MXCuBE / ISPyB meeting

MAX IV MXCuBE Status Report

Jie Nan on behalf of the MX-group

2024 May 29th

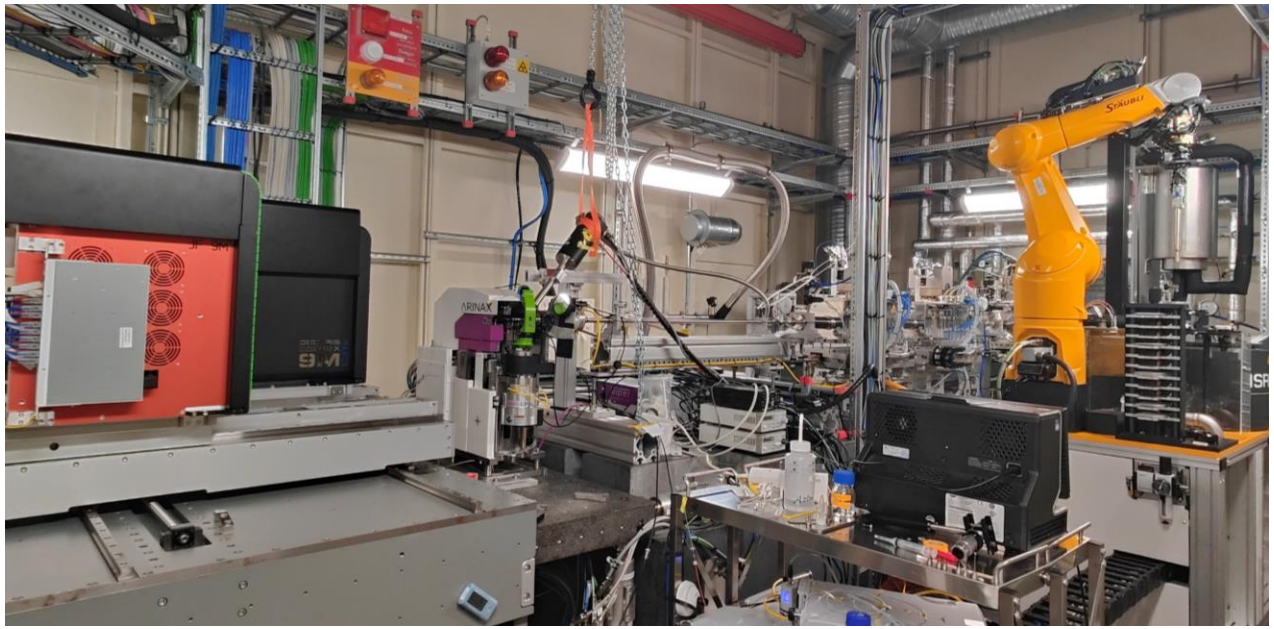
MX beamlines at MAX IV

BioMAX

- Tunable Energy (6-24keV)
- hDCM, 10^{13} ph/s, 20x5 µm^2
- **Eiger2 CdTe 16M XE**
- MD3-down
- ISARA
- Amptek fluorescence detector
- REX, Cryojet5, HC-lab

MXCuBE3 v3.0
hwobj v2.2

MicroMAX

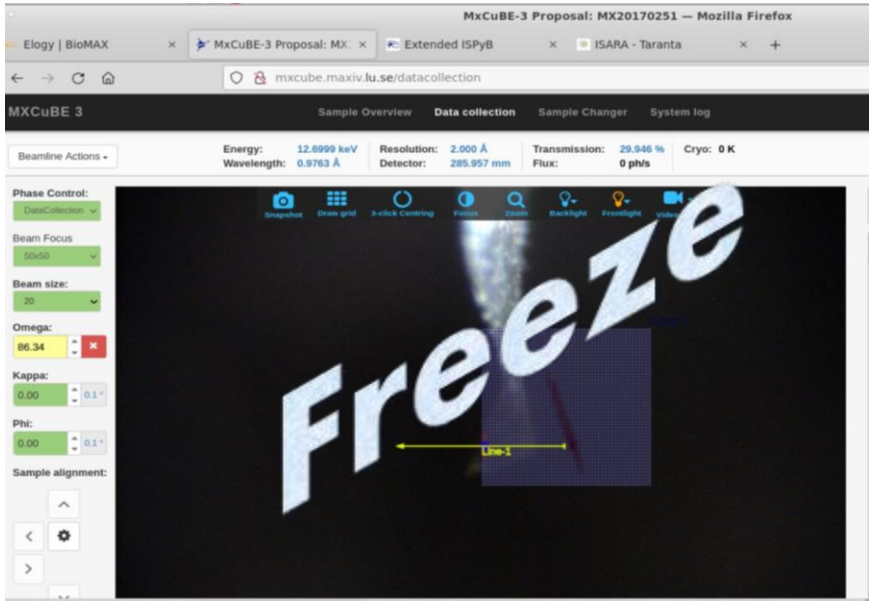


- Tunable Energy (5-25keV)
- hDCM, 10^{13} ph/s, now 14x4 µm^2 (1 µm with mirrors)
- MLM, >10^{14} ph/s
- Eiger2 CdTe 9M
- **Jungfrau 9M**
- MD3-up
- ISARA2
- Cryostream 1000

MXCuBE-web latest
mxcubecore develop

BioMAX

MXCuBE, web3.0, HWR 2.2



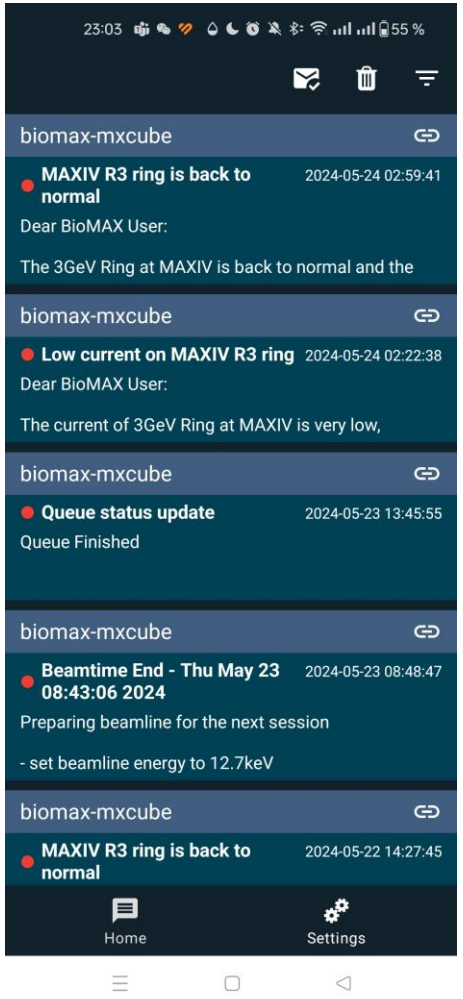
Upgrade to mxcubecore /mxcube-web latest

BioMAX

Recent developments (MXCuBE3)

Improvements of automatic data collection (Ana's talk)

- Import data collection plan from ISPyB
- Inform users of queue change by email
- Notification emails to users are also sent to MAXIV notify app



BioMAX – Eiger2 CdTe 16M XE

- In operation since 2024 April
- Transition from Eiger 16M
- some minor modification of tango server and MXCuBE
- we stay with Filewriter1 and Stream1, (Filewriter2 and Stream2 available)
- Planning to have 17keV as default energy for operation

MicroMAX

X-ray delivery system

- DCM and MLM are in operation, which give 1e13 and 1.5e14 ph / s respectively
- Beam focusing currently with X-ray lenses; X-ray chopper available in the autumn, KB-mirrors planned for 2025

Experiment setup

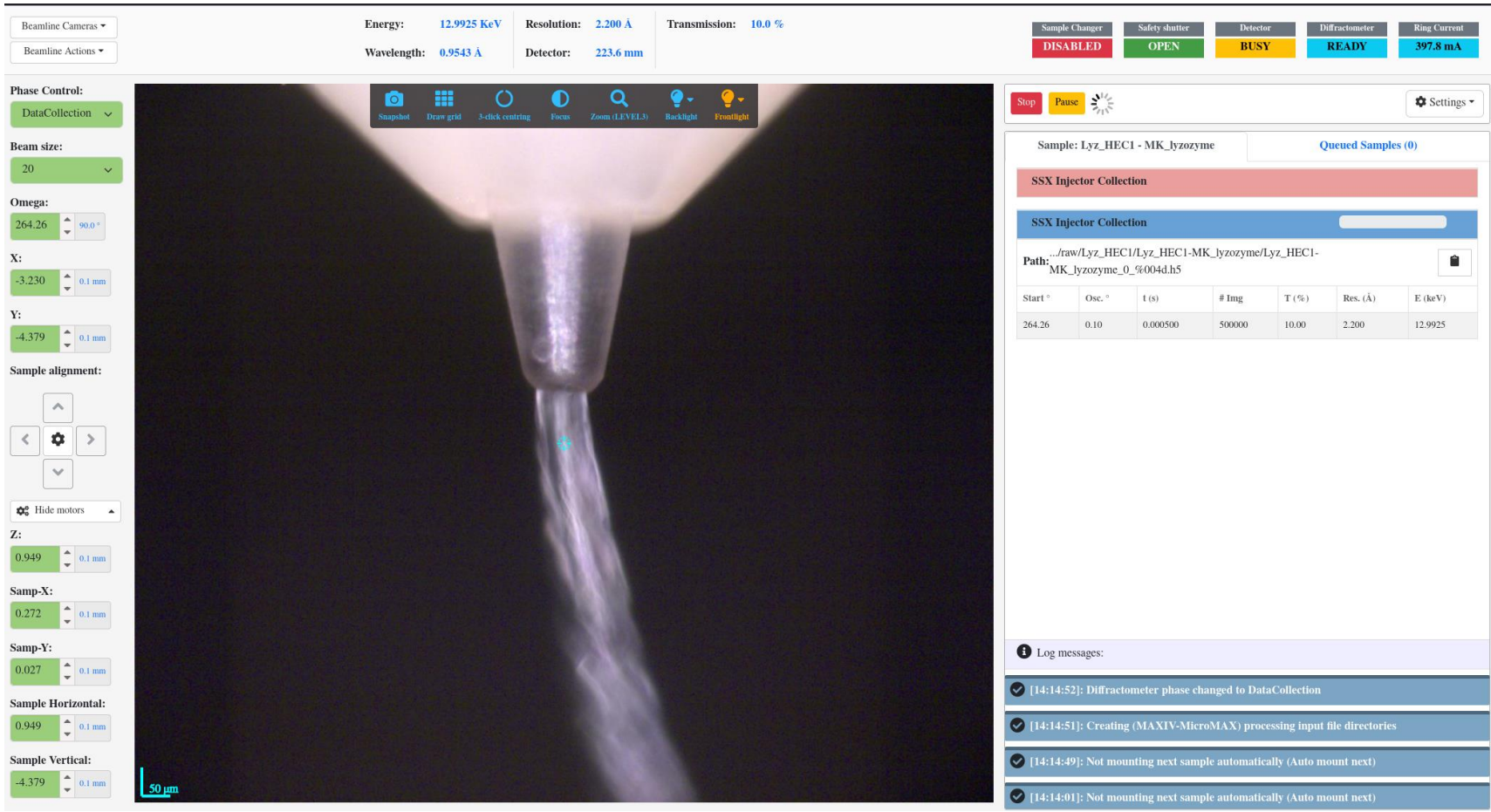
- MD3-up, an empty goino base is used for injector-based experiment
- Jungfrau 9M (on loan from PSI)
- Laser diode installed
- PandABox for timing and trigger control

See Oskar's talk

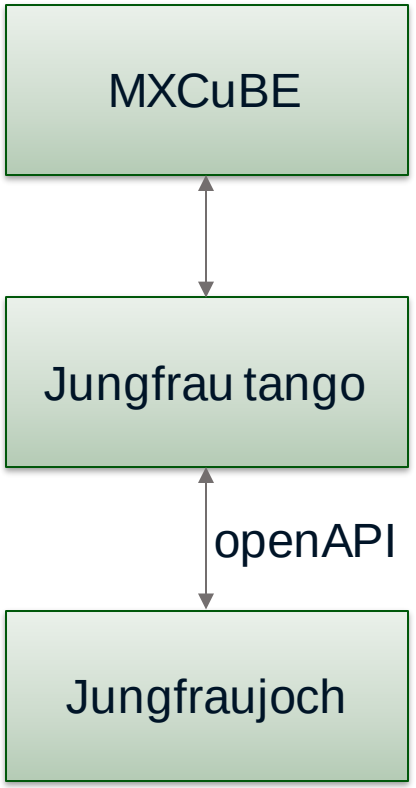
MicroMAX –mxcubecore / web4

Recent development

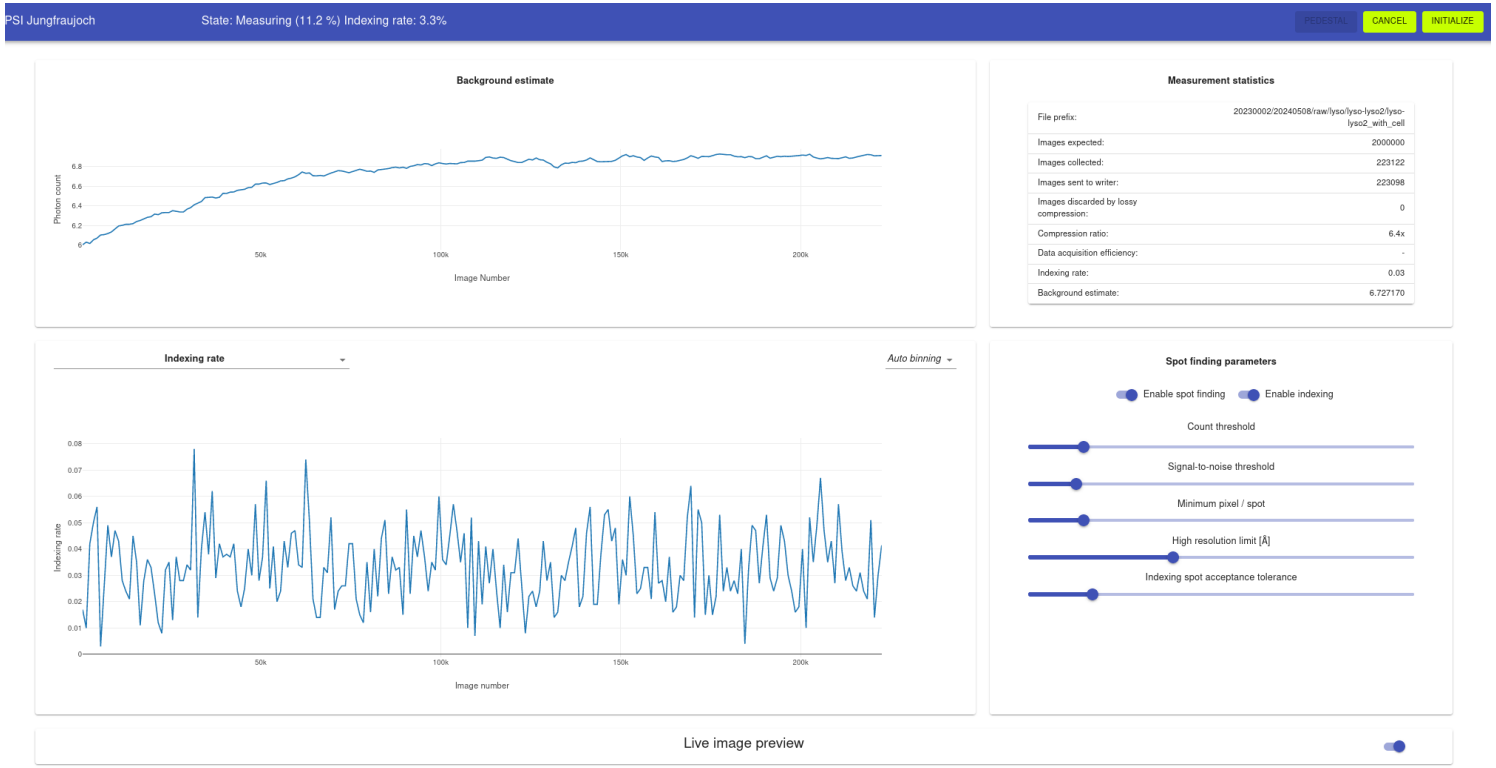
- Hutch view
- Integration with Jungfrau detector operation
- injector-based (time-resolved) collection
- Phase control for MD3 injector head
- Flux measurement



Jungfrau detector



DCU

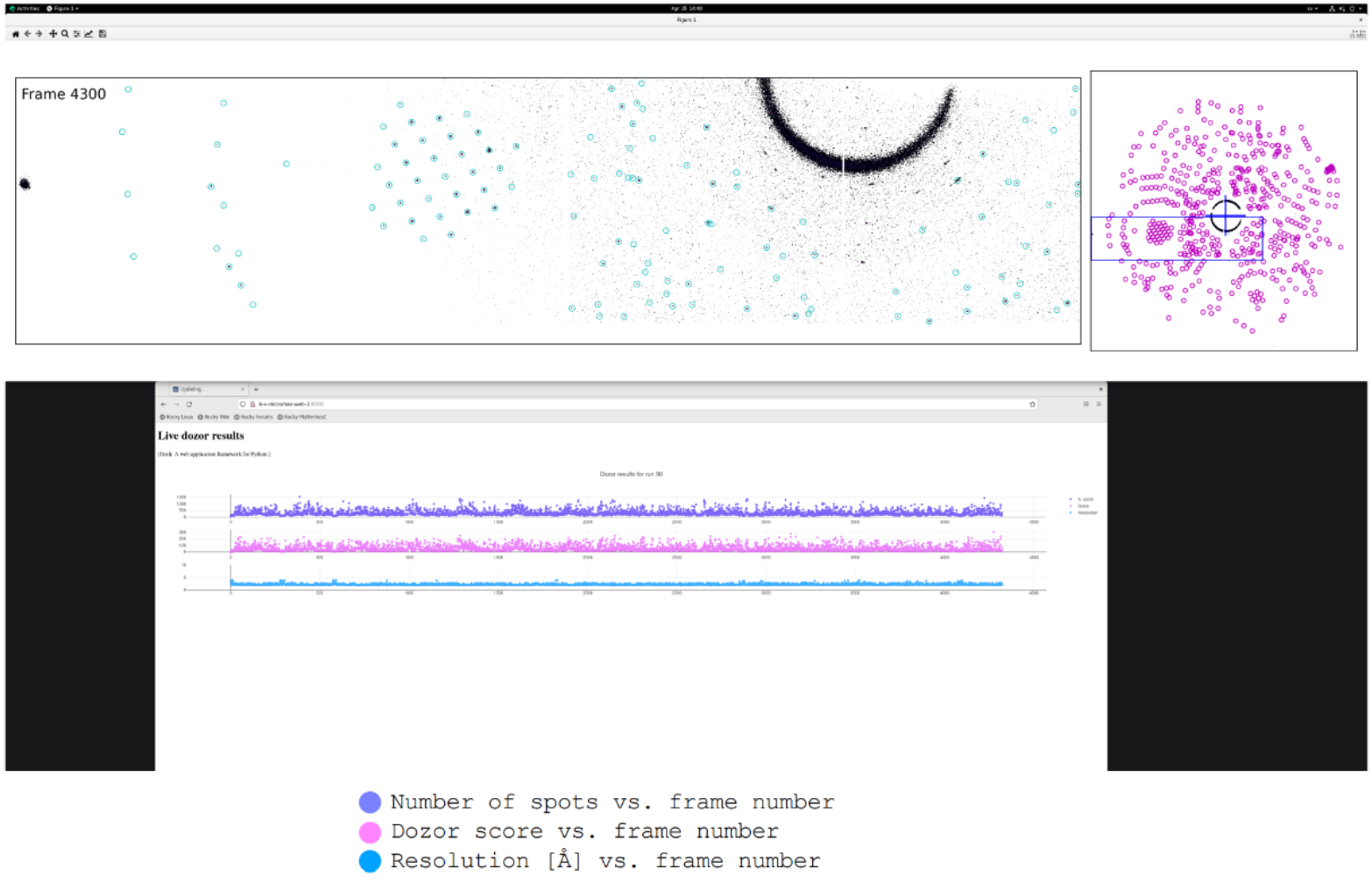


MXSuite - ongoing

- Slurm job per collection → Service
- Stream for all types of collections
- Results to ISPyB
- web-based Live Viewer

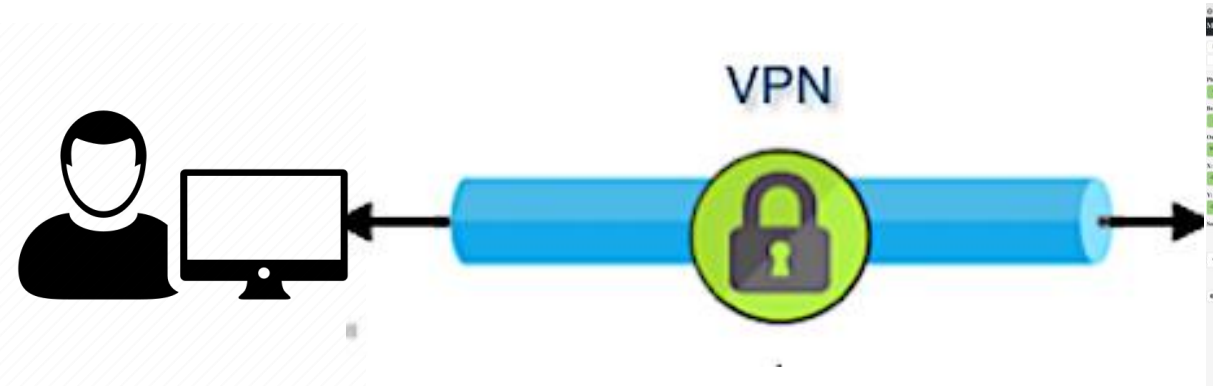
Cecilia Casadei

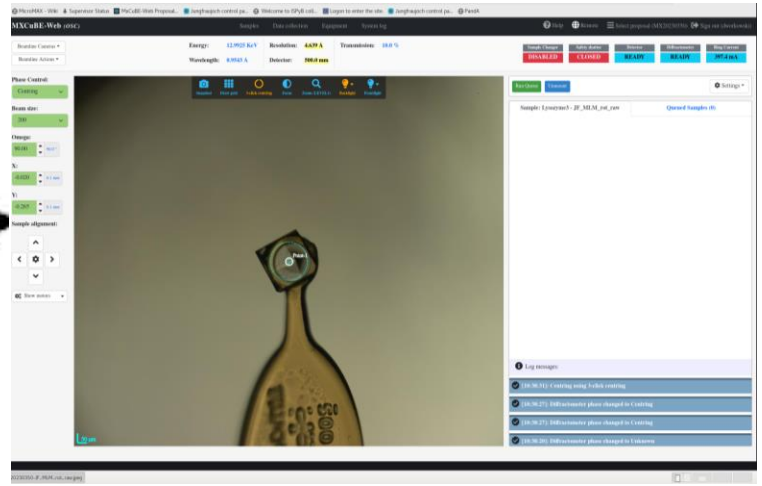
Live spotfinding viewer



Multi Factor Authentication

- All external access to MAX IV resources requires 2-factor authentication
- Time-Based one-time password (TOTP)
- mobile application, no SMS since 2024-01-15





Plans for the next six months

- mxubecore / mxcubeweb at BiomMAX
  - Include all features in mxcube3
  - Integrate Global Phasing workflow
- Same mxcube version at both BioMAX and MicroMAX
- Continue to develop the SSX features at MicroMAX
- Fast and easy switch between different setups, including detectors

Acknowledgements

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