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Performance of neutron detector diagnostic tools

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Calibration and diagnostic of neutron detectors requires raw data that is significantly larger than usual neutron data. Diagnostic in particular is useful when run continuously for longer time on many detectors simultaneously, requiring high bandwidth processing capabilities. Python tools have been developed to visualize and explain detector features as well as help to optimize configuration and spot problems. Python implementation could barely support single detector at a time. This lead to optimizing CPU hungry code. Data received over V4 channel is collected and processed in C++ extension and passed to Python for visualization. Detector and data acquisition system configuration as well as plotting is implemented in pure Python. This approach allows us to diagnose up to 35 wavelength-shifting detectors simultaneously.

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