SWEDNESS/LINXS DOCTORAL COURSE ON NEUTRON IMAGING

BEAMTIME PROPOSAL ASSIGNMENT

LUND INSTITUTE OF ADVANCED NEUTRON AND X-RAY SCIENCE LINXS

SWEDNESS/LINXS Doctoral Course on Neutron Imaging

Group work
- Note rearranged groups!

Group 1
Axel Henningsson
Yuzhu Fan
Karthikeyan Thalavai Pandian

Group 2
Sara Johansson
Jinshan Pan
Asim Siddique

Group 3
Emanuel Larsson
Yueer Li
Lisa Larsson

Group 4
Fernando Vieira Lima
Nitesh Raj Jaladurgam
Ahmet Bahadir Yildiz

Group 5
Edvin Tobias Bokvist Wrammerfors
Rodrigo Sanchez Pires
Linda Squillaci

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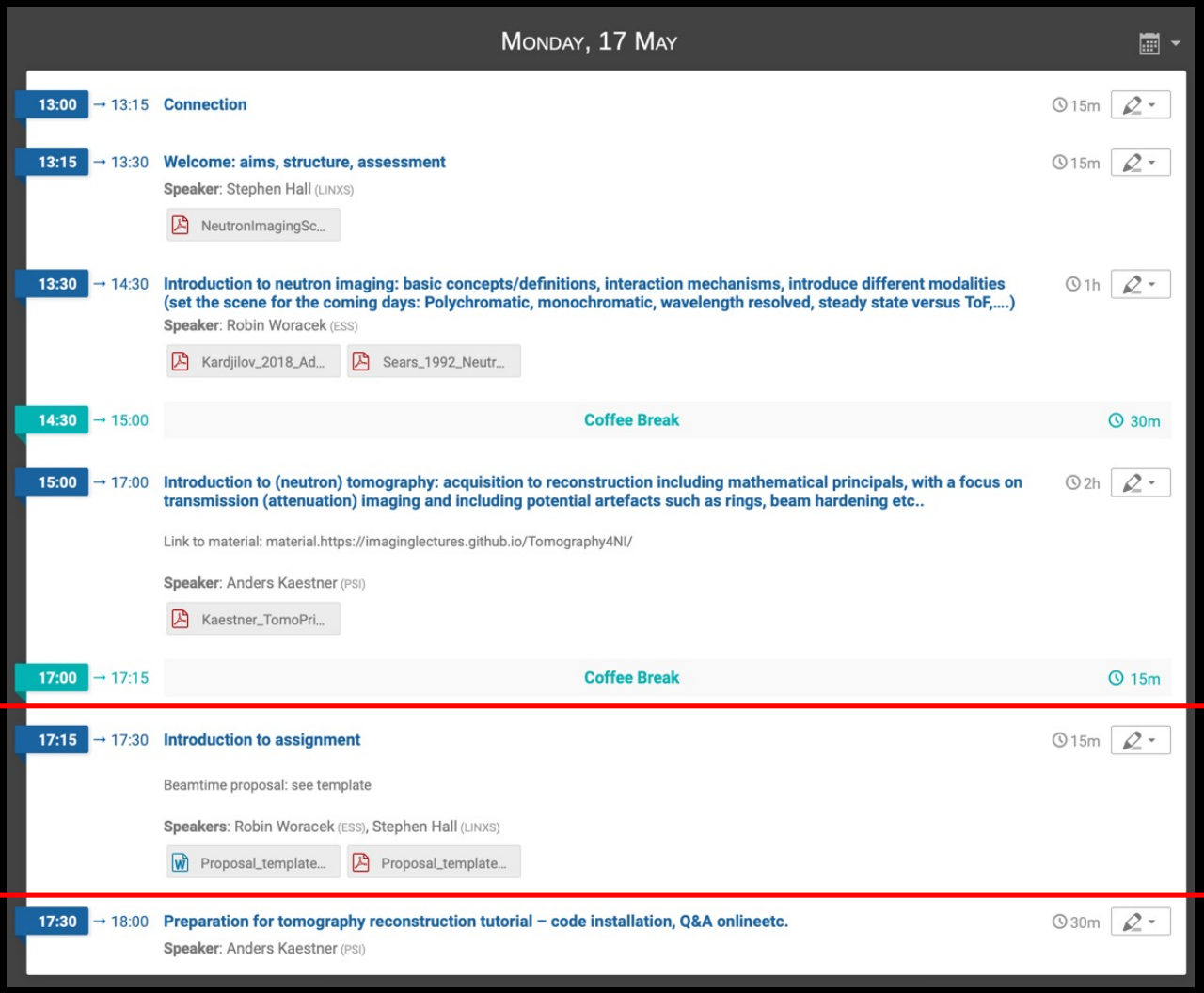

Monday, 17 May

13:00 → 13:15 **Connection** 15m

13:15 → 13:30 **Welcome: aims, structure, assessment** 15m

Speaker: Stephen Hall (LINXS)

NeutronImagingSc...

13:30 → 14:30 **Introduction to neutron imaging: basic concepts/definitions, interaction mechanisms, introduce different modalities (set the scene for the coming days: Polychromatic, monochromatic, wavelength resolved, steady state versus ToF,....)** 1h

Speaker: Robin Woracek (ESS)

Kardjilov_2018_Ad... Sears_1992_Neutr...

14:30 → 15:00 **Coffee Break** 30m

15:00 → 17:00 **Introduction to (neutron) tomography: acquisition to reconstruction including mathematical principals, with a focus on transmission (attenuation) imaging and including potential artefacts such as rings, beam hardening etc..** 2h

Link to material: material.https://imaginglectures.github.io/Tomography4NI/

Speaker: Anders Kaestner (PSI)

Kaestner_TomoPri...

17:00 → 17:15 **Coffee Break** 15m

17:15 → 17:30 **Introduction to assignment** 15m

Beamtime proposal: see template

Speakers: Robin Woracek (ESS), Stephen Hall (LINXS)

Proposal_template... Proposal_template...

17:30 → 18:00 **Preparation for tomography reconstruction tutorial – code installation, Q&A onlineetc.** 30m

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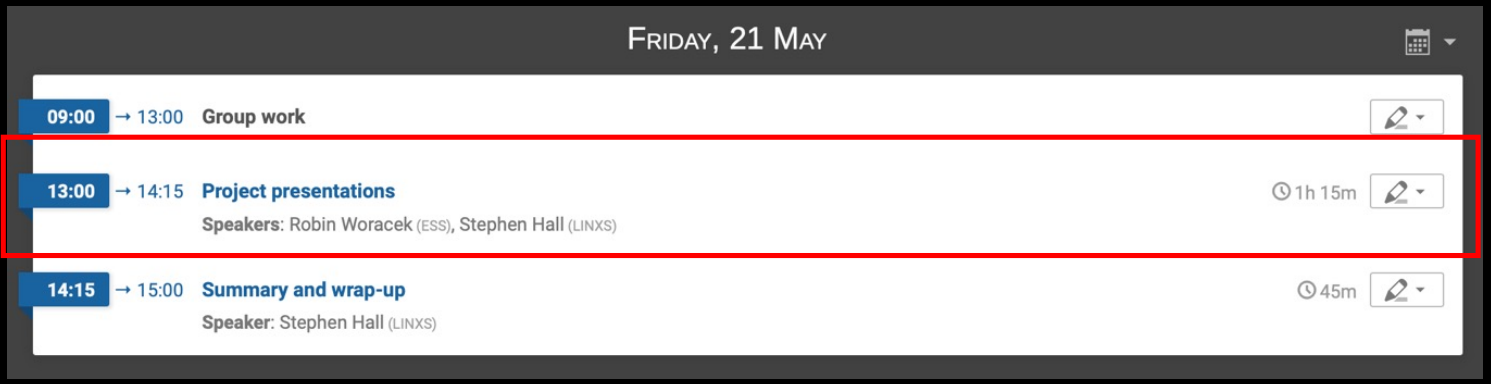

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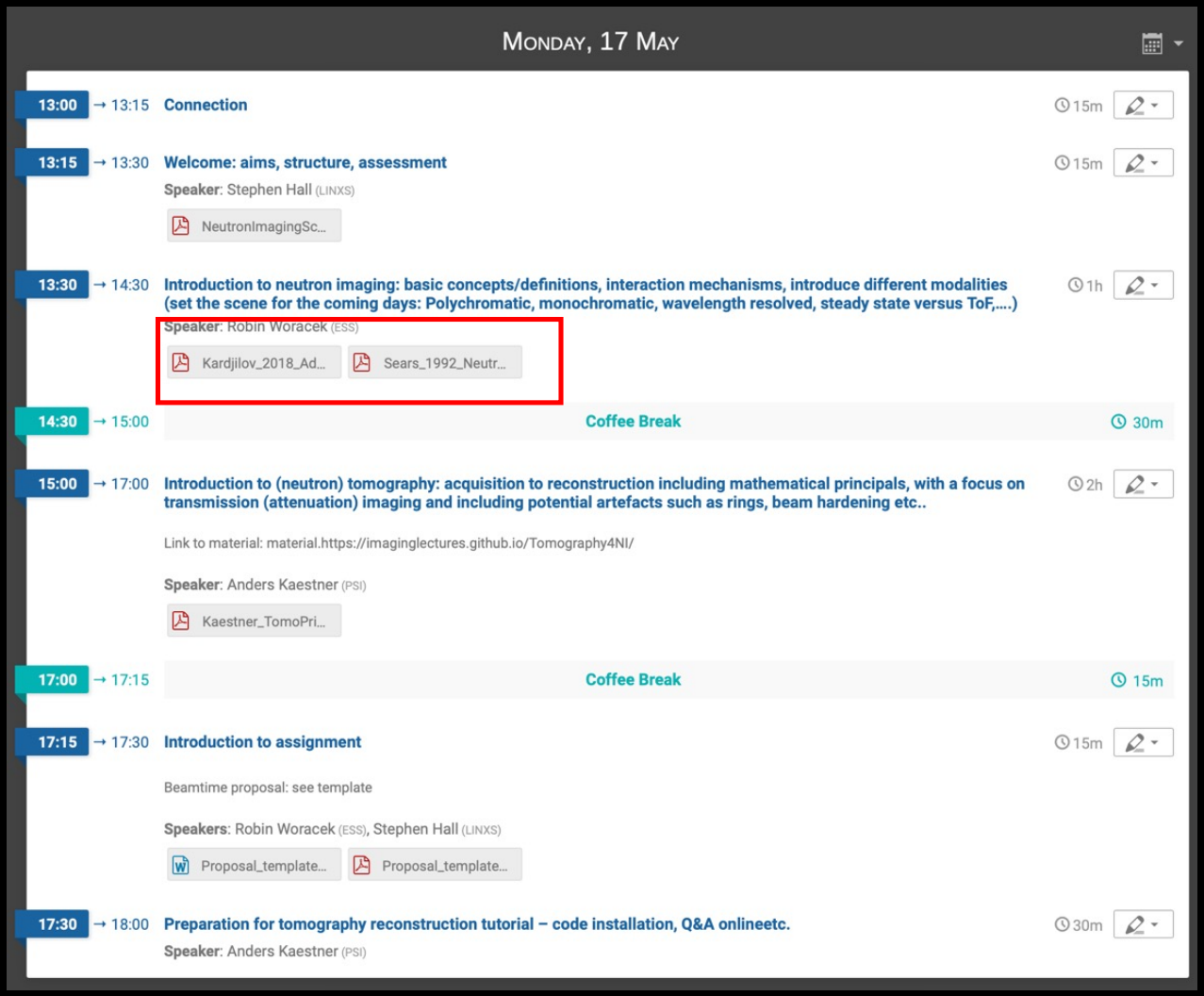

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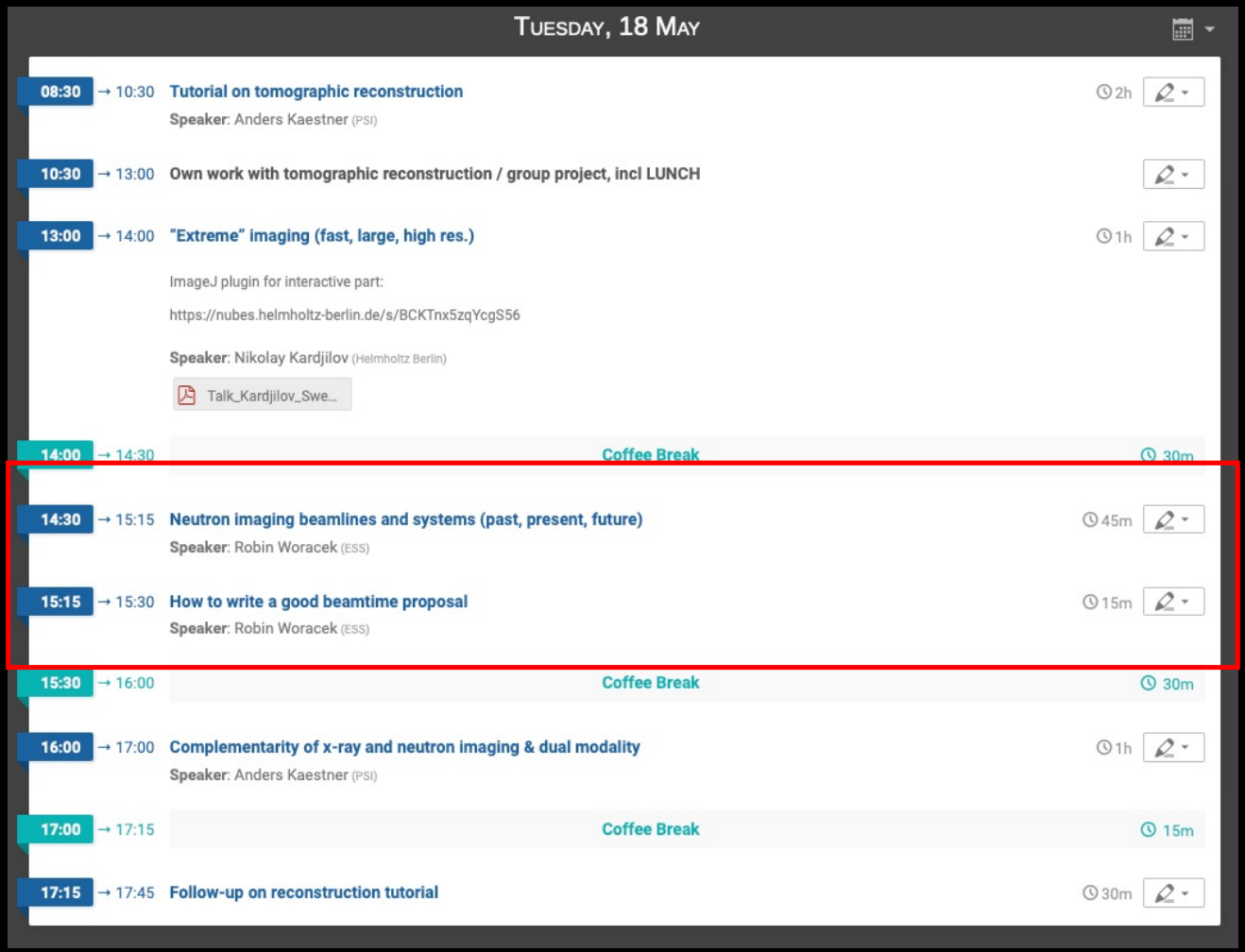

TUESDAY, 18 MAY

08:30 → 10:30	**Tutorial on tomographic reconstruction** **Speaker**: Anders Kaestner (PSI)	2h
10:30 → 13:00	**Own work with tomographic reconstruction / group project, incl LUNCH**	
13:00 → 14:00	**"Extreme" imaging (fast, large, high res.)** ImageJ plugin for interactive part: https://nubes.helmholtz-berlin.de/s/BCKTnx5zqYcgS56 **Speaker**: Nikolay Kardjilov (Helmholtz Berlin) Talk_Kardjilov_Swe...	1h
14:00 → 14:30	Coffee Break	30m
14:30 → 15:15	**Neutron imaging beamlines and systems (past, present, future)** **Speaker**: Robin Woracek (ESS)	45m
15:15 → 15:30	**How to write a good beamtime proposal** **Speaker**: Robin Woracek (ESS)	15m
15:30 → 16:00	Coffee Break	30m
16:00 → 17:00	**Complementarity of x-ray and neutron imaging & dual modality** **Speaker**: Anders Kaestner (PSI)	1h
17:00 → 17:15	Coffee Break	15m
17:15 → 17:45	**Follow-up on reconstruction tutorial**	30m

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- **Beamtime proposal exercise**
  - You should first meet in your groups and discuss briefly your science topics.
  - Decide on one topic between you and identify which neutron imaging technique and beamline is most appropriate for the challenge
  - Using the template provided develop a single beamtime proposal in your group where you justify the choice of technique (including why, for example, the measuremetns need neutorns instead of x-rays), beamline and how much time you would like to ask for. Also indicate how the experiment would be performed, any in-situ environment and how the data are expected to be analysed to get the information of interest.
  - You should submit your proposals by the end of Thursday to stephen.hall@solid.lth.se
  - Each group should review the proposals form the other groups on Friday morning to read and discuss.
  - Prepare a 3-minute presentation. Include good and not so good examples of the proposals reviewed (constructive feedback! There is no bad in this exercise!). Suggest how to improve the proposal.

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- **Beamtime proposal exercise – follow up**
  - Individually develop your own beamtime proposal on your own scientific topic using the provided template
  - Follow the same guidelines as before and take into account the feedback from the group projects
  - Submit your proposals to robin.woracek@ess.eu by end of Friday 28th May

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