

APS Scientific Computation Seminar Series

Speakers: Daniel Ching, Assistant Computational Scientist
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Title: APS Ptychography Software

Date: November 7, 2022

Time: 1:00 p.m. (Central Time)

Location: <https://argonne.zoomgov.com/j/1615356746>
Meeting ID: 161 535 6746
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Hosts: Mathew Cherukara and Nicholas Schwarz

Abstract: APS is developing three software tools to support ptychography data analysis: Tike, PtychoNN, and Ptychodus. Tike is a library that provides fast and accurate implementations of several ptychography reconstruction algorithms. Tike scales to multiple-node, multiple-GPU HPC systems so that large scale datasets can be processed efficiently. PtychoNN is an artificial neural network trained to predict a ptychography reconstruction from diffraction patterns with less data and at faster speeds than iterative methods. Ptychodus is an application that facilitates interactive data viewing, reconstruction setup, and workflow integration. Ptychodus uses Tike to reconstruct ptychography datasets. In this talk, we will present features, capabilities, and development plans for these tools. We will perform a live demonstration of the tools using APS beamline data and answer questions from the audience.