

Software Demos

"Big Data" workshop

Dula Parkinson, LBNL	SPOT Suite, http://spot.nersc.gov/
The SPOT Suite is a Lawrence Berkeley National Laboratory project to research and develop tools to provide Advanced Light Source (ALS) scientists access to best-of-breed data management, data analysis, and simulation tools. When complete, the portal will allow ALS scientists to manage and share their experimental and simulation data, analyze experimental data, and view real time results during their beamtime.	
Mirna Lerotic, 2 nd Look	MANTIS: A Guide Through Spectromicroscopy Data
MANTIS is Multivariate ANALYSIS Tool for Spectromicroscopy developed in Python by 2nd Look Consulting. It is an open-source program for the analysis of x-ray spectromicroscopy data which guides the user through the analysis using story boards that describe each step in detail.	
Wojtek Goscinski, MASSIVE	MASSIVE Desktop - interactive compute for big data problems
The MASSIVE HPC project provides users with an interactive remote desktop environment called the MASSIVE Desktop. This environment has proved popular amongst a range of researchers who are working on big data projects, including researchers processing, analysing and visualising X-ray datasets.	
Darren Thompson, CSIRO	X-TRACT on MASSIVE at the Australian Synchrotron
We will remotely demonstrate via the "Strudel" package the use of newly developed Linux versions of X-TRACT for CT-reconstruction and image processing available on the MASSIVE cluster at the Australian Synchrotron.	
Markus Osterhoff, Göttingen	DADA
The data daemon (dada) gives users a central and unified access to x-ray imaging detector data, for fast web-based visualisation and pre-processing, and can be interfaced to third-party software. In addition, certain analysis methods (STXM, differential phase contrast etc.) allow for a near-live screening while the experiment is still running.	
Stefan Brandstetter, DECTRIS	ALBULA free image viewer by DECTRIS
ALBULA viewer is a fast and easy-to-use program that allows optimal visualization of PILATUS and EIGER data. It comes with a Python API, which provides an interface for both displaying of images as well as performing operations and calculations on data. Furthermore, the API enables you to easily integrate the viewer functionality into your beamline infrastructure or experimental setup.	
Kevin Mader, SLS	Spark Imaging Layer for distributed, fault tolerant, scalable image processing
We demonstrate the utility of a powerful distributed solution for image processing by showing several examples from biology and material science. We also show how well designed domain specific languages can allow complex analyses to be completed in few lines of code.	

Sam Yang, CSIRO

Data Constrained Modelling Software (DCM)

A data-constrained modelling (DCM) approach has been developed at CSIRO which enables 3D characterization of compositional material phase distributions using quantitative multi-energy synchrotron X-ray CT data. DCM can generate microscopic partial volume distributions of materials and pores at the CT resolution which are the effects of the fine length scales below X-ray CT resolution. Using this information, material properties at the macroscopic length scale can be modelled quantitatively.

Bjoern Enders, TU München

Ptpty - a Python Package for Ptychography

As many high-resolution nano-probe beamlines are planning to support ptychography as a standard, and ptychographic algorithms have reached a sufficient level of maturity, it has become clear that the community needs broader access to state-of-the-art open-source reconstruction software. Here we present our own effort, ptpty (pronounced "tai-pai"), a python package developed in our group and aiming at offering implementations of most cutting-edge developments in the field.

Posters

"Big Data" workshop

Chris Jacobsen/ Mak

APS

Optimization Approaches for Non-Negative Spectromicroscopy Analysis.

Gary Ruben

CSIRO and Australian Synchrotron

A Processing Pipeline for Large Fluorescence Tomography Datasets.

Chris Ryan

CSIRO

Improved Dynamic Analysis Method for Quantitative High Definition XFM Element Imaging using Maia.

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