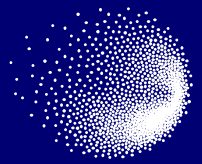


PSI Center for Scientific Computing, Theory and Data

# AWI Department Update

## Overview of Group 7902

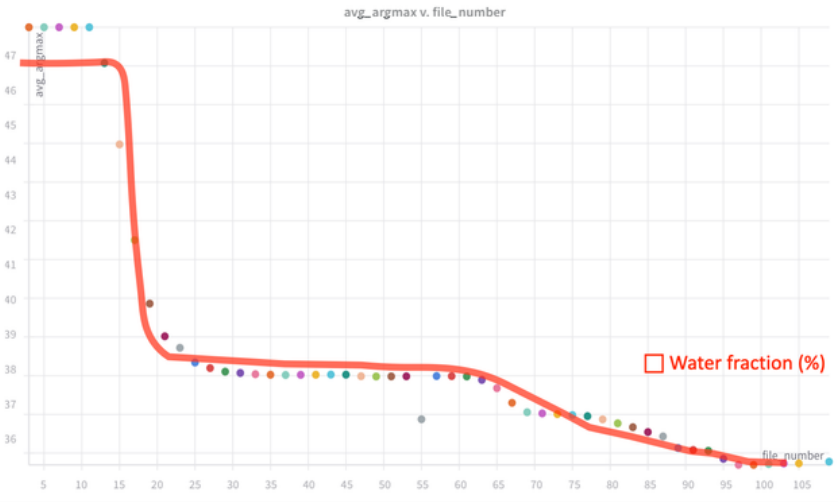
Alain Studer for 7902
PSI, 03 March 2025

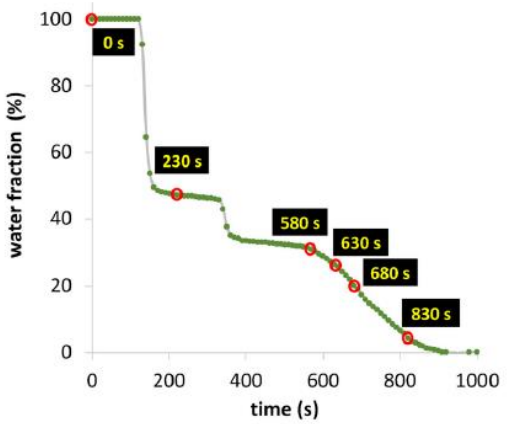
# Topics

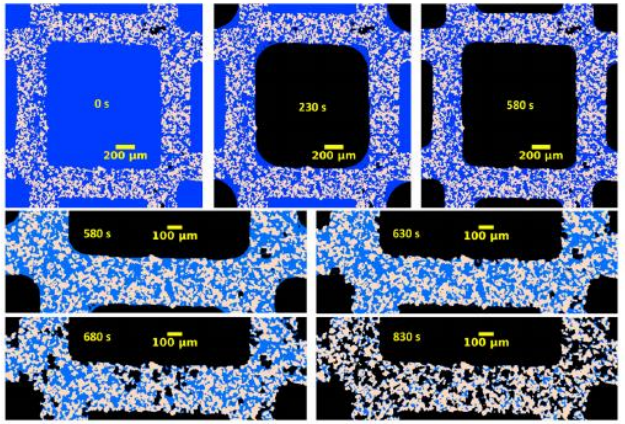
- SDATE
- TOMCAT
- Grace Hopper MPI Test
- SwissFEL and BEC deployment
- Summer school

# SDATE

- Qianwei Qu started as a Postdoc in our group on January 1st, 2025.
- Collaboration with TOMCAT, SDSC-PSI and AWI on time-resolved tomography and data reduction.
- Testing of initial ideas on drying




Modeling with “Diffusion time estimation” by Luis Barba

Model is trained from previous time step *t-1* and inference is done on images from time step *t*

The simple model predicts data already quite well.

# Tomography

- Working together with Goran (TOMCAT) and LNLS (Brazil) on Realtime RecPipeline
- This is mostly GPU based processing of data (as opposed to current RP)
- Next Monday Paola and Alan from LNLS will arrive at PSI and stay for two weeks
- Main Goal: PoC, integration of existing code into TOMCAT workflow

- Finished vector tomography case study
- https://gitlab.psi.ch/studer_a1/tomcat/-/tree/master/VectorTomo

# MPI on Grace-Hopper Architecture

PSI

- How to bring the Cray Slingshot interconnect and the NVDIA NVLink together?
- Input from HC

# bsread integration of Jungfraujoch

- A work on a new PoC service to forward Jungfraujoch 'metadata' stream to DataBuffer with Alex Gobbo. The data is available via bsread and/or for use in cam_server processing pipelines.

- The detector visualization tool streamvis (https://github.com/paulscherrerinstitute/streamvis) now supports Jungfraujoch 'image' and 'metadata' stream formats.

- Both were tested at cristallina endstation at Swissfel last week.

# FHNW – PSI Summer School on HPC

The institute for Data Science of the FHNW in Brugg - Windisch and AWI department of PSI will hold a joint course on high performance computing in summer 2025. The course addresses computer science students of FHNW and interested individuals at PSI. Next to an extended script there will be a two day introduction into the topic at the FHNW campus followed by a two day practical training at PSI.

**When:** 25./26. 08. 2025 theoretical introduction at FHNW

01./02. 09. 2025 practical work on PSI infrastructure

**What:** introduction to HPC, distributed computing, MPI, data access patterns, GPU, Dask, Slurm, etc.

Details will follow.