# **BioMAX: current status and plans**



# **BioMAX capabilities**

- X-ray diffraction Structural Biology research
- Easily tunable between 6-24 keV
- Variable focus (5x20 microns FWHM, 50x50 and 100x100 microns) and beam size (5, 10, 20, 50 or 100 microns)
- Flux 7e<sup>12</sup> ph/s at 12.7 keV through 50 micron aperture
- Best sample throughput < 5 minutes/sample
- Conventional techniques (single crystal cryo and RT data collection, de novo phasing by SAD/MAD, X-ray based crystal location)
- Microfocus applications, injector based and fixed target SSX
- FragMAX fragment screening facility
- Fully remote experiments (only with sample changer)



BioMAX experimental hutch





# **Current status and results**

- Beamline has been in regular user operation since 2017 (7 user calls). Accepting Normal, BAG, FragMAX, Proprietary, Training and Education and Rapid Access proposals.
- Typically 4-7 external user groups per week max. 3 per day (2021)
- 67 BioMAX papers published (27 in 2021 to date)
- 406 structures deposited in the PDB

### **BioMAX** users Education 1.0% Proprietary 12.0% In house 21.0% Regular 66.0%

# **Areas of development**

- Experiment automation eventually offer unattended user runs (proprietary, FragMAX, regular users)
  - Reliable software and instrumentation
  - Beam diagnostics and optimization
- Room temperature data collection (FragMAX, regular users)
  - o in situ screening
  - use of sample changer
  - Multicrystal data processing pipelines
- Development of SSX (MicroMAX, regular users)
  - MXCuBE interface
  - Automation of sample delivery
- Phasing (regular users)
  - Improve MAD/SAD data collection setup
  - MR and de novo phasing pipelines



#### Questions

- What projects serve best the long term priorities
- How to achieve complementarity with MicroMAX

