**ESS – J-PARC Workshop** Lund, 18 / 19 January 2018

**Thursday, 18th January 2018**

The 1st day is conducted to exchange reports/information on the current status of facilities

9:00 *Departure from Hotel Finn*

9:15 *Arrival at the ESS construction site at Conference Room BrightnESS,*

*113 Odarslövsvägen*

9:30 **Welcome and ESS status up-date**

**John Womersley**, Director General, ESS

10:00 **Safety induction and guided site tour**

11:30 *Transfer to Inspira, Medicon Village, Scheelevägen 2*

12:00 Lunch

*Walk to ESS Headquarters at Tunavägen 24, Conference Room Tänkartanken*

13:00 **J-PARC Status up-date Chair: John Haines**

**Naohito Saito**, Director of J-PARC

13:30 **Technical challenges for a green field facility like ESS**

**Roland Garoby**, Director of the Machine Directorate, ESS

13:50 **Accelerator Status and Topics (ESS & J-PARC)**

J-PARC Presentation **Michikazu Kinsho**

ESS Presentation **Mats Lindroos**

14:30 **Target Status and Topics (ESS & J-PARC)**

J-PARC Presentation **Hiroshi Takada**

ESS Presentation **Mark Anthony**

15:10 Coffee break

15:40 **MLF and NSS Status and Topics Chair: Ferenc Mezei**

J-PARC Presentation **Toshiji Kanaya**

ESS Presentation **Andreas Schreyer**

16:20 **Safety Status and Topics**

J-PARC Presentation **Hirohito Yamazaki**

ESS Presentation **Ralf Trant**

17:00 *Adjourn*

18:30 Dinner

(Recommendation to pair moderators for discussion of 2nd day technical sessions)

**Friday, 19th January 2018**

2nd day is conducted to discuss technical and working level details.

Meeting venue is at the ESS headquarters, Tunavägen 24

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| **Accelerator**  Moderator: **M.Lindroos** & **M.Kinsho**  Conference Room Scheele  9:00-10:30 Accelerator Session  10:30-10:45 Coffee Break  10:45-12:30 Accelerator Session  Detailed agenda tbd | **Instrument**  Moderator: **S.Kennedy** & **T.Otomo**  Conference Room Tänkartanken  9:00-10:30 Instrument Session  10:30-10:45 Coffee Break  10:45-12:30 Instrument Session  Detailed agenda tbd |

12:30-13:30 **Joint Lunch at Inspira**

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| **Radiation Safety**  Moderator: **R.Trant** and **H. Yamazaki**  Conference Room Scheele  13:30-15:00 Radiation Safety Session  15:00-15:15 Coffee Break  15:15-16:30 Radiation Safety Session  Detailed agenda tbd | **Target**  Moderators: **M.Anthony** & **H.Takada**  Conference Room Tänkartanken  13:30-15:00 Target Session  15:00-15:15 Coffee Break  15:15-16:30 Target Session  Detailed agenda tbd |

16:30-17:00 **Summary of the Workshop**

**ESS-J-PARC workshop details on the 2nd day**

The meeting venue is at the Headquarters at Medicon Village.

(Indicated time is just an approximate and depends on discussion)

***I. Target and Moderator Technology and those experiences***

Moderator; **Mark Anthony** & **Hiroshi Takada**

1. Target Station Operation and Maintenace Experience at J-PARC (~30min)

**Hiroshi Takada**

1. Target maintenance (Diagonostics (Vibration, Sound), replacement)
2. Proton Beam Window maintenance ((Diagonostics, changing)
3. Remort handling Manupilation in hot cell
4. Activation Handring (Spallation Product, Tritium handling)
5. Any collosion by NOx

2. Moderator Operation and Maintenance Experience at J-PARC (~20min)

**Makoto Teshigawara**

1. Cryogenic system
2. Ortho-Para Monitoring
3. New design for the 2nd Moderator-Reflector Assembly

3. Moderator Neutronics

1. Moderator Neutronics Development at ESS (~15min)

**Luca Zanini**

1. Experiments on the Moderator Neutronics results and provision (~15min)

**Makoto Teshigawara**

4. Target Design, Operation and Maintenance Scenario at ESS (~30min)

**Rikard Linander**

1. Structural Design, Maintenance Scenario

5. Materials at ESS Target Station (~20min)

**Yong Joong Lee**

1. Material Selection and Lifetime Criteria
2. Irradiation Campaign and Post Irradiation Examination
3. Kinetics of Ortho-Para Conversion and Online Monitoring
4. Characterization of Beryllium as Reflector Material
5. Tritium Permeation and Release
6. Advanced Simulation Technologies

6. Operation and Maintenance for Target at ESS (~20min)

**Magnus Göhran** and **Kristoffer Sjögreen**

1. Target sound and vibration measurement
2. Retroreflectors for target and moderator
3. “Monolith Vertical Maintenance and Component Exchange”.

***II. Accelerator Technology and experiences***

Moderators: **Michikazu Kinsho & Mats Lindroos**

09:00-10:00

1. Accelerator Operation, Maintenance and Development at J-PARC :

1) Power, Reliability, Spare Consumption and Stock, Issues and Development, **Michikazu Kinsho**

2) Experiences on J-PARC LINAC LLFR system, **Zhigao Fang**

10.00-11:00

2. Beam physics questions at ESS:

1) Space charge resonances in the linac, **Ciprian Plostinar**

2)Beam commissioning planning, **Ryoichi Miyamoto**

3) ESS neutrino beam studies, **Mamad Eshraqi**

11:00-11:30

3. Beam diagnostics at ESS:

1) Collaboration on grid and aperture monitor design for the ESS target station, **Cyrille Thomas**

2) Beam tests of luminescent materials in the dump line at J-PARC, **Cyrille Thomas**

3)Ion beam irradiation of target instrumentation materials, **Cyrille Thomas**

11:30-12:00

4. RF issues at ESS:

1) LLRF regulation limits and causes – differences between ESS and J-PARC

**Anders Sunesson** and **Rihua Zeng**

12:00-12:30 Extra time

***III. Instrument technology and experiences***

Moderator: **Shane Kennedy** & **Toshiya Otomo**

Instrument Operation, Maintenace and development at J-PARC (~40min)

**Kenji Nakajima, Kazuya Aizawa** and **Toshiya Otomo**

1. Performance of Instruments (intensity, resolution and backgrounds in comparison to design) (15min) **Kenji Nakajima**
2. Status of choppers (Fast Chopper, To chopper) and Shielding Performance (including B-Concrete, B4C etc) (15min) **Kazuya Aizawa**
3. Data reduction : Softwares and Hardware (Neutron Monitors incl. Proton monitor)(10min) **Toshiya Otomo**

Present status of the Instruments development at ESS (~30min) **Ken Andersen**

1. What kind of instrument strategy for beamline selection
2. basic concept with long pulse (Brightness and Optimization)
3. expected performance
4. design status and instrument team organization

Data Management Scheme at ESS and at DMSC (~20min) **Jonathan Taylor**

1. strategy, scope and international collaboration

Discussion items raised from NSS and her present status/strategy (~30min) **Iain Sutton**

1. Instrument component design and development

Choppers, Detector, Monitor, Shielding, Construction Methods

1. Radiation damage & activation
2. Remote handling operations on instruments.
3. Construction method and scheme
4. Construction Organization?

Neutronics simulation on Instrument

1. Experience at J-PARC and actual Performance (~20min) **Makoto Teshigawara**

Collaborative approach between Target and Instrument group

1. Bench mark test with PHITS and GEANT4 (~15min) **Doug Di Julio**
2. Possible implementation and collaboration of PHITS at ESS (~15min) **Phil Bentley**

Collaboration with other organization (university, lab, etc.) at ESS

***IV. Radiation Safety for a User Facility***

Moderator: **Ralf Trant** & **Hirohito Yamazaki**

1. Radiation Safety at J-PARC at JAEA (~20min) **Hirohito Yamazaki**

A Point of view from an accelerator facility with intense beams

2. Radiation Safety at ESS (~30min) **Peter Jacobsson**

A Point of view from Swedish Radiation Authorization/Regulation

3. Discussion items raised from ESS (~30min) **Lena Johansson**

1. Zoning and management of zoning changes in operation/ access, control and monitoring for the different kind of areas
2. ALARA approach in operation and associated working documents (roadwork permit, …)
3. Confinement strategy and monitoring of airborne contamination in the process (active cell, glove box,..) and in the premises
4. General structure of radiation monitoring system + threshold for alarm and actions
5. Instrumentation types, not just in pulsed monitoring and neutrons but also CW fields as well as personal protection (Hand and Foot Monitors, portal monitoring etc.
6. In and out passage of supervised and controlled areas

**General comments/request to J-PARC presentation;**

ESS is now under construction and not in operation phase. So ESS is especially interested in how J-PARC did successful construction, technically and organizationally. So if their presentation contains something paid special attention/efforts, it is very much fascinating and useful for ESS. Even experiences of try-and-error is very interesting to see.

**General comments to ESS presentation;**

Since most of J-PARC participants are not familiar with ESS, it is better to prepare a clear presentation with giving a fundamental knowledge about ESS and presenting items in text clearly, which you would like to discuss with J-PARC staffs.