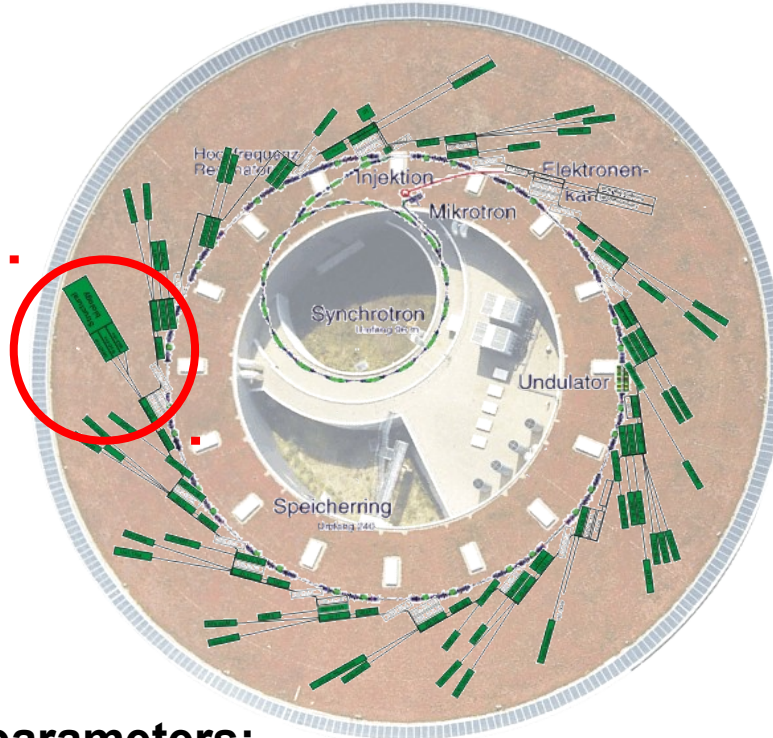


Status of MXCuBE Experiment Control at BESSY II

Michael Hellmig,
on behalf of the HZB MX group

MXCuBE workshop, 27-28 June 2016
EMBL Hamburg



Ring parameters:

Energy: 1.7 GeV
Current: 300 mA
Emittance: 5 nm·rad
Circumference: 240 m
Straight sections: 16

3rd generation facility in the XUV energy range

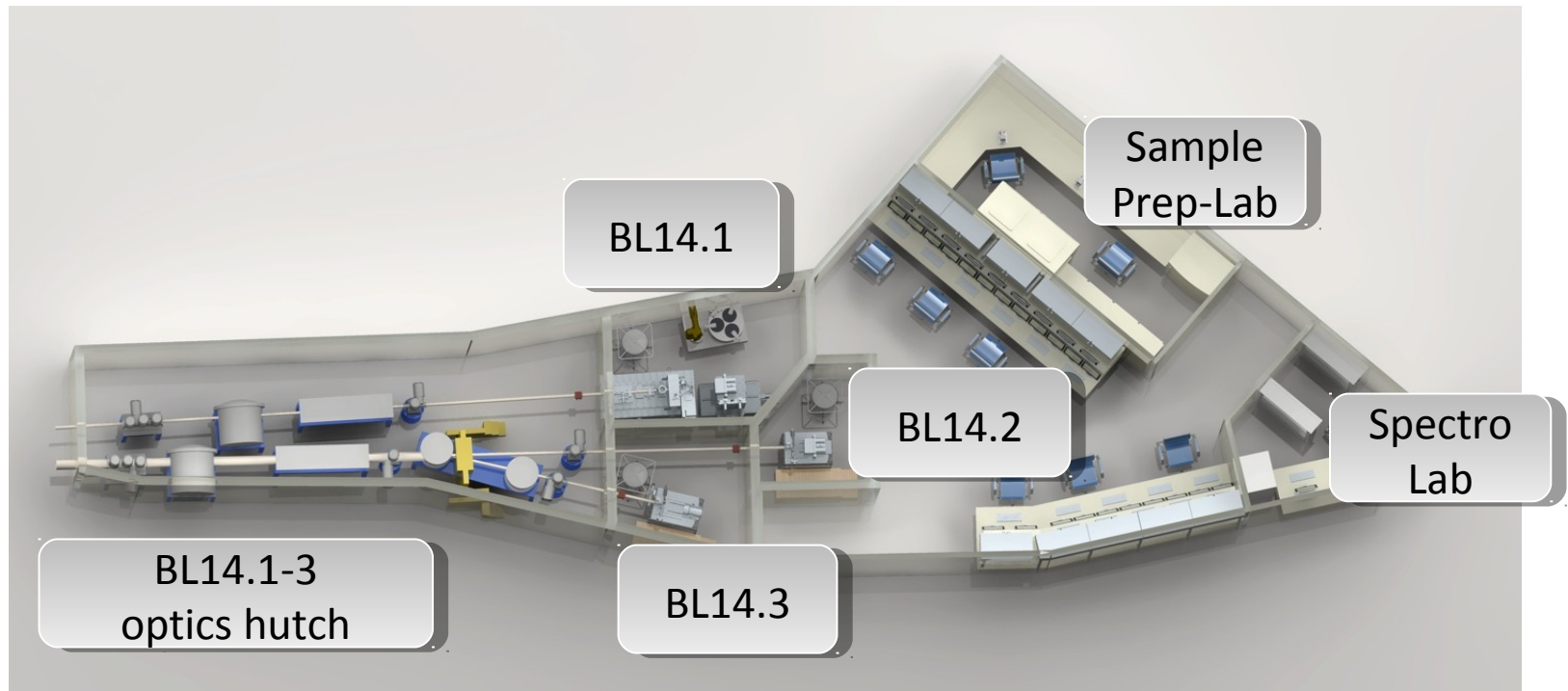
BESSY-MX insertion device: WLS7T wavelength shifter

B MX-WLS.: 7 T

E_{crit} (MX-WLS): 13.45 keV



Status of the MX beamlines at HZB



- shared optics hutch
 - 2 MAD beamlines BL14.1 and BL14.2: 5.5 to 15.5 keV
 - fixed energy side station BL14.3: 13.8 keV
- shared user work space
- ~100 different user groups
- ~250 PDB structure depositions per year

Status of the MX beamlines at HZB

BL 14.1

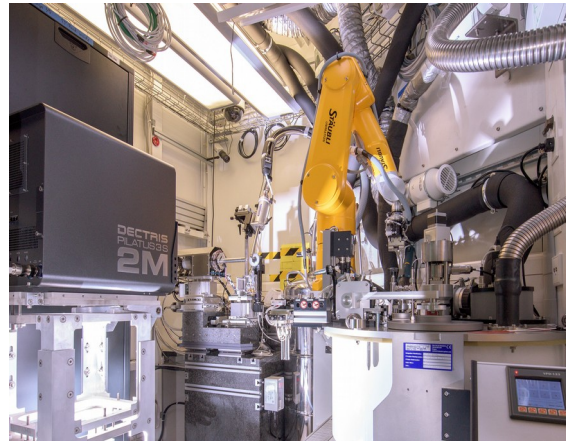
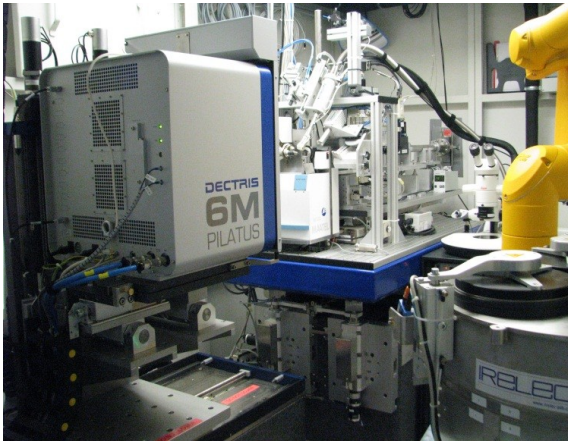
MD2 with Mini-Kappa
PILATUS2 6M (12 Hz)
Irelec CATS sample robot

BL 14.2

Nanodiff diffractometer
PILATUS3 2M
NatX-ray GROB sample
changer

BL 14.3

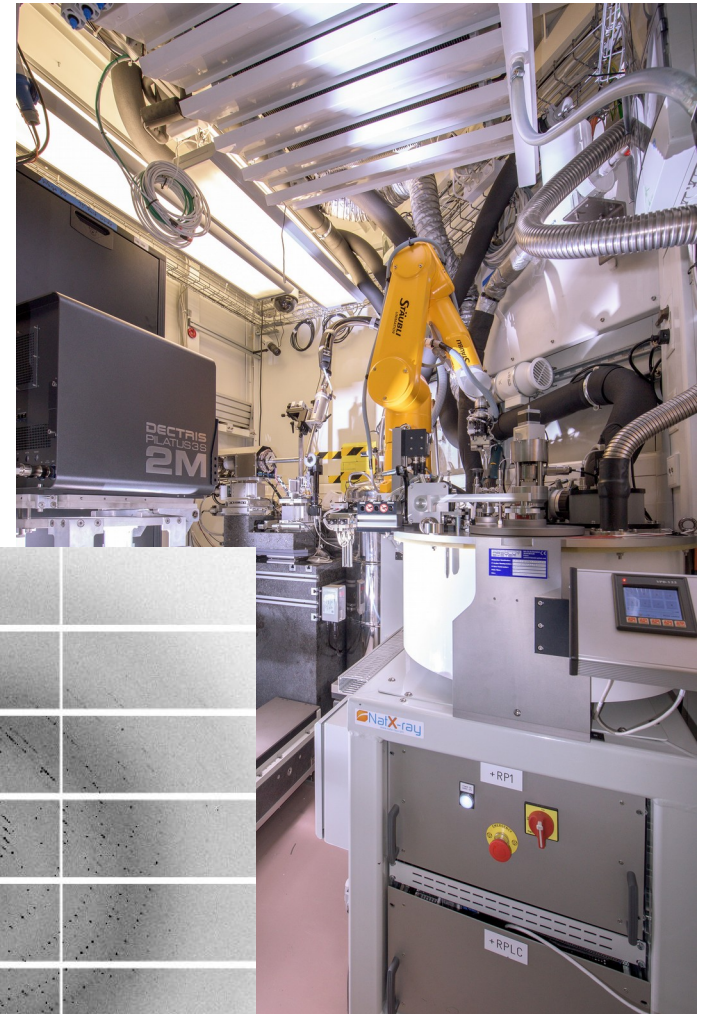
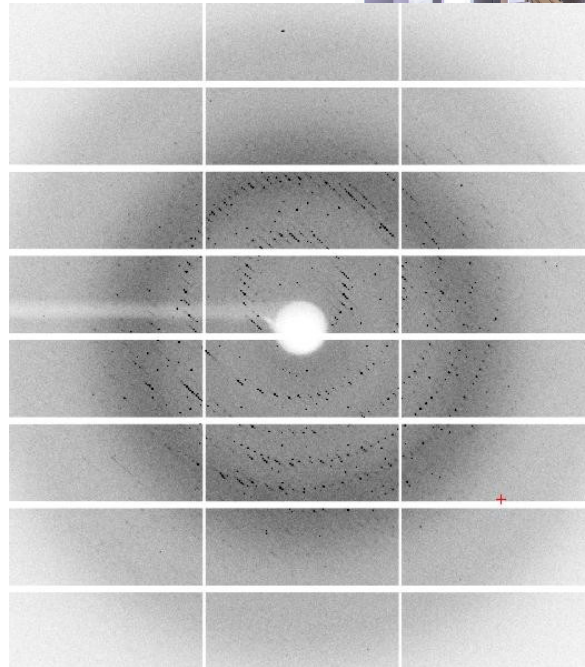
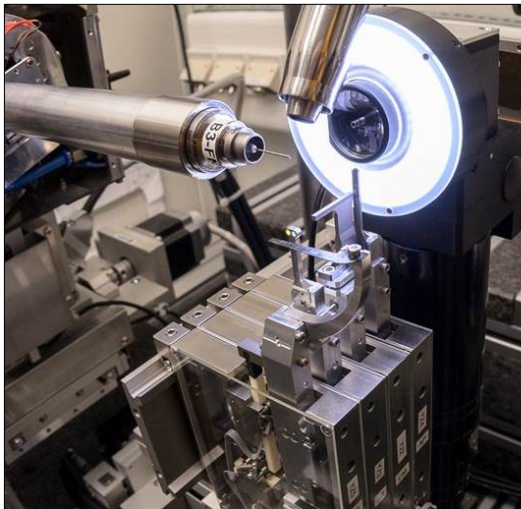
Marresearch DTB
Rayonix Mosaic 225
manual sample mounting
HC1 humidifier



- BL 14.1 and BL 14.3
 - regular user operation (24/6)
- BL 14.2
 - commissioning of the upgraded experimental endstation

BL14.2 experimental endstation upgrade: current status

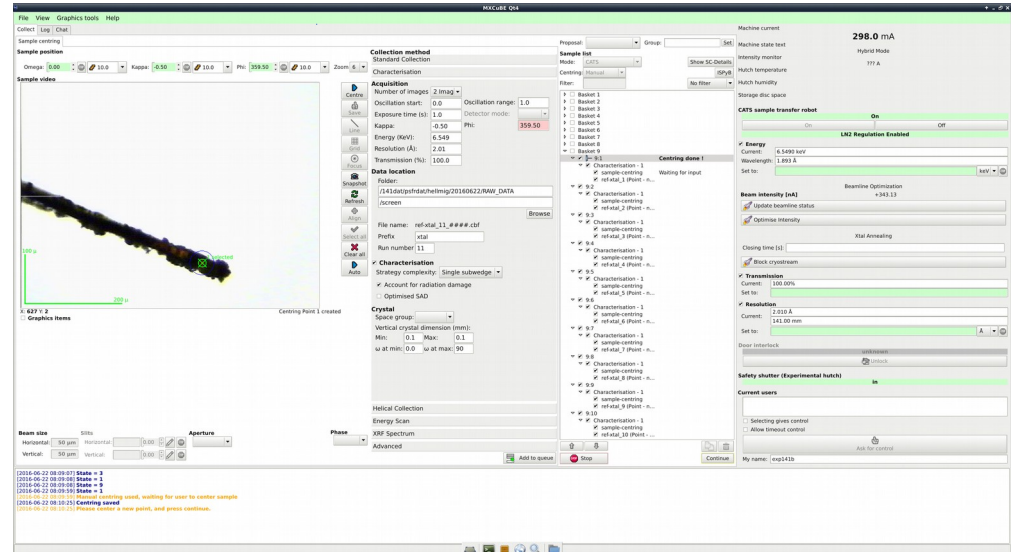
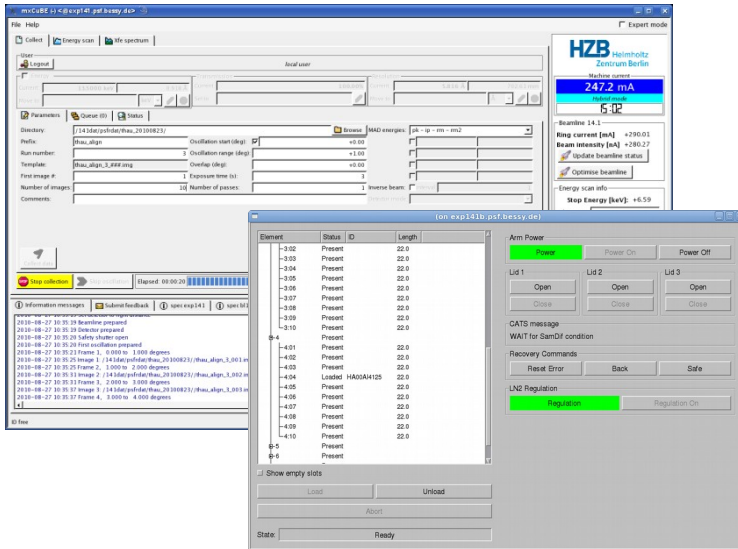
- endstation components fully installed and working
- SPEC for low-level device control
- MXCuBE 2.2 Qt4 user interface
- first diffraction experiments successful
- friendly user operation after summer shutdown



MxCuBE v1

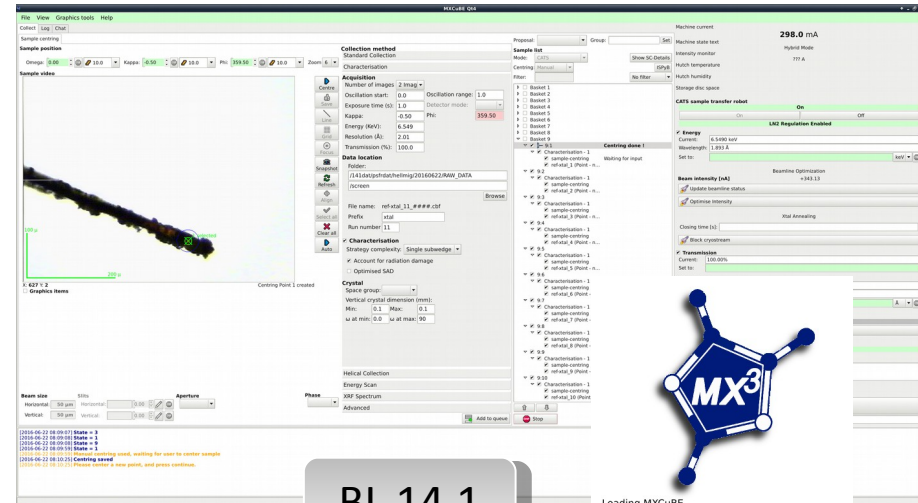


MxCuBE 2.2 Qt4



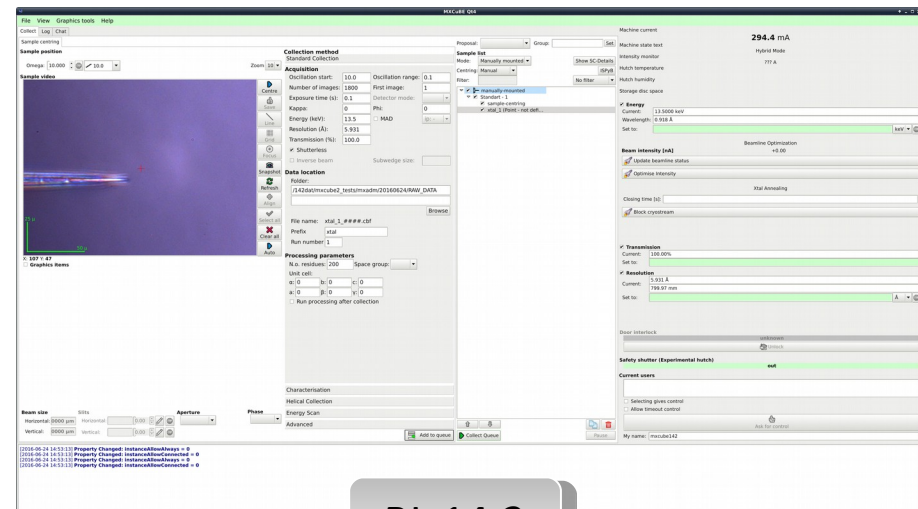
- until recently: MxCuBE v1 & stand-alone CATS GUI, BL 14.1 only
- April 2016: update of local Git repository to MxCuBE 2.2
- June 2016: MxCuBE 2.2 Qt4 in regular use during user operation

- adapt hardware objects to updated interfaces, e. g. AbstractXRFspectrum, Qt4_GraphicsManager
- local changes & customizations for bricks and hardware objects in “private” subfolders
 - „software interlock“ for sample-changer operations during queue processing
 - input validator objects & tool tips based on motor limits:
 - energy, resolution, transmission
 - added Qt4_CommandBrick
- **TO-DO:** merging of HZB changes to main MxCuBE project branches
- use of BL14.1 Git repository on BL14.2 control computer after cloning



BL 14.1

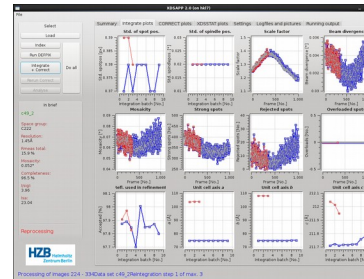
Loading MxCuBE
Please wait...



BL 14.2

MXCuBE @BL141

- implementation of missing bricks and hardware objects
 - Qt4_LightControlBrick
 - Aperture, Beamstop, MD2 phase hardware objects
- support for XDSAPP data-processing pipeline
- setup and operation of ISPyB



K. Sparta *et al.* (2016).
J. Appl. Cryst. **49**,
1085-1092.

MXCuBE @BL142

- implementation of missing hardware objects
- integration and testing of GROB sample changer



**Thanks for Your
attention!**

Questions?