

BNL Lab Talk: Recent Applications and Performance of the RHIC LLRF Platform Across the Collider-Accelerator Complex

Tuesday, 1 October 2013 11:02 (17 minutes)

The RF systems of the Collider-Accelerator complex at BNL present a significant and diverse array of LLRF control challenges: multiple hadron species, fast cycle to cycle configuration changes, large frequency sweeps, precision wide dynamic range cavity control, beam control feedback loops, complex RF bunch manipulation gymnastics, machine to machine synchronization, system protection, diagnostic data, etc. The RHIC LLRF Platform was developed to provide a common, modular, flexible and scalable LLRF digital control platform to address this variety of application and performance demands. Initial applications of the platform from 2010-2011 included the first phases of the RHIC LLRF upgrade, a new LLRF system for the RHIC Electron Beam Ion Source and implementation of the RHIC Spin Flipper Controller. During 2012-2013, the RHIC LLRF system was further expanded and had significant new functionality added, a new LLRF system was developed and commissioned for the R & D Energy Recovery Linac, the AGS LLRF system was upgraded and commissioned, and the first phase of the Booster LLRF upgrade was completed. More applications are in development stages. Here we provide an overview of these most recent applications, emphasizing the platform features which provide for flexibility, scalability and ease of integration.

Primary author: SMITH, Kevin (BNL)

Co-authors: Mr SEVERINO, Freddy (BNL); NARAYAN, Geetha (BNL); MERNICK, Kevin (BNL); HAYES, Thomas (BNL)

Presenter: SMITH, Kevin (BNL)

Session Classification: Session 2: Lab Status/Activities/Highlights