

II-06

Beamline control and data acquisition software

T. Mooney, N. Arnold, B. Cha, K. Goetze, J. Kowalkowski, M. Kraimer, D. Reid, J. Sullivan, D. Wallis, and J. Winans

Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois 60439

An international collaboration of software developers has been working for several years to advance the state of the art of control systems and has produced software and development methods that are directly applicable to synchrotron radiation (SR) instrumentation. The software is collectively entitled EPICS and is essentially an extensible tool kit for implementing distributed control systems. The EPICS collaboration now includes developers representing many of the Advanced Photon Source (APS) beamlines, as well as developers from the Stanford Synchrotron Radiation Laboratory, the Advanced Light Source, and the Gemini and Keck telescopes.

As part of this collaboration, we have developed software tools for controlling and acquiring data from synchrotron-radiation beamlines and combined them with tools developed by others to support APS laboratories and experiments at the APS and other SR facilities. Applications of EPICS-based software in synchrotron radiation instrumentation will be described; some consequences of collaborative developments as well as the intended impact of this software on the science conducted at synchrotron-radiation facilities will be discussed.

This work is supported by the U.S. Department of Energy, BES-Materials Sciences, under contract No. W-31-109-ENG-38.