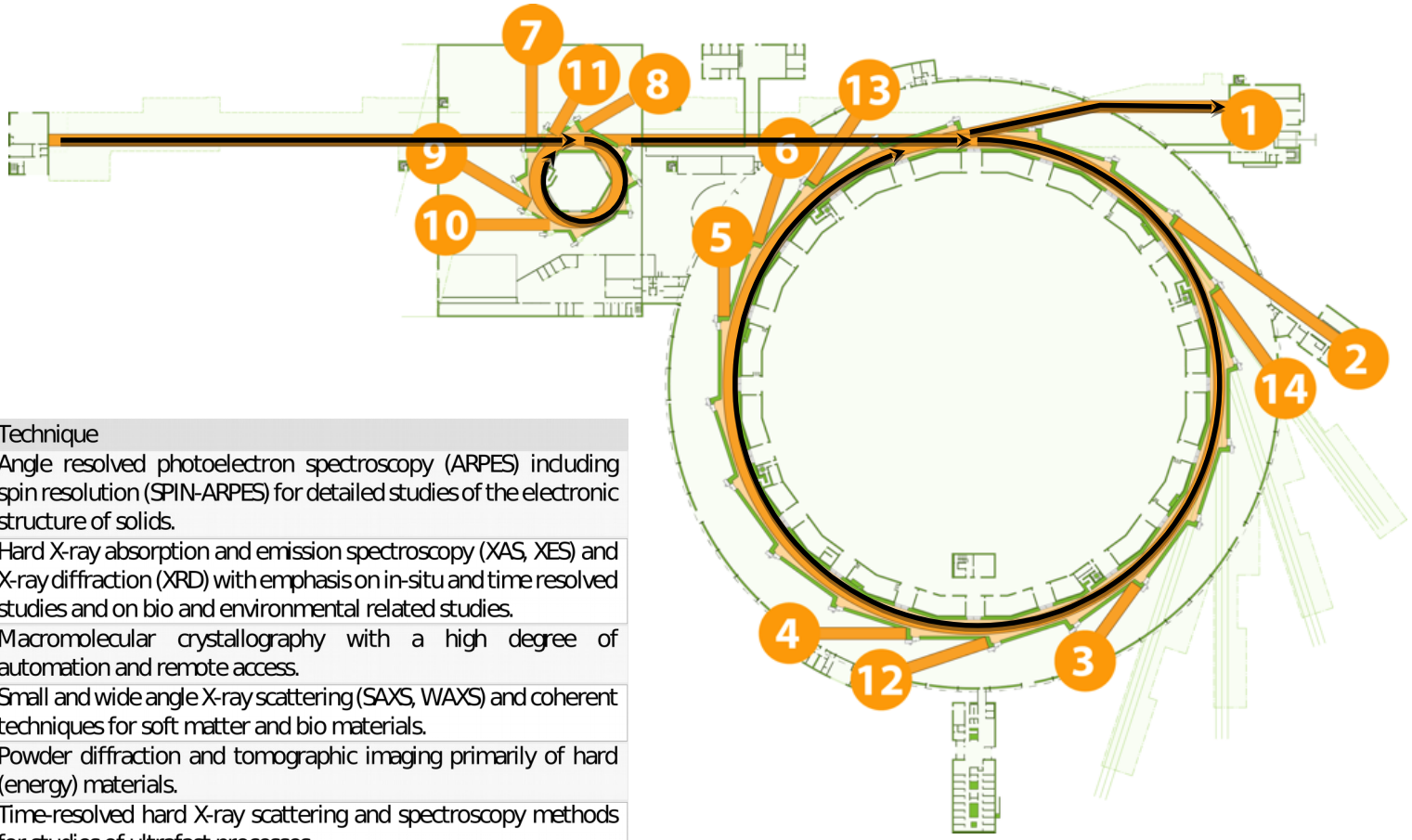
MXCuBE @ MAX IV: Status Report

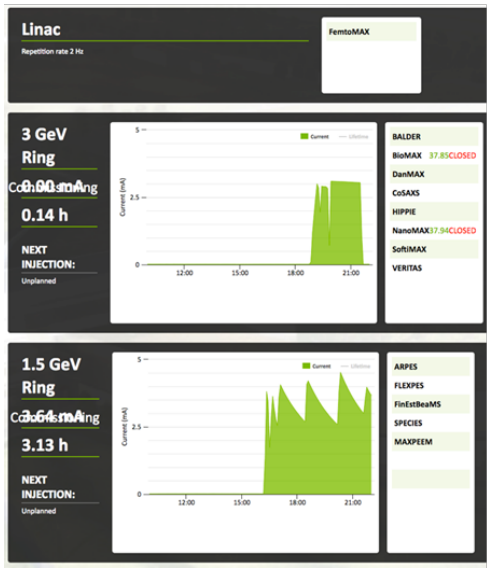
Johan Unge

January 31, 2018

1 Linac
2 Rings
14 beamlines



Beamline		Accelerator	Technique
ARPES	7	1.5 GeV	Angle resolved photoelectron spectroscopy (ARPES) including spin resolution (SPIN-ARPES) for detailed studies of the electronic structure of solids.
Balder ★	3	3.0 GeV	Hard X-ray absorption and emission spectroscopy (XAS, XES) and X-ray diffraction (XRD) with emphasis on in-situ and time resolved studies and on bio and environmental related studies.
BioMAX ★	4	3.0 GeV	Macromolecular crystallography with a high degree of automation and remote access.
CoSAXS	12	3.0 GeV	Small and wide angle X-ray scattering (SAXS, WAXS) and coherent techniques for soft matter and bio materials.
DanMAX	14	3.0 GeV	Powder diffraction and tomographic imaging primarily of hard (energy) materials.
FemtoMAX ★	1	Linac	Time-resolved hard X-ray scattering and spectroscopy methods for studies of ultrafast processes
FinEstBeaMS	8	1.5 GeV	Electron spectroscopies and luminescence methods for studies of low density matter and solids.
FlexPES	11	1.5 GeV	Soft X-ray spectroscopies for studies of low density matter and solids.
HIPPIE ★	6	3.0 GeV	Near ambient pressure photoelectron spectroscopy on solids and liquids.
MAXPEEM	10	1.5 GeV	Aberration corrected photoelectron microscopy for investigation of surfaces and interfaces.
NanoMAX ★	2	3.0 GeV	Imaging with spectroscopic and structural contrast techniques and nanometre resolution.
SoftiMAX	13	3.0 GeV	Scanning transmission X-ray microscopy and coherent imaging methods.
SPECIES	9	1.5 GeV	Resonant inelastic X-ray scattering (RIXS) with high resolving power and near ambient pressure photoemission.
VERITAS ★	5	3.0 GeV	Resonant inelastic X-ray scattering (RIXS) with unique resolving power and high spatial resolution.

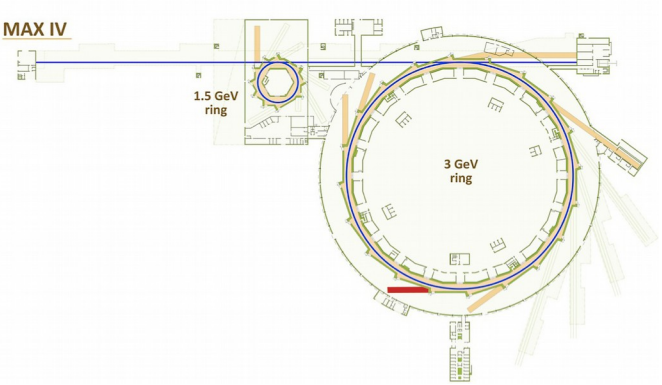


Linac:
Injector 1.5 & 3 GeV & SPF
Injects both rings & delivers light to FemtoMAX

3 GeV:
200 mA, >5 Ah
≈ (340?30) pm·rad
≈ 8.5 mA single bunch
Delivers light to users

1.5 GeV:
< 200 mA
Commissioning

BioMAX experimental station

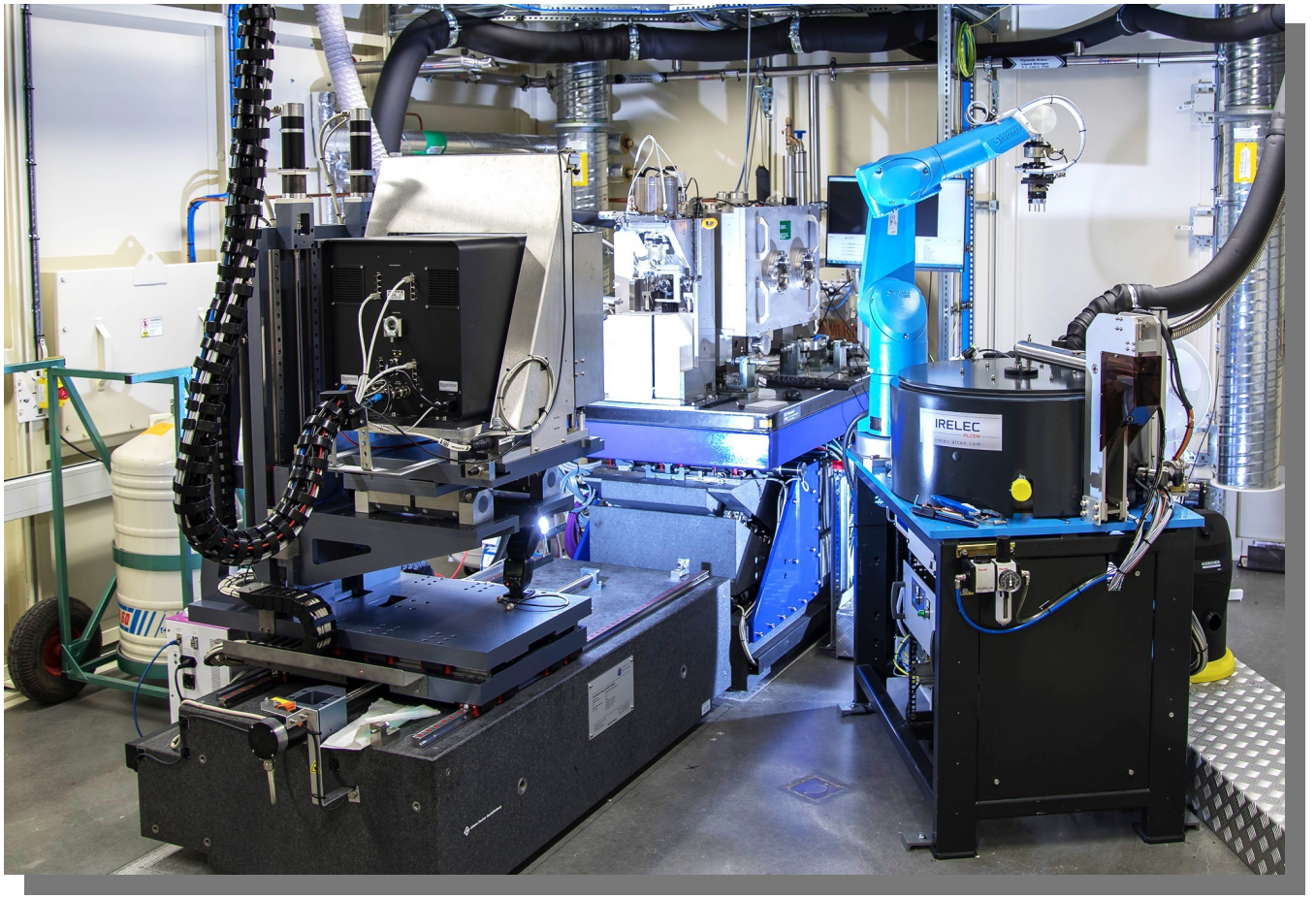


Experimental environment

- MD3 micro-diffractometer
- Eiger 16M hybrid pixel detector
- ISARA sample changer
- HCLab humidifier
- Beam Condition Unit incl. XBPM

Facilities

- Control and data analysis rooms
- Sample preparation lab
- BioLab



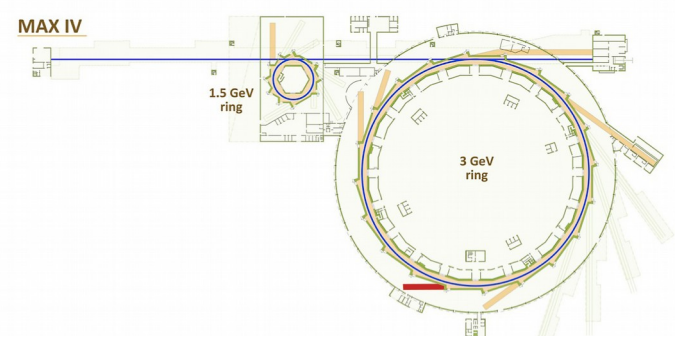
BioMAX experimental station

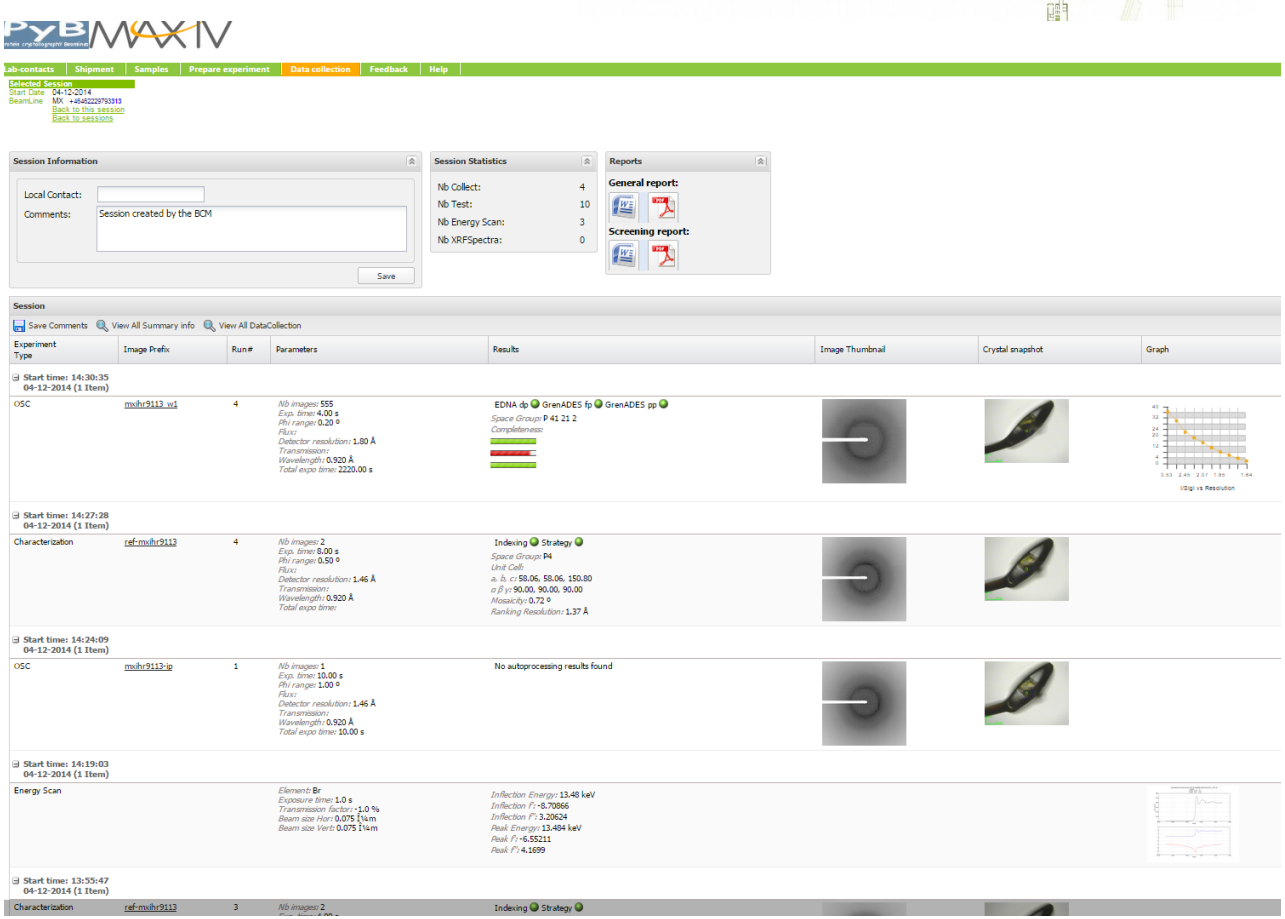
ISPyB

- *Current Status, major features*
  - Dewar logistics
  - Sample upload
  - Full overview about collected datasets
  - Overview about automatic processing
- *Todo*
  - Maturation, internal logistics and user experience
- *Advantage*

  Joint collaboration with ESRF
- *Challenges*

  Integration within the MAXIV scientific data manangement environment





ISPyB view