

Summary of MAGIC Scope-Setting Meeting

Meeting Date

19/10/2016

Location

ESS HQ, Linneasalen

Chairman

Andreas Schreyer

Attendees

Sergey Klimko, Xavier Fabreges, Ken Andersen, Arsen Goukassov, Michel Kenzelmann, Uwe Filges, Niko Tsapatsaris, Alex Holmes, Werner Schweika, Gabor Laszlo, Phil Bentley, Oliver Kirstein, Francesco Piscitelli, Shane Kennedy, Markus Strobl, Valentina Santoro, Federico Rojas, Christiane Alba-Simionesco (via Skype)

The MAGiC team were congratulated for their good level of preparation and high quality of work, particularly in preparing the shielding calculations.

It was agreed that the instrument configuration corresponding to the cost category budget (configuration 1 of the scope-setting report) would not be able to deliver on the expected science case and would also not be upgradeable to the full scope in a reasonable manner.

ESS management pointed out that the budget of the configuration 3 instrument is so high that it would endanger the delivery of another instrument within NSS.

It was agreed that the instrument presented as configuration 2 in the scope-setting report will form the basis of the scope and budget for MAGiC. It will be world-leading already at 2MW beam power by more than an order of magnitude and has a technically straightforward upgrade path to full scope. The following points were agreed on:

- A cost book value of 13.102 M€ was agreed, including a contingency of 1.153 M€, representing 10% of the cost to completion.
- The agreed cost book value is based on the configuration 2 instrument in the scope-setting report, with an initial budget of 14.356 M€, adjusted as follows:
 - The instrument-specific 10T magnet and the dilution insert are both removed from the scope, resulting in a cost saving of 1.250 M€.
 - The travel budget is increased from 82 k€ to 150 k€.
 - Backend electronics and high voltage supplies for the detectors had not been included and are added at an additional cost of 212k€.
- The manpower costs after phase 1 need to be set at the ESS cost book values. Scientists and engineers should be costed at 60 €/hour and technicians at 48 €/hour.

- NSS management acknowledges that the supermirror system proposed by the instrument team is the right technical solution for polarisation analysis and is proposed at a good price.
- The instrument scope is based on the provision of a detector bank for thermal neutrons covering a horizontal angular range of 60°. The detector bank needs to be designed in such a way as to allow straightforward increase of the horizontal detector coverage when upgrade funding becomes available, or if cost savings are identified else in the project.
- The MAGIC team should collaborate closely with the DREAM team and the ESS detector group to minimise the technical risks associated with the Jalousie detector systems.
- A few minor technical issues were raised for consideration before TG2, with negligible effect on the budget:
 - The inclusion of optical elements in the insert for increasing the cold-neutron flux
 - Improvement of the flipper performance at the shortest wavelength
 - Adaptation of the instrument design to allow installation of a Fermi chopper near the sample position for inelastic measurements as an upgrade
- The sample environment pool includes a vertical cryomagnet and a dilution insert, both of which will be available for early science on MAGIC. The cryomagnet will be designed to meet the main day one requirements of MAGIC. After completion of the scope-setting process, when information has been gathered from all instrument teams, NSS will re-evaluate its strategy on provision of cryomagnets and dilution inserts to the instruments via the sample environment pool.
- Procurement of critical items (e.g. polarisation analysers, detectors, guide, choppers) could start before TG3, provided the MAGIC team provides compelling evidence that this does not present a design risk to the project. The MAGIC team needs to work closely with ESS if it wishes to include this in the early procurement plans
- The MAGIC team are encouraged to use any savings identified to increase the agreed scope summarised above, while maintaining contingency at 10% of cost to completion.
- It was agreed that NSS management will provide a table describing how to choose the labour rates from the ESS cost book for the various types of staff involved in instrument projects.
- ESS will propose to Council that MAGIC is one of the first 8 instruments.