APS Scientific Computation Seminar Series

Speaker: Hemant Sharma
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Title: Improvements in Algorithms to Enable Real-Time Reconstruction of
                HEDM Data Using MIDAS

Date: Monday, December 14, 2015

Time: 11:00 a.m.

Location: 401/A1100

Hosts: Nicholas Schwarz and Brian Toby

Abstract:

High Energy Diffraction Microscopy (HEDM) delivers in-situ microstructural information from the bulk of polycrystalline materials. The talk will describe the MIDAS-G package, developed at the Advanced Photon Source, for real-time reconstructions of HEDM data for both "Near-Field"(NF-) and "Far-Field"(FF-) HEDM. This is aimed towards providing feedback for the user, which can help drive the experiments and make the data reduction process more user-friendly. Using inexpensive GPU resources, MIDAS can provide turnaround times of the order of minutes for both NF- and FF-HEDM. A number of optimizations to improve reconstruction quality for small-grained and deformed specimens will be shown. This work is supported by GE General Research and AFRL.