

## **Minutes of ESS Instrumentation Task Group meeting, 17.-18.10.2000, Berlin, HMI**

### Participants:

K. Anderson, R. Bewley, H.-J. Bleif, M. Daymond, R. Eccleston, G. Ehlers (only 17.10.00), B. Farago (only 17.10.00), H. Fritzsche, T. Gutberlet, R. Heenan, W. Jauch (only 18.10.00), K. Lefmann, K. Lieutenant, F. Mezei, B. McGreevy, C. Pappas, J. Peters (only 18.10.00), P. Radaelli, T. Rekveldt, P. Timmins, A. Wiedenmann, C. Wilson, B. Withers (only 18.10.00), G. Zsigmond

### Agenda:

- Current status of ESS project
- Objectives of ESS Instrumentation Task
- ESS Instrumentation Task Group (ITG)
- Methods and organization
- Working tasks and time schedule

### **Current status of ESS project**

F. Mezei gave a detailed report on the recent history of ESS project. Since the establishment of P. Tindemans as new chairman of the ESS Council in May 00, a small ESS Central Project Team is being established at FZ Jülich with K. Clausen as Technical Project Director. The task of the CPT in close collaboration with the ESS R&D Task Leaders on Instrumentation, Target and Moderator, Accelerator, and the ESS Scientific Advisory Committee is to prepare the ESS Council decisions to establish the technical parameters for ESS in detail and to prepare a final proposal for European governments in 2003.

### **Objectives of ESS Instrumentation Task**

With respect to the ESS instrumentation task the following objectives have been defined:

- I. Assess the opportunities for generic instrument groups on the ESS and determine the optimum target station combinations. The comparison of instrument performance on the low frequency short and long pulse target stations is a priority.
- II. Identify areas that require further work and instrumentation topics and technologies that will require further research and development. The questions thus identified will be addressed in the two years after July 2001.
- III. Enhance interaction within the community on instrumentation topics.

### **ESS Instrumentation Task Group (ITG)**

To reach the goals agreed and established in collaboration with the CPT the ESS Instrumentation Task Leaders have decided to establish the ESS Instrumentation Task Group. An initial

list of participants to this group was set-up, which is added below, and ESS R&D MoU partners and participants contacted and invited to join the effort.

The most urgent objective is the first one, which has to be finalized before the ESS SAC workshop May 2-6 2001. It is concentrated on the comparison and quantitative evaluation of generic instrument groups for three possible target stations at ESS, compatible with a common linac design:

- 5 MW with 50 Hz rep. rate and short pulses < 1  $\mu$ sec
- 5 MW with 16.6 Hz rep. rate and long pulses 2-2.5 msec
- 1 MW with 10 Hz rep. rate and short pulses < 1  $\mu$ sec

The 50 Hz target station will be part of the proposed source configuration, one or both of the other two stations are additional options to be considered.

The Opportunities offered by the three target stations will be evaluated for the following generic instrument groups:

- Powder Diffraction
- Chopper Spectrometers
- Crystal Analyser Spectrometers and High Resolution Backscattering
- Neutron Spin Echo
- Small Angle Scattering
- Reflectometry
- Single Crystal Diffraction and Protein Crystallography
- S(Q) determination
- Engineering

The following moderator choices are assumed to be available: ambient water, liquid hydrogen, eventually solid methane, composite, coupled, de-coupled, poisoned, and un-poisoned. Comparisons to instruments on the most powerful existing facilities will also be made.

The quantitative comparison will provide key information to the data base for decisions on the ESS configuration in July 2001 and will be of great importance also for up-dating the science case for ESS by underpinning the new scientific opportunities of the instruments.

### **Methods and organization**

To produce the required data assistance of MC simulation is provided by the groups at Risø Nat. Lab via K. Lefmann and HMI via G. Zsigmond and K. Lieutenant by the software packages McStas and VITESS, respectively. The instrument groups have to propose which instruments need MC simulations. It is not required to establish results on the basis of figures of merit, but to give reliable generic simulated data.

The gains of instruments in comparison with existing ones should be established.

The break even point of instruments for each target station should be defined.  
The instrumentation should be open for future developments.

The balance of instruments should reflect the expected user demand.

From the combined efforts a generic ESS instrument suite should evolve.

For each instrument team to organize the work a preliminary contact person has been named (see list of participants). He/she will help to initiate contacts and discussions in the team with the purpose of electing a co-ordinator in each instrument team. The team co-ordinator will be responsible for the contact with the ESS Instrumentation Task Leaders and for presenting the results. Each instrument group should organize the work by its own needs including inviting additional participants.

To keep the information flow active, a web-side will be established by the ESS Instrumentation Task assistant T. Gutberlet, accessible to all interested parties.

### **Working tasks and time schedule**

The following work-plan was agreed upon:

Nov. 01 2000 Instrument group teams are established and the co-ordinators named

Nov. 20 2000 Moderator characteristics supplied to all instrument group teams by the ESS Instrumentation Task Leaders in collaboration with the ESS Moderator and Target Task Leaders

Nov. 27 2000 ESS Council, presentation of work-plan and effort by the ESS Instrumentation Task Leaders

Feb. 16 2001 ESS ITG Meeting, London, near Heathrow, preliminary presentation and discussion of results

Mar. 7-8 2001 ESS SAC Meeting, San Sebastian, preliminary presentation of effort and results of ESS-ITG

Mar. 12-14 2001 Moderator workshop/ACoM V Meeting, HMI, Berlin

Apr. 20 2001 Final comparative results of ESS ITG efforts compiled

May 2-6 2001 ESS SAC workshop

Any changes, additions or corrections, inquiries, new participants on the effort etc. should be sent to the ESS Instrumentation Task Assistant T. Gutberlet (gutberlet@hmi.de) for distribution to all group members.

The next ESS ITG meeting will be on Feb. 16. 2001 in London, hosted by ISIS.

## ESS Instrumentation Task Group teams

current contact persons are marked \*

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