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Modernizing control system for klystron test stand at LANSCE

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Modernizing scientific test stands is essential for improving data acquisition, control precision, and integration with contemporary research workflows. This paper presents our approach to upgrading the legacy klystron test stand at Los Alamos Neutron Science Center (LANSCE) by implementing EPICS (Experimental Physics and Industrial Control System) for real-time control and monitoring, as well as an overhaul of the diagnostic hardware systems. The transition to EPICS enables scalable, network-distributed control, standardizes communication protocols, and enhances compatibility with the rest of LANSCE's control systems. The improved control system provides intuitive, customizable interfaces for experiment configuration, live visualization, and automated data logging. This upgrade significantly increases maintainability, user accessibility, and automation capabilities, while reducing system downtime and improving experimental reproducibility. The work demonstrates a practical, extensible model for upgrading test infrastructure in research environments where flexibility, openness, and precision are essential.
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