Contribution ID: **44** Contribution code: **WEBR001** Type: **Contributed Oral Presentation**

Fast Event System for the Advanced Photon Source

Wednesday 24 September 2025 11:00 (15 minutes)

The Fast Event System, a global time base and event-based trigger distribution system, has been developed and commissioned for the Advanced Photon Source Upgrade (APS-U) and the linear accelerator (LINAC) refurbishment projects. The hardware components developed by Miro-research Finland (MRF), including event masters (EVMs), event receivers (EVRs), and event fan-out modules, are installed in VME Input/Output Controllers (IOCs) to generate and distribute timing signals to client devices. The firmware of the MRF EVM and EVR has been updated by the manufacturer to meet the needs of the Fast Event System at APS. The software for these IOCs has been developed using the EPICS framework. In this presentation, the overall structure, key functions, and recently developed features of the Fast Event System are introduced. Particularly, the performances of the delay compensation and event synchronization are discussed. The experiences and lessons learned during the commission and operation will be discussed as well.
The work is supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences, under Contract No. DE-AC02-06CH11357.

Footnotes

Funding Agency

The work is supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences, under Contract No. DE-AC02-06CH11357.

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Session Classification: WEBR MC04 Hardware Architecture and Synchronization

Track Classification: MC04: Hardware Architecture and Synchronization