

SWEDNESS/LINXS
Doctoral-level course on
neutron imaging

Report of Contributions

Contribution ID: 1

Type: **not specified**

Connection

Monday 17 May 2021 13:00 (15 minutes)

Contribution ID: 2

Type: **not specified**

Welcome: aims, structure, assessment

Monday 17 May 2021 13:15 (15 minutes)

Presenter: HALL, Stephen (LINXS)

Contribution ID: 3

Type: **not specified**

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, ···)

Monday 17 May 2021 13:30 (1 hour)

Presenter: WORACEK, Robin (ESS)

Contribution ID: 4

Type: **not specified**

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..

Monday 17 May 2021 15:00 (2 hours)

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

Presenter: KAESTNER, Anders (PSI)

Contribution ID: 5

Type: **not specified**

Introduction to assignment

Monday 17 May 2021 17:15 (15 minutes)

Beamtime proposal: see template

Presenters: WORACEK, Robin (ESS); HALL, Stephen (LINXS)

Contribution ID: 6

Type: **not specified**

Preparation for tomography reconstruction tutorial –code installation, Q&A onlineetc.

Monday 17 May 2021 17:30 (30 minutes)

installation instruction video: https://youtu.be/OP_uPeUgN0M

Presenter: KAESTNER, Anders (PSI)

Contribution ID: 7

Type: **not specified**

Tutorial on tomographic reconstruction

Tuesday 18 May 2021 08:30 (2 hours)

Presenter: KAESTNER, Anders (PSI)

Contribution ID: **8**

Type: **not specified**

Neutron imaging beamlines and systems (past, present, future)

Tuesday 18 May 2021 14:35 (55 minutes)

Presenter: WORACEK, Robin (ESS)

Contribution ID: 9

Type: **not specified**

“Extreme” imaging (fast, large, high res.)

Tuesday 18 May 2021 13:00 (1h 20m)

Here is the link to the documentary (first 7 minutes) related to the papyrus unrolling:
<https://www.ardmediathek.de/video/w-wie-wissen/das-erste/Y3JpZDovL2Rh2Vyc3Rl>

The ImageJ plugin together with the data from lens adjustment can be found here:

<https://nubes.helmholtz-berlin.de/s/k4Lgw9foQjnNPay>

Presenter: KARDJILOV, Nikolay (Helmholtz Berlin)

Contribution ID: **10**

Type: **not specified**

Complementarity of x-ray and neutron imaging & dual modality

Tuesday 18 May 2021 16:00 (1 hour)

Presenter: KAESTNER, Anders (PSI)

Contribution ID: **11**

Type: **not specified**

Follow-up on reconstruction tutorial

Tuesday 18 May 2021 17:05 (30 minutes)

Contribution ID: **12**

Type: **not specified**

Energy selective imaging 1 (steady state sources)

Wednesday 19 May 2021 13:00 (1h 15m)

For wavelength dependent neutron attenuation:

- See slide 9 of “How to write a good beamtime proposal”
- Download of nxs plotter:
<https://project.esss.dk/owncloud/index.php/s/u8orDDreG8UpHbf>

Presenter: KARDJILOV, Nikolay (Helmholtz Berlin)

Contribution ID: 13

Type: **not specified**

Energy selective imaging 2 (ToF)

Wednesday 19 May 2021 14:30 (1h 55m)

Presenter: WORACEK, Robin (ESS)

Contribution ID: **14**

Type: **not specified**

ToF Image analysis: introduction to tutorial and challenge

Wednesday 19 May 2021 16:35 (25 minutes)

TOF Exercise (you can already watch the tutorials):

Data: <https://project.esss.dk/owncloud/index.php/s/KoTmUDZUB7VPMaa>

TOF tutorial PART 1: <https://youtu.be/BXAygH3xLHE>

TOF tutorial PART 2: <https://youtu.be/cUvai7pssy8>

Presenter: WORACEK, Robin (ESS)

Contribution ID: 15

Type: **not specified**

Scattering and magnetic contrast: Phase contrast, grating interferometry, SEMSANS, polarized imaging

Thursday 20 May 2021 13:00 (1h 30m)

Presenter: KARDJILOV, Nikolay (Helmholtz Berlin)

Contribution ID: **16**

Type: **not specified**

2D, 3D and 4D Image analysis and quantification

Thursday 20 May 2021 14:45 (1 hour)

Presenter: HALL, Stephen (LINXS)

Contribution ID: **17**

Type: **not specified**

Follow-up on ToF image analysis tutorial

Thursday 20 May 2021 16:00 (30 minutes)

Presenter: Dr WORACEK, Robin (ESS)

Contribution ID: **18**

Type: **not specified**

Project presentations

Friday 21 May 2021 13:00 (1h 15m)

Each group should aim to provide feedback to the other groups on their proposals, identifying strong/weak points in the

- presentation
- scientific background and justification
- justification of neutron imaging method and beamline
- description of experiment
- discussion on what will be the outcome of the experiment (including how the data might be analysed)
- over all rating of proposal (would it get beam time)

Presenters: WORACEK, Robin (ESS); HALL, Stephen (LINXS)

Contribution ID: **19**

Type: **not specified**

Summary and wrap-up

Friday 21 May 2021 14:15 (45 minutes)

Presenter: HALL, Stephen (LINXS)

Contribution ID: **20**

Type: **not specified**

How to write a good beamtime proposal

Tuesday 18 May 2021 15:30 (15 minutes)

Presenter: WORACEK, Robin (ESS)