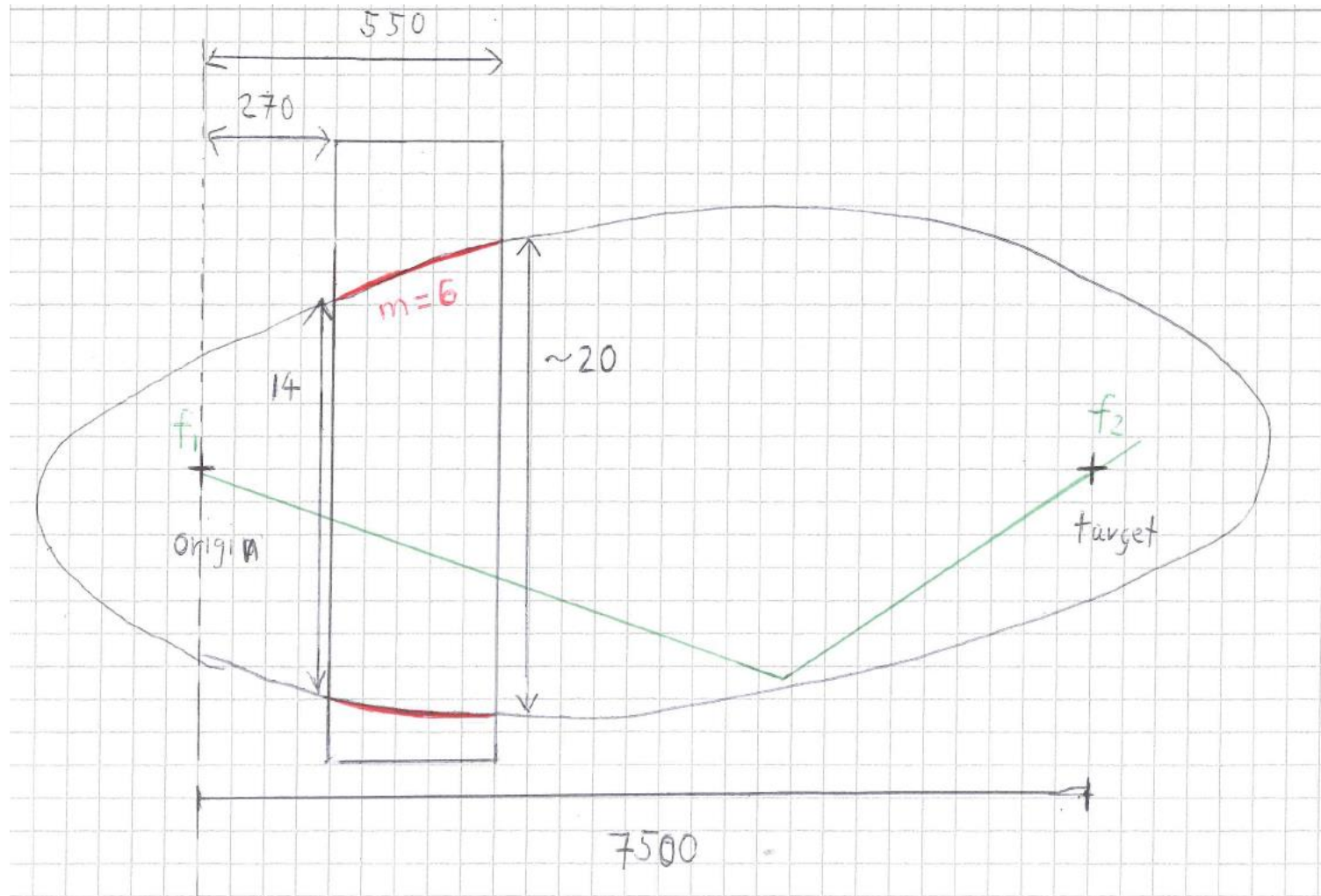


Figure 9: Top: Side view of the proposed ANNI beam line. Trumpet, Bender 1, Bender 2 and Antitrumpet assure neutron transport. For experiments with polarised neutrons, Bender 2 is replaced by a polarising bender. PDC1 and PDC2 indicate pulse-defining choppers, FOC1 and FOC2 frame overlap choppers and PSC pulse-suppressing choppers. The vertical scale is stretched by a factor of 4 for better readability. Bottom: Schematic floor plan of the ANNI facility. The magenta area indicates the footprint of PERC with a secondary spectrometer as example for an experiment. The upgrade area is needed for long experiments such as Beam EDM or HIBEAM. Taken from [7].

Udo Friman-Gayer <udo.friman-gayer@ess.eu> postdoc at ESS

James Rodger (UT)



What can be said in public

HIBEAM/NNBAR currently enjoys funding from various sources – both national and international

Several stage project.

Project moving towards CDR's for HIBEAM and NNBAR

ESS has given permission for the use of the TBL (test beam line) for part of the HIBEAM program.