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The Design and Development of the scientific data and software for High Energy Photon Source in China

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Recent advances in X-ray beamline technologies, including the advent of very high-brilliance beamlines at next-generation synchrotron sources and advanced detector instrumentation, have led to an exponential increase in the speed of data collection. As a consequence, there is an increasing need for a data analysis platform that can refine and optimize data collection strategies in real time and effectively analyze data in large volumes after the data collection. The increased data volume and rate push the demand for computing resources to the edge of current workstation capabilities. Advanced data management and analysis methods are required to keep up with the anticipated data rates and volumes.

We proposed a software framework and system for the full life cycle of the advanced light source experiment, to address the data challenges at High Energy Photon Source in China. In this talk, we will focus on the data analysis software framework and data management software framework in this system. We will introduce the design of those two frameworks and the scientific software developed based on the frameworks. The future plan will also be introduced.

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