APS Scientific Computation Seminar Series

Speakers: Henri Payno, Data Automation Unit
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European Synchrotron Radiation Facility (ESRF)

Title: ESRF New Tomography Software: Design, Capabilities and Lessons Learned

Date: March 27, 2023

Time: 10:00 a.m. (Central Time)

Location: Join ZoomGov Meeting
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Hosts: Mathew Cherukara and Nicholas Schwarz

Abstract: The ESRF upgrade, project EBS (Extremely Brilliant Source), came with a major overhaul of the acquisition and processing software. Specifically, the tomography acquisition and processing workflows were rebuilt from scratch, with unified solutions whenever possible, to deliver both a homogeneous experience across all its beamlines, and robust high-performance processing software. The new ESRF tomography reconstruction software is made of three main components: nxtomomill: a data format converter, producing standard Nexus files, nabu: a library for tomography reconstruction, designed for high performance and modularity, tomwer: workflow based GUI for building and automatizing tomographic reconstructions. It greatly decreases the steepness of the learning curve for performing tomographic reconstructions (from raw data to volumes). We present an overview of this software suite, along with its capabilities, design choices, and lessons learned.