

**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/](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](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/Y3JpZDovL2RhczVyc3RlLmRlL3cgd2llIHdpc3Nlbi9jMjQ3MV>

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

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

**Presenter:** KARDJIOV, 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:** KARDJLOV, 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:** KARDJLOV, 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)