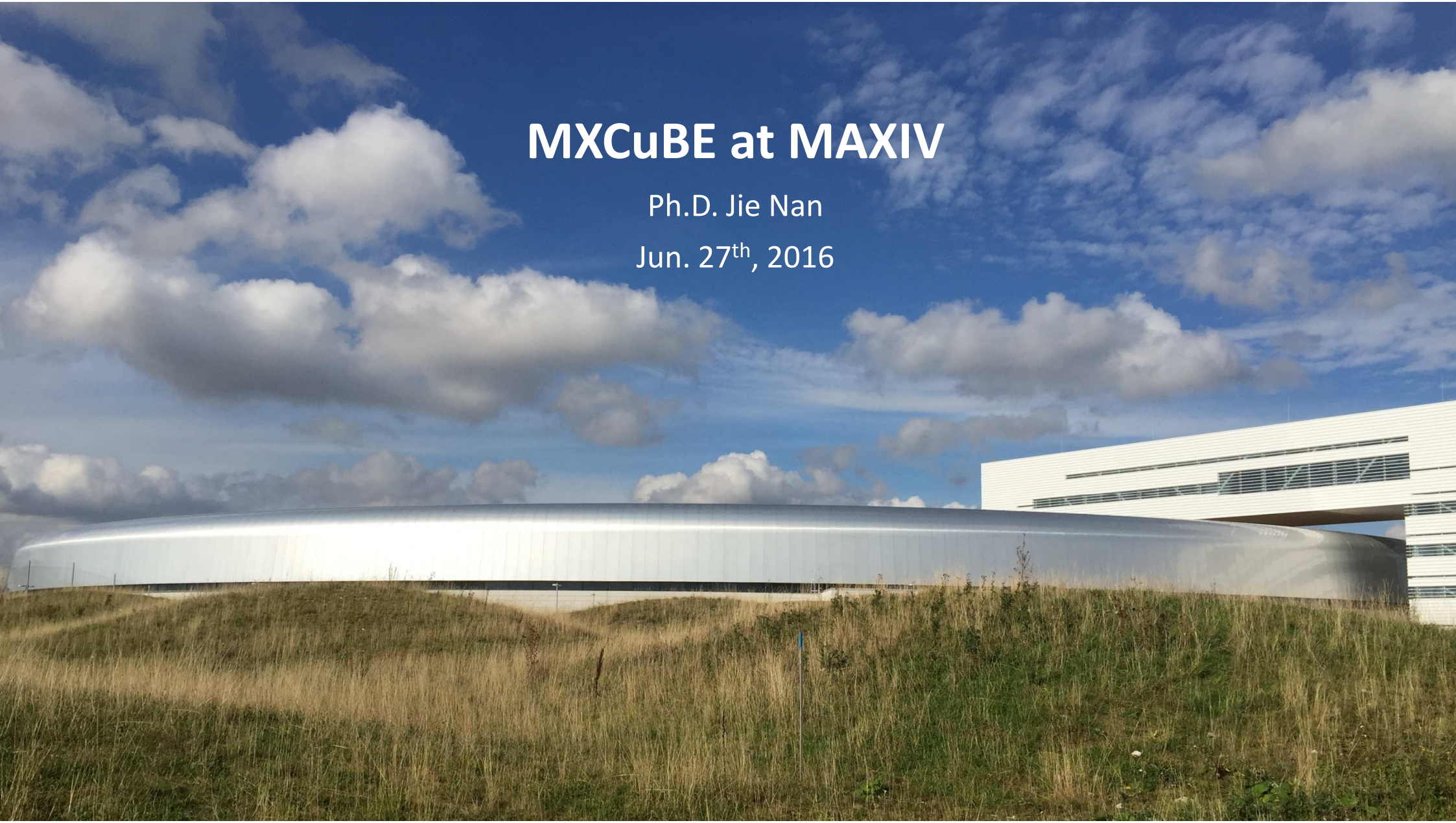


MXCuBE at MAXIV

Ph.D. Jie Nan

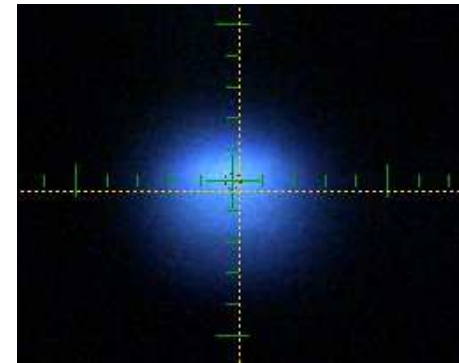
Jun. 27th, 2016



MX Beamline at MAX IV - BioMAX

Main characteristics of the X-ray performance and optical elements

X-ray source	In-vacuum undulator, 18 mm period, 4.2 mm minimal gap
Monochromator	Horizontally deflecting, double crystal (Si 111)
Focusing optics	KB-mirror pair
Energy / Wavelength range	5 - 25 keV / 0.5 - 2.5 Å
Beam size at sample (focused)	20 x 5 μm^2 (hor x ver)
Flux at sample (focused, 1Å)	2×10^{13} ph/s



Focused beam, 40x20 μm



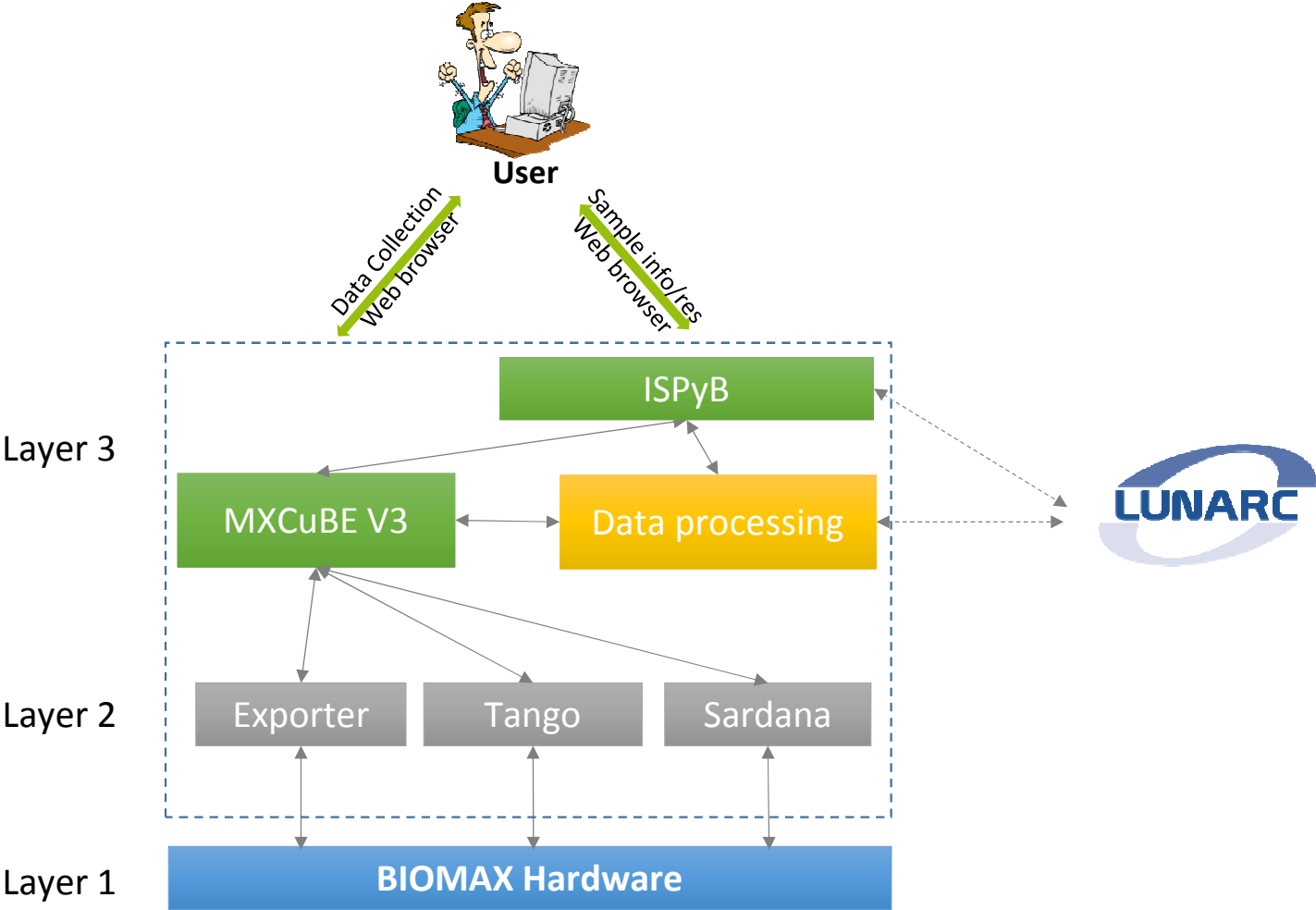
BioMAX optics hutch

BioMAX Experiment Station

- MD3 Micro-Diffractometer
 - Mini-kappa
 - Crystallization Plate holder
- Detector, Pilatus3 2M
- Detector, Eiger 16M
- ISARA, Sample Changer
 - 400 samples
 - Fast sample exchange, 18 s
- Cryojet5, HC1 and REX
- Amptek fluorescence detector



BIOMAX Software Architecture

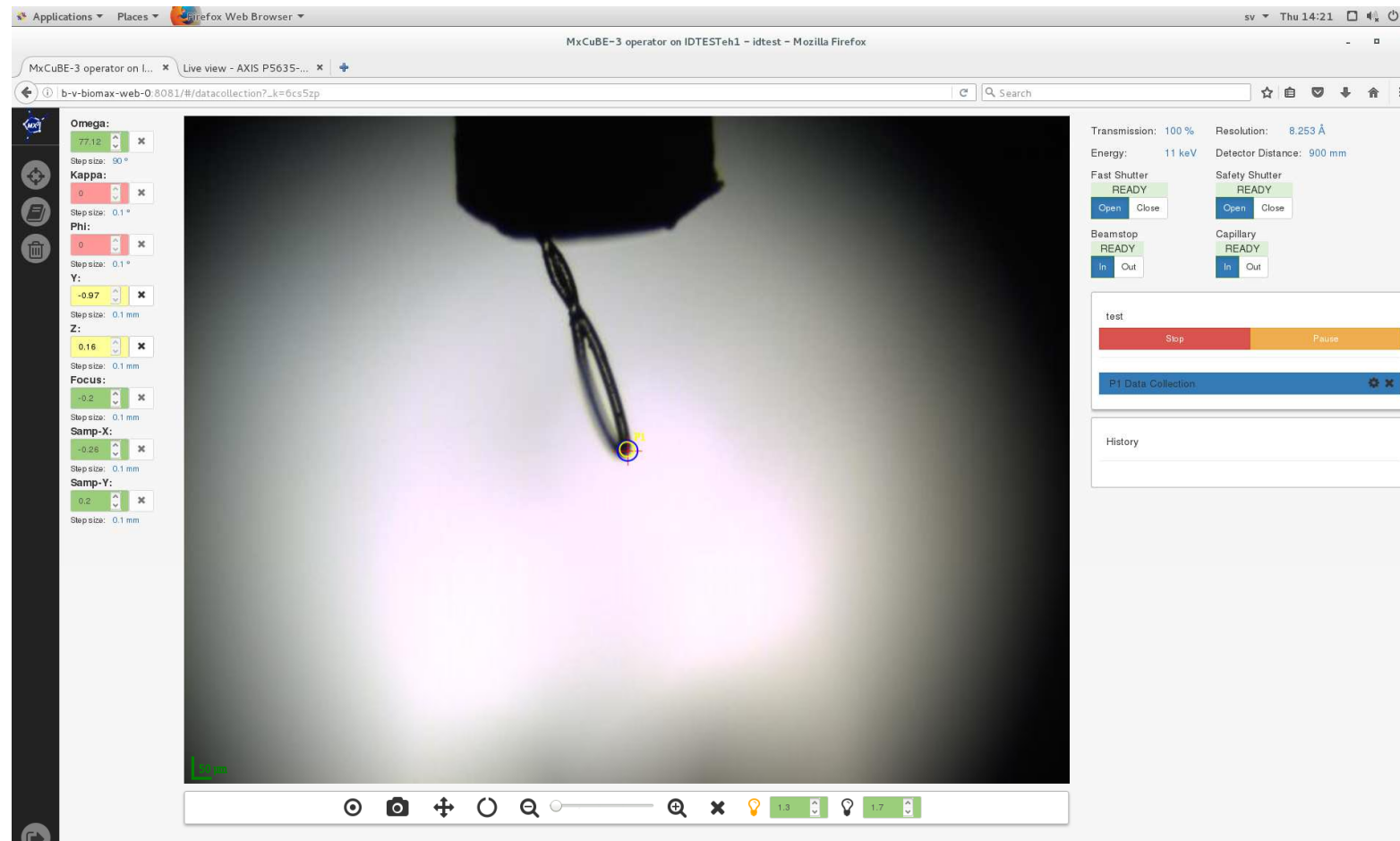


MXCuBE3 at MAX IV

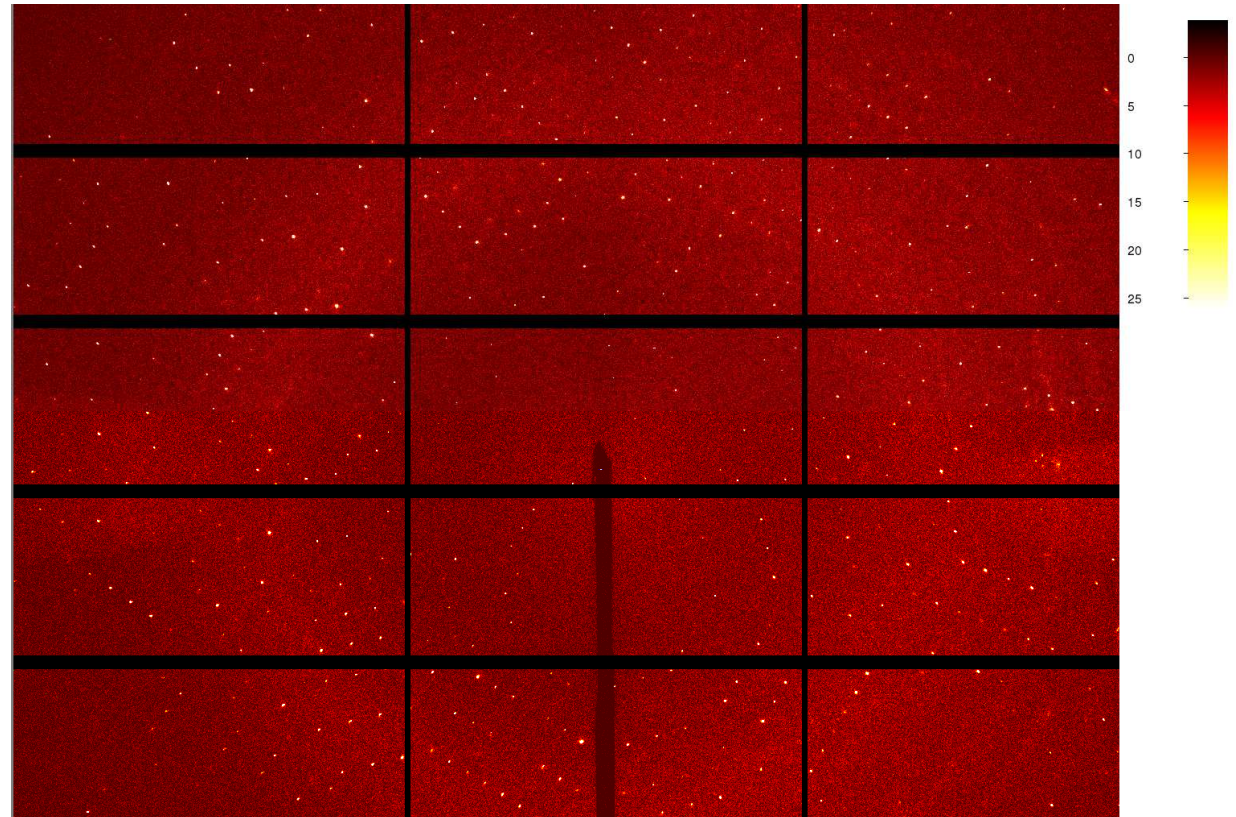
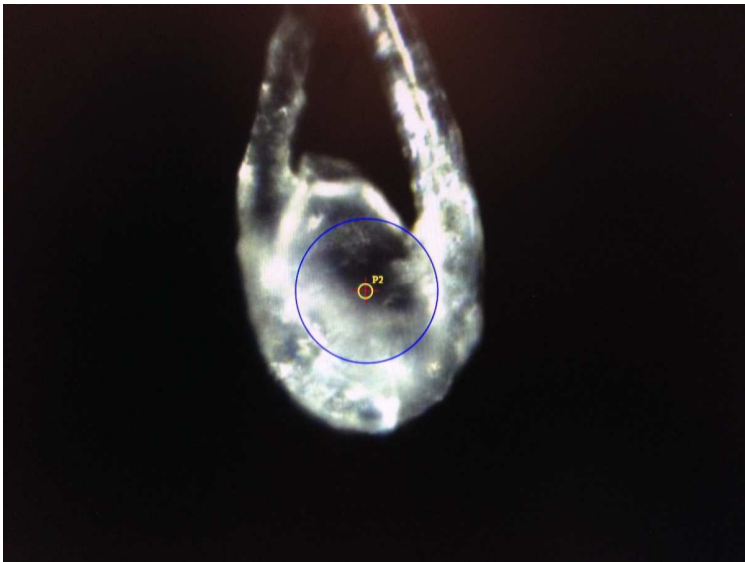
- v3, web version, light
- HardwareRepository
- HardwareObjects, v2.2
 - Start with 2.2 directly, NO upgrade from maxlab 2.0
 - Make full use of hwobj, minimize sardana macros
 - Take the logic from interface
 - Enhanced mockups
- MXCuBE V3
 - back_end, python
 - frontEnd, javaScript

Overview of MXCuBE3 features

- Sample View
 - Centering
- Data Collection
 - Support queue
- Hardware
 - MD3
 - Detector
 - Some BL motors
- Characterization (N/A)
- Processing (N/A)



First crystal diffraction at BIOMAX



Future work

- Hardware integration
 - Sample Changer
 - Eiger 16M
 - Fluorescence detector
- Experiment support
 - Characterization
 - Element analysis & Energy Scan
 - MAD data collection
 - Helical Scan & Mesh Scan
- HardwareObjects, full v2.2
 - Use abstract detector, collect hwobj
- MXCuBE V3

Acknowledgement

MX Group

Uwe Mueller (group leader)
Marjolein Thunnissen
Thomas Ursby
Johan Unge
Roberto Appio
Christopher Ward
Mikel Eguraun
Fredrik Bolmsten

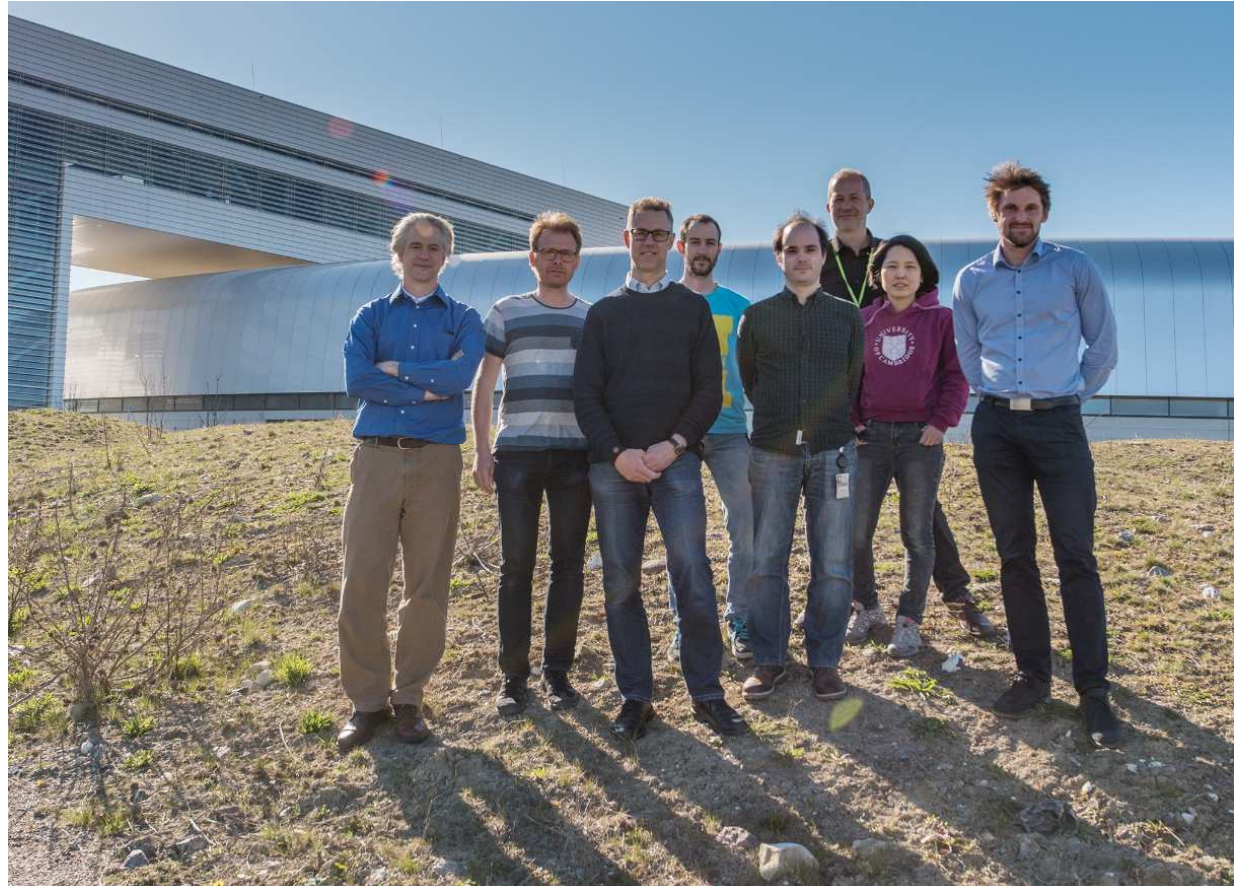
KITS Group

Darren Spruce
Kristen Larsson
Antonio Milán-Otero

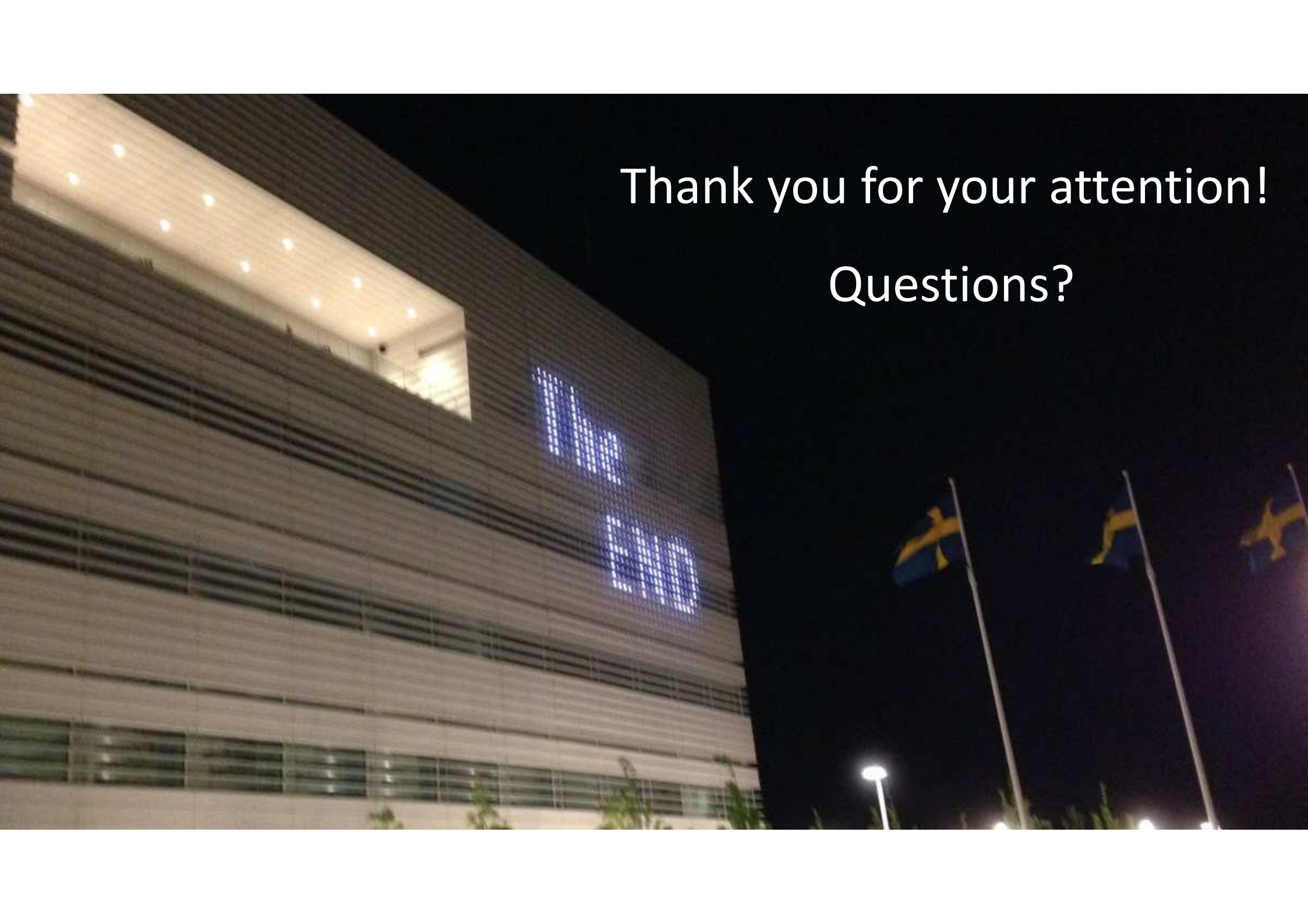
many others from MAX IV

ESRF

Matias Guijarro
Markus
Daniele De Sanctis
Antonia Beteva



MX group photo

A photograph of a modern building at night. The building's facade is illuminated with a large, glowing blue logo that reads "WORLD LEADERS". The building has a grid-like pattern of windows and a prominent horizontal light fixture on the upper left. In the foreground, three Swedish flags are flying on tall poles. A street lamp is visible in the lower right. The sky is dark.

Thank you for your attention!

Questions?