

MX3 beamline

Daniel Eriksson

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MX3 Project

Scientists

Tom Caradoc-Davies
Daniel Eriksson
Eleanor Campbell
Suk-Youl Park*

Project Manager

Nicole Cain

Lead Engineer

Hima Cherukuvada

Mechanical Technician

Joe Quinton

Controls Engineer

Simin Chen

Scientific Computing

Francisco Hernandez Vivanco
Jacob Oldfield
Rakesh Khemaram

PLC lead

Graham Barrow

Beamline Advisory Panel

Charlie Bond (Chair) – UWA	
Peter Czabotar – WEHI	Gwyndaf Evans – DLS, UK
Chris Sumbly - UA	Aina Cohen - SLAC, USA
Stephanie Gras – MU	Emily Parker - VUW, NZ

MX1 & MX2

Rachel Williamson	Stephanie Boer
Alan Riboldi-Tunnickliffe	Yogesh Khandokar
Santosh Panjekar	Rosie Young
Stephen Harrop	Chris Szeto



Microfocus

-

Hotter beam

-

Changeable beam size

-

Serial crystallography

-

Time-resolved crystallography

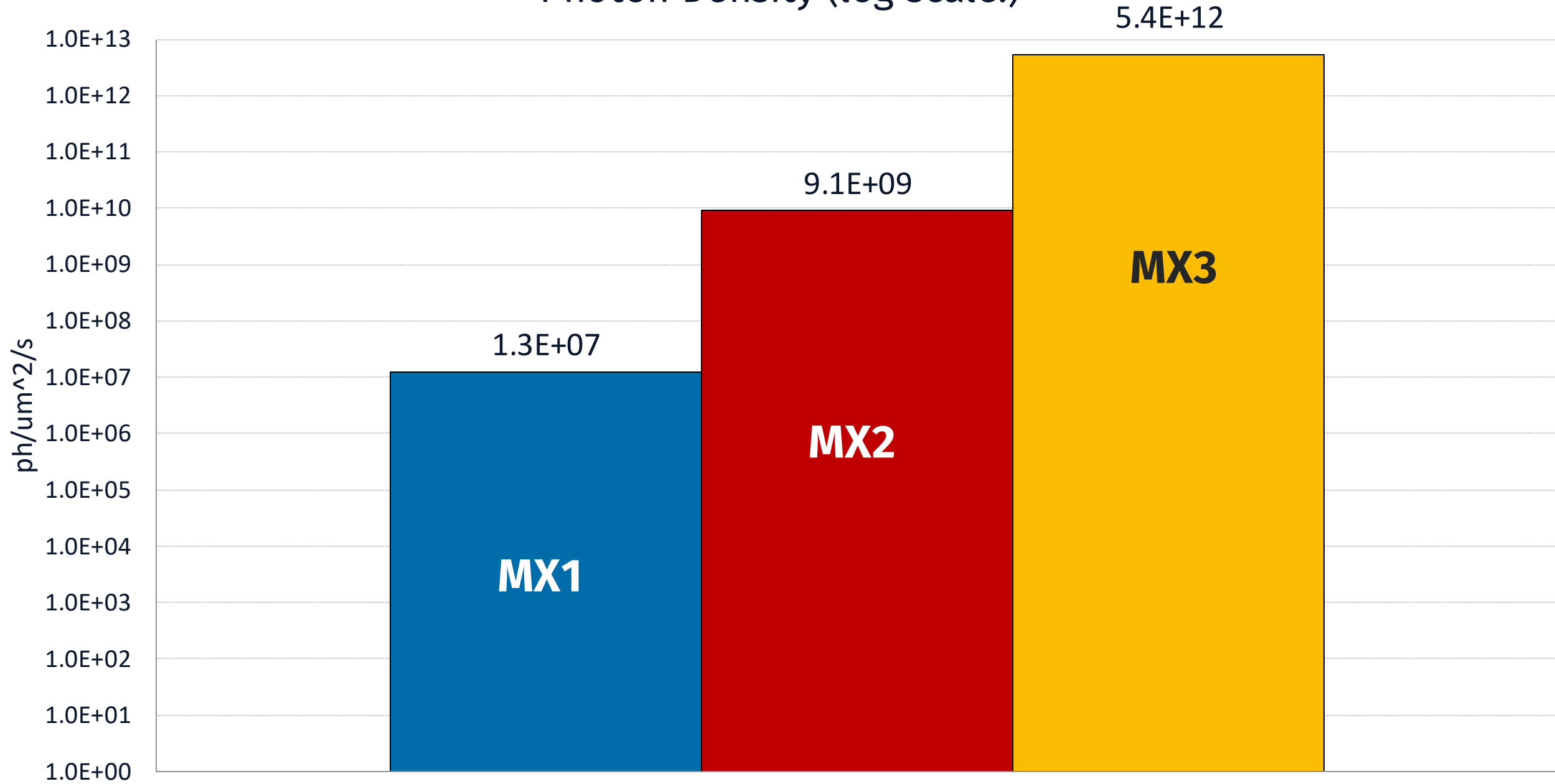
-

Automated collection

-

In-tray screening and collection

Photon Density (log scale!)



MX1

max and min (collimated)



MX2

max and min (collimated)



MX3

max and min (collimated)

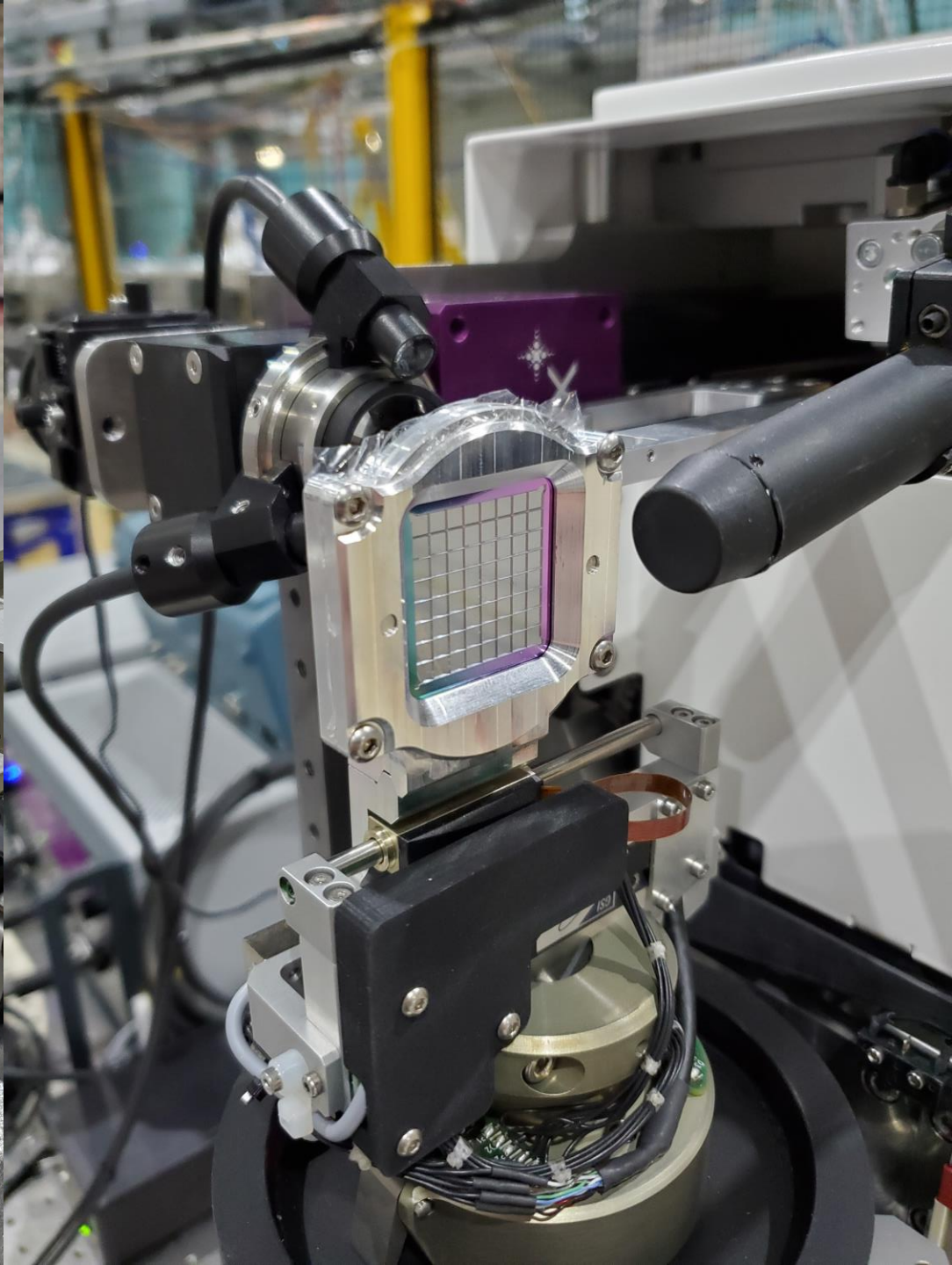
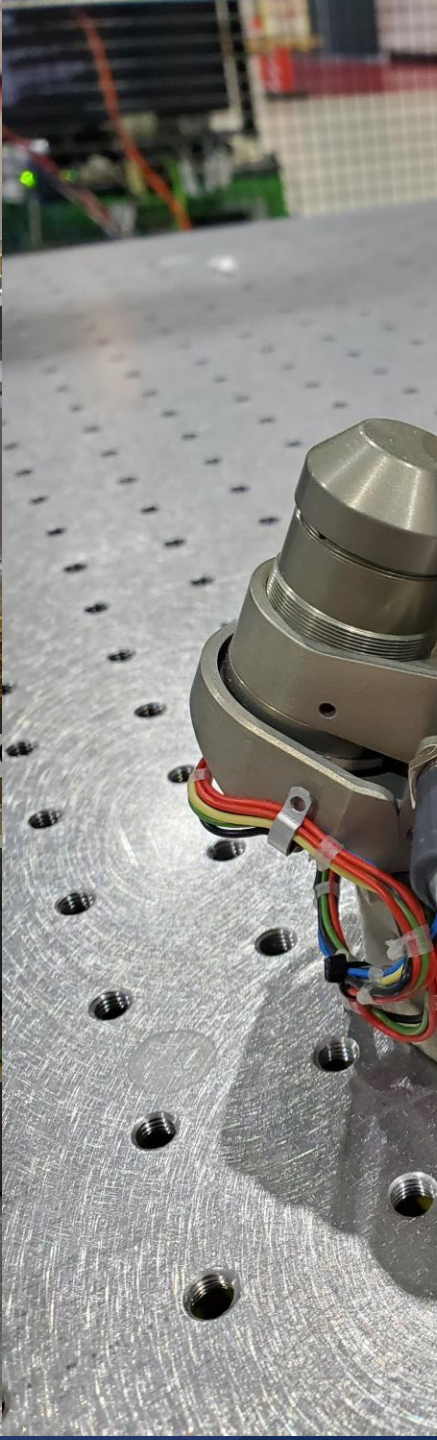
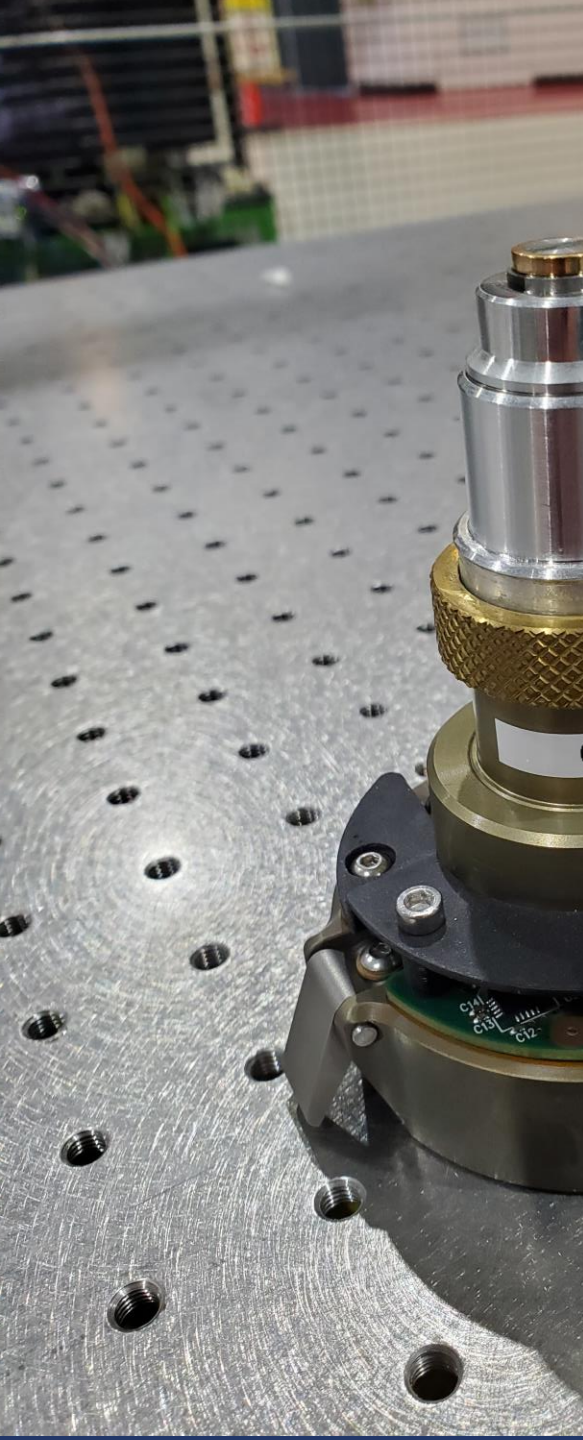


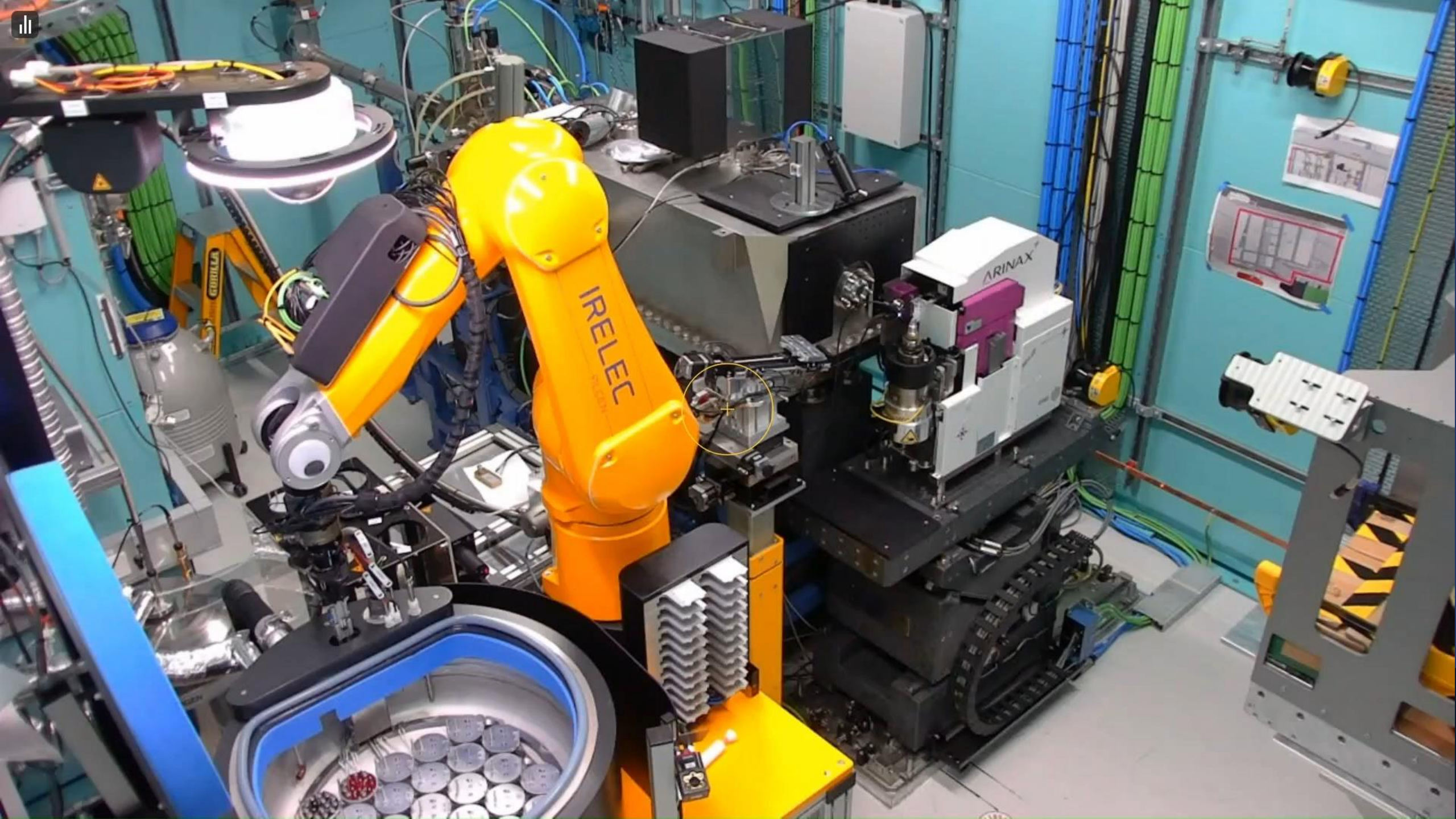
MX3

fully defocused



100 μm

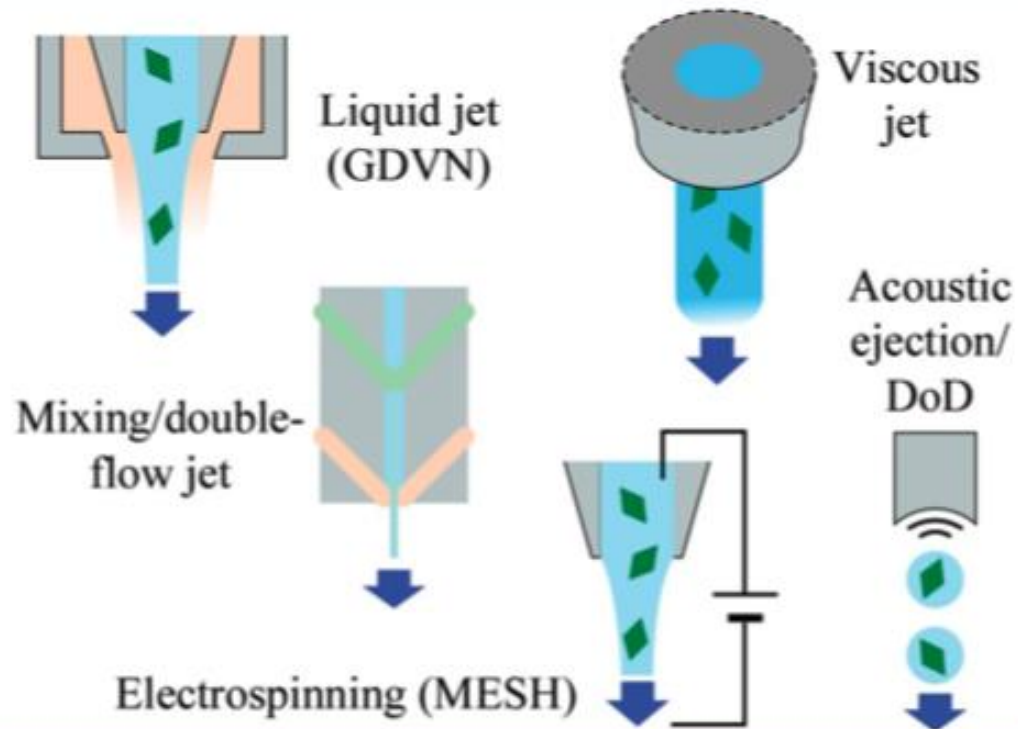




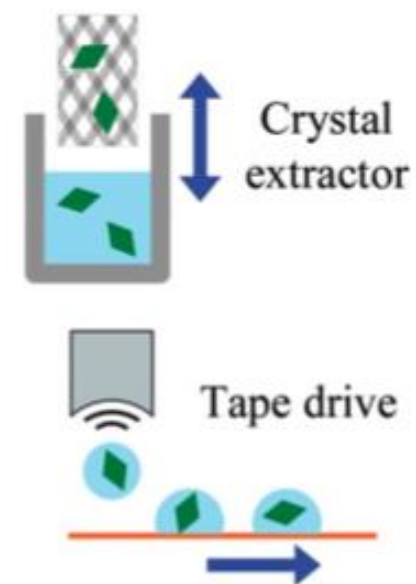


Serial Crystallography

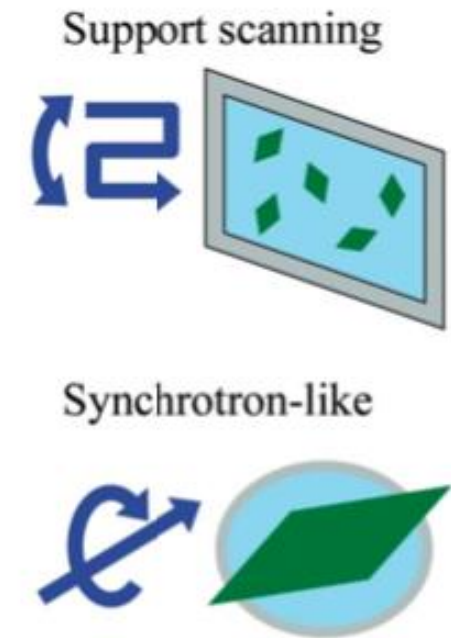
Injection methods

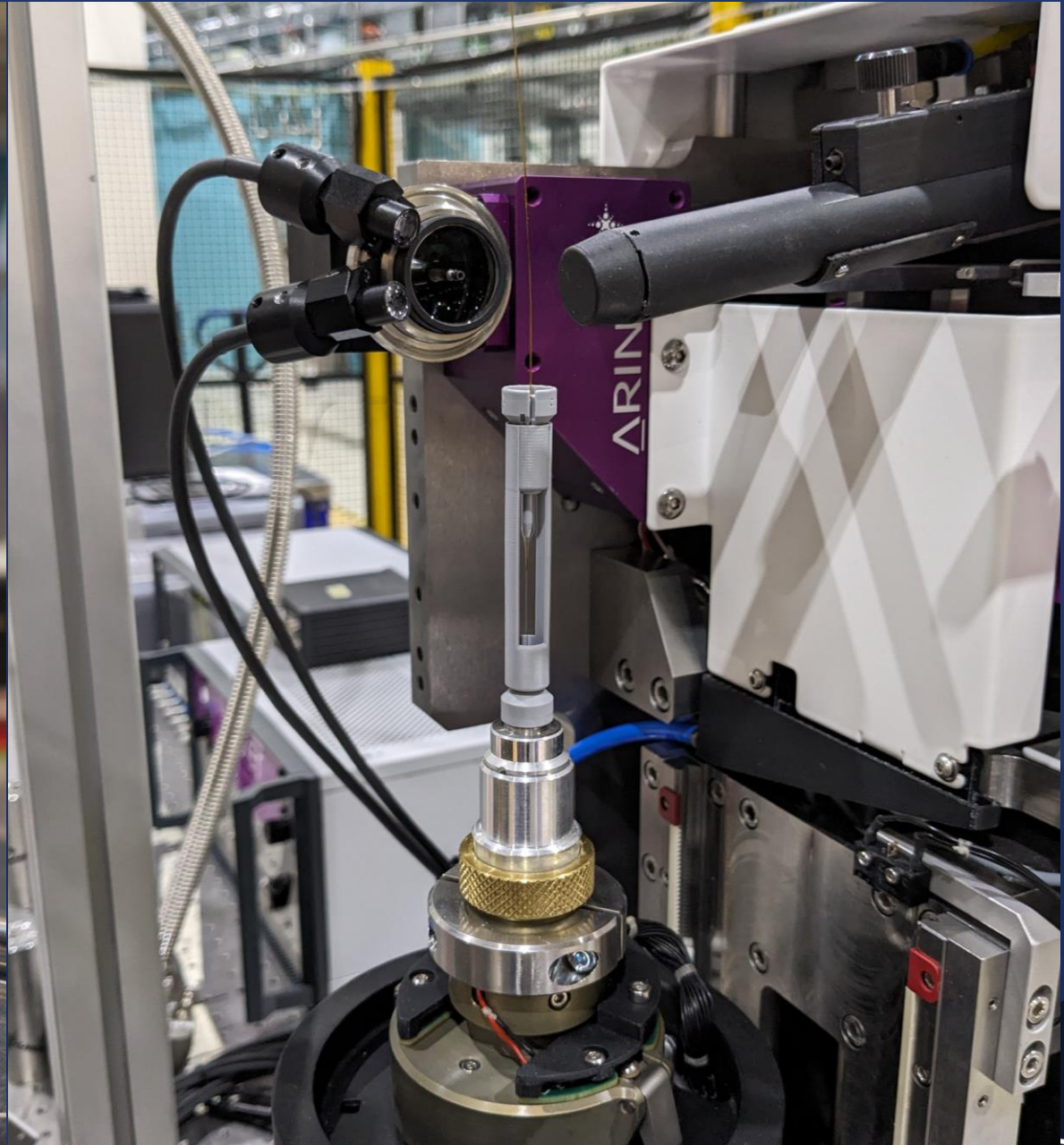


Hybrid methods

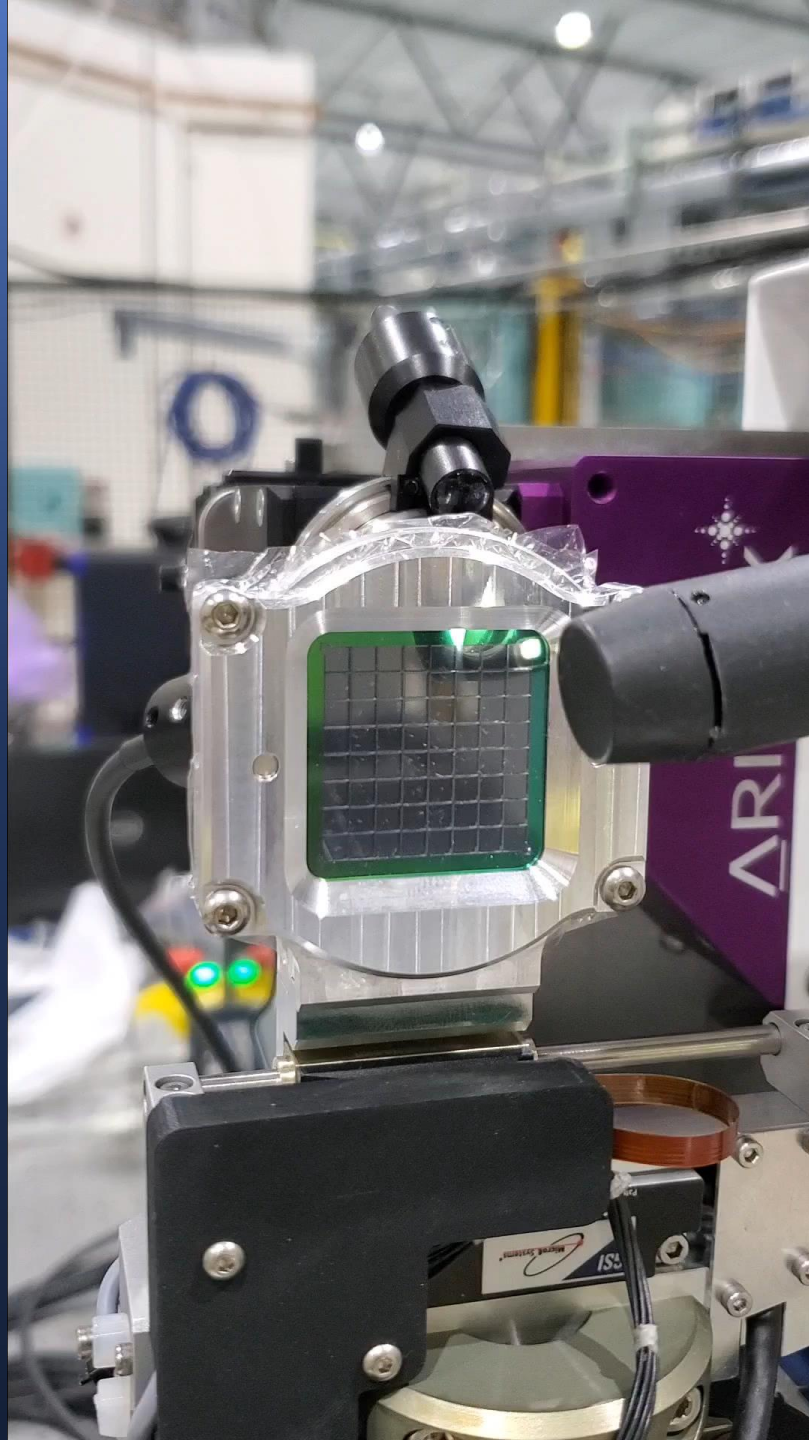


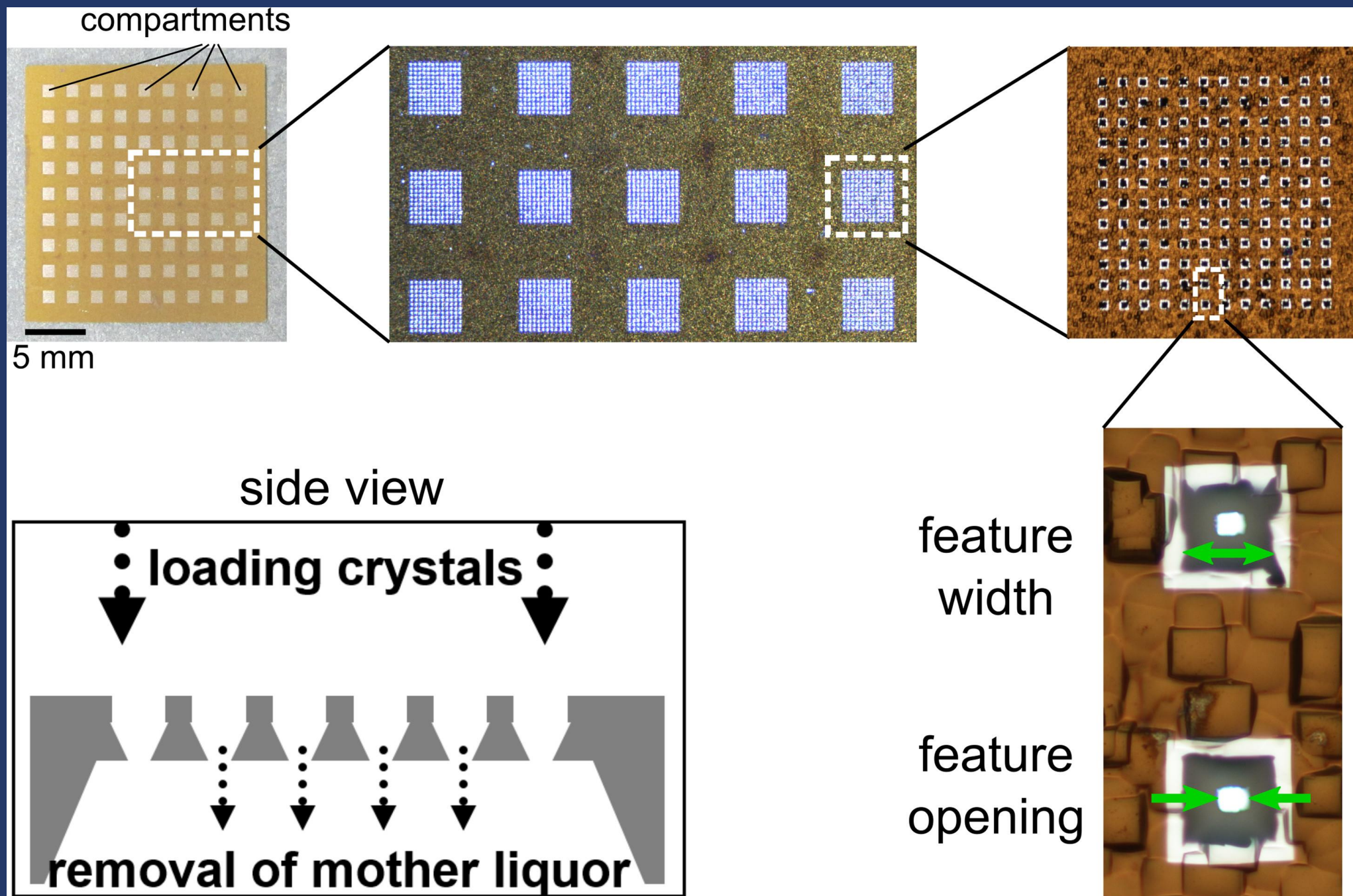
Fixed-target methods





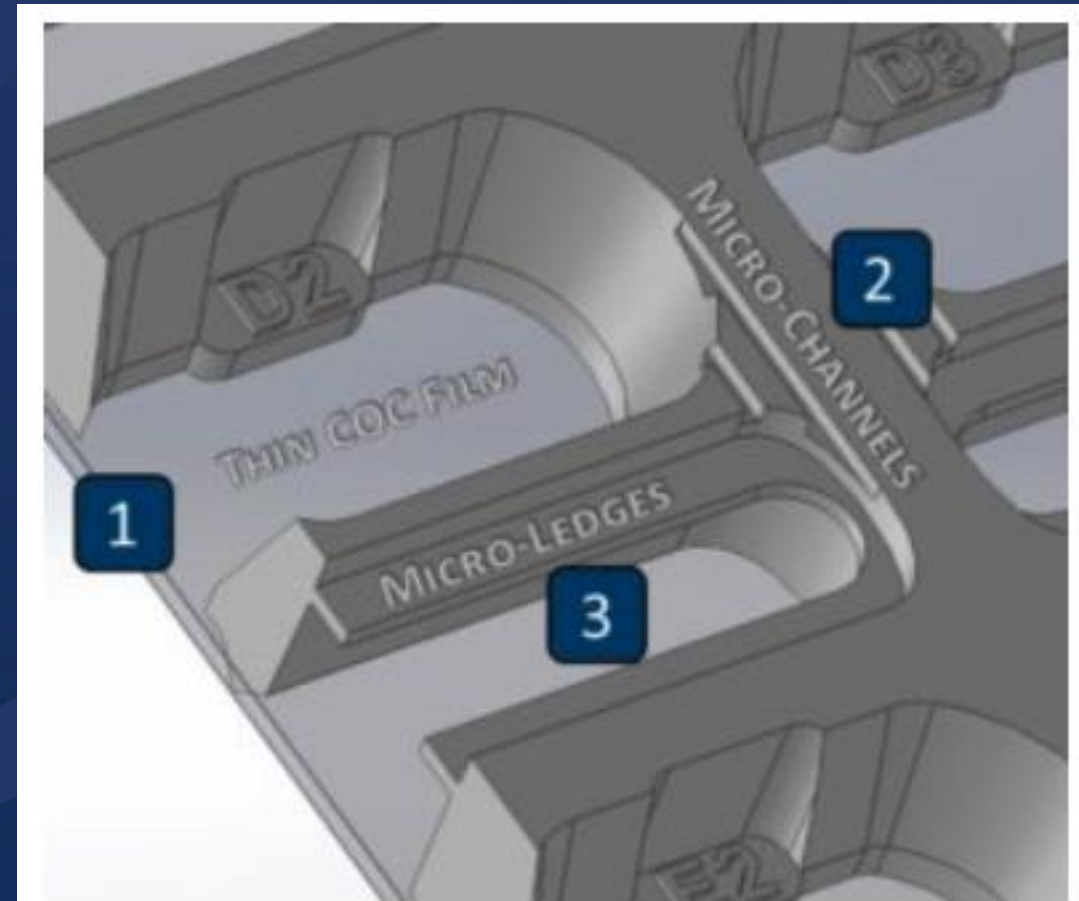
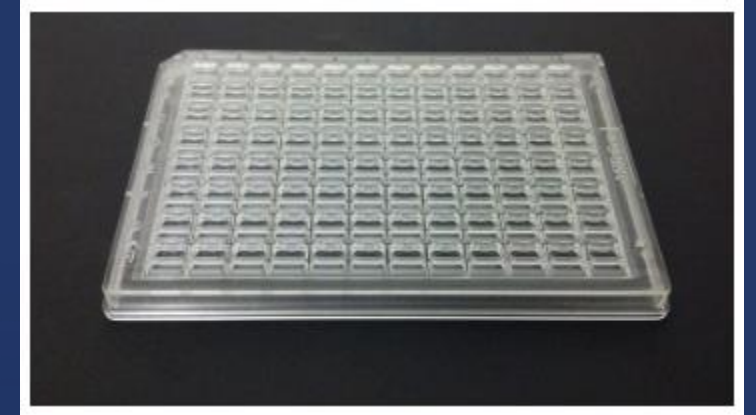






In-tray collection

- Need low background plates
- Plan is to use MiTeGen In-site-1 plates
- Expensive (US\$429 for 40 plates)
- Flexible drop patterns
- Sitting or hanging drop





Back Light 11

99.99353

Stop

80 80

MXCube

Energy: 12.4000 KeV
Detector: 10.1 mmResolution: 1.037 Å
Flux: 10438595235.54 ph/s

Transmission: 99.9 %

Wavelength: 1.00 Å

Detector
UNKNOWNSample Changer
READYSafety shutter
CLOSEDFast Shutter
CLOSEDCapillary
OUTRing Current
-1

Snapshot

Draw grid

3-click Centring

Focus

Zoom

Backlight

Frontlight

Video size

Kappa:

0.0

Kappa Phi:

0.0

Sample alignment:



X:

0.434

0.1 mm

Y:

-1.489

0.1 mm

Z:

0.537

0.1 mm

Samp-X:

0.230

0.1 mm

Samp-Y:

0.279

0.1 mm

Phase Control:

DataCollection

Hide motors



50 µm

Run Queue

Unmount

Settings

Sample: A-TIM - fghfg

Queued Samples (0)

Raster

Screen

Raster

Log messages:

[01:41:44]: Not mounting next sample automatically (Auto mount next)

[01:41:41]: Not mounting next sample automatically (Auto mount next)

[01:41:41]: Grid scan flow was not successful

[01:41:32]: Workflow waiting for input, verify parameters and press continue.

[01:41:32]: Starting workflow (Raster), please wait.

[01:41:32]: Not mounting next sample automatically (Auto mount next)

MXPrism

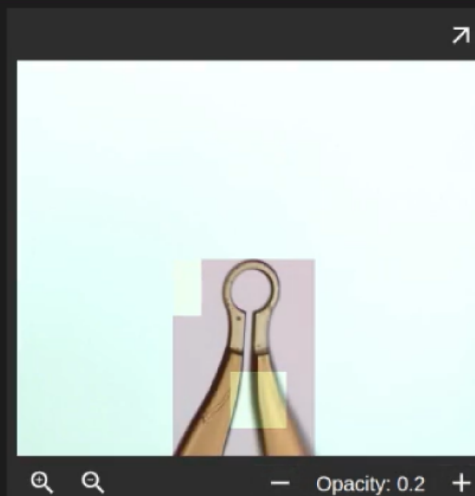
UDC flow COMPLETED.

sample-n46it7d - Raster flat

COMPLETED

Sample Id	sample-n46it7d
Pin Id	1
Puck	1
Grid Scan	
Screening	
Data Collection	
Beam Position	[612, 512]
Mount Pin At Start Of Flow	false
Unmount Pin When Flow Ends	false
Hardware Trigger	false
Crystal Finder Threshold	5
Use Top Camera	false

SHOW ALL

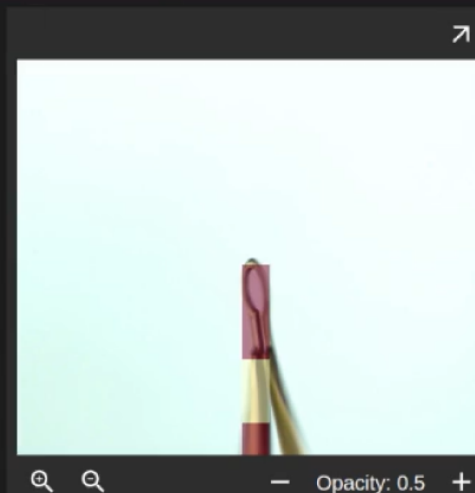


sample-n46it7d - Raster edge

COMPLETED

Sample Id	sample-n46it7d
Pin Id	1
Puck	1
Grid Scan	
Screening	
Data Collection	
Beam Position	[612, 512]
Mount Pin At Start Of Flow	false
Unmount Pin When Flow Ends	false
Hardware Trigger	false
Crystal Finder Threshold	5
Use Top Camera	false

SHOW ALL



mx3-beamline-library Public

Edit Pins Unwatch 7 Fork 0 Starred 7

main 12 Branches 6 Tags Go to file Add file Code

fhernandezvivanco Merge pull request #16 from AustralianSynchrotron/add_timeout_t... 46aa1d1 · 5 days ago 555 Commits		
docs	Fix simulated motors missing in docs	2 years ago
examples	updated robot example	2 weeks ago
mx3_beamline_library	add timeouts when changing the phase of the MD3	5 days ago
tests	Update Sphinx documentation for MX3	2 years ago
.flake8	updated schemas	10 months ago
.gitignore	added files to gitignore	3 months ago
.isort.cfg	Add linting and related packages	2 years ago
.pre-commit-config.yaml	updated isort to 5.12.0	last year
.pylintrc	Add linting and related packages	2 years ago
CHANGELOG.md	added changelog	2 years ago
LICENSE	Create LICENSE	6 months ago
README.md	updated README	6 months ago

About

This repository hosts the code required for executing data collection plans on the MX3 beamline at the Australian Synchrotron.

- Readme
- LGPL-2.1 license
- Activity
- Custom properties
- 7 stars
- 7 watching
- 0 forks

Report repository

Releases 6

Release v0.2.8 Latest 5 days ago

+ 5 releases

Packages

Phased program

Phased delivery

1. Robot + goniometer “standard MX”
2. Fixed-target + in-tray
3. Injector
4. Laser (time-resolved)

Expert User Program

You get:

- Training with the new gear
- Use of loaned puck sets
- Data? (no guarantee)



Expert User Program

We get:

- Your feedback on systems
- Testing of hardware in real experiments
- Your patience <3



Expert User Program

Register your interest to be an expert user:

eleanor.campbell@ansto.gov.au

AS-MX3@ansto.gov.au

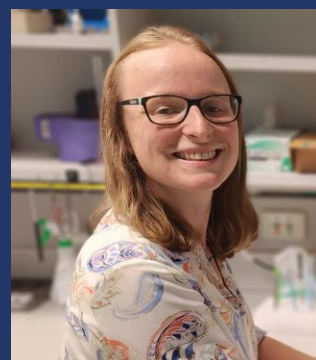
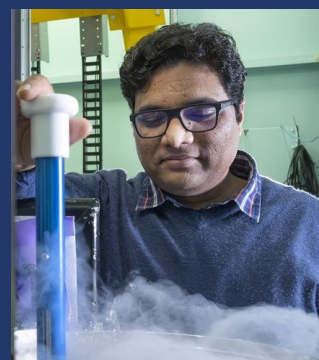
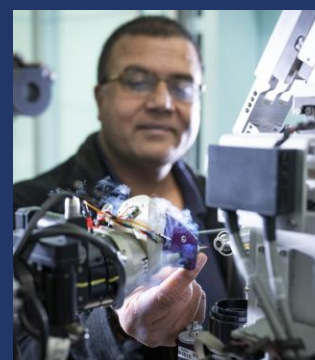


Thank you!

MX Staff

MX1/2

Alan Riboldi-Tunncliffe
Rachel Williamson
Santosh Panjikar
Stephen Harrop
Chris Szeto
Yogesh Khandokar
Stephanie Boer
Rosie Young



MX3 build team

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User wiki  ANSTO