

Software Environment Status on DESY Beamline P11

mxCuBE, Crystallography Control & Co.

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Environment

- > Automated sample changer deicing during the measurement
 - Depending on time and / or number of mounted samples
- > Exchanged the motor controllers
 - Aerotech for the goniometer – speeds up and makes axis synchronisation easier
 - Galil DMC for the piezolegs – improved position stability < +-20nm
- > Data flow changed
 - NFS and ZMQ instead of Furka and Isyncd
 - Live view with virtually no latency
- > Cryojet remote control



Energy change

- Fully automated energy change
 - Implemented as Tango DS
 - 1st mode lookup table based direct change (4 – 30KeV)
 - 2nd mode incremental, only within same harmonic, coating etc.
- New SAD/MAD scan tool, featuring continuous scans

The screenshot displays the P11 SAD/MAD software interface. At the top, the title bar reads "P11 SAD/MAD (on haspp1luser02)". The interface is divided into several sections:

- Status:** Shows system parameters such as "Petra current: 00.00 mA", "Monochromator: 0.000 keV", "Undulator: 0.000 keV", "BS0", "BS1", "FS", "0 #", "Vacuum", "HutchStatus Interlock: none", "State: UNKNOWN", and "Status: UNKNOWN".
- XIA Spectrum:** Includes an "Overview" section with "Dead time [%]" and "Mode" (set to "Channel"). The "XIA Spectrum" section shows "Acquisition Time: 1.0 s" and a "START" button. Below this are "K-Emission" and "L-Emission" icons.
- Periodic Table:** A standard periodic table is displayed, with elements color-coded by groups.
- Energy and Support:** Fields for "K-edge", "L₁-edge", and "L₂-edge" are present, along with "Support" buttons and "Select" options for each edge.
- Emission lines:** A diagram shows energy levels (1s, 2s, 2p, L₁, L₂, L₃, M₁, M₂, M₃) and transitions (K_{α1}, K_{α2}, L_{β1}, L_{β2}, L_{γ1}, L_{γ2}, K_{β1}, K_{β2}).
- Plot:** A graph shows "Events [cts]" on the y-axis (0 to 1000) and "Channel Number" on the x-axis (0 to 2000). The plot area is currently empty.
- ROI in FIT:** Fields for "MinROI" (set to 1 #) and "MaxROI" (set to 2048 #) are visible.



- Updated mockup to current master
 - Set up an own configuration
 - First tests displaying real values
 - Plans to set up MxCuBE in a Sardanaish style
- Actions as macros
 - Motors, Pseudomotors, ZeroDChannels, IORegisters, etc.

