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Launch of Physics Data Taking for Dielectron Measurement of Vector Mesons in Nuclei at J-PARC E16

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The J-PARC E16 experiment is designed to study in-medium modifications of vector-meson mass spectra in 30-GeV proton–nucleus reactions through the e^+e^- decay channel. The experiment is being carried out at the high-momentum beamline of the J-PARC Hadron Experimental Facility with a dielectron spectrometer designed for high-rate and large-acceptance measurements in 30 GeV proton–nucleus reactions. Commissioning runs established the basic detector performance and analysis procedure required for dielectron measurements, including reconstruction of vector-meson signals, in particular the ϕ meson, in the presence of substantial hadronic background.

The experiment started physics data taking in November 2025. In this first physics run, 144 hours of physics data were collected with carbon and copper targets. A further data-taking period is planned for April 2026. Based on these data, preliminary analysis toward dielectron measurements of vector mesons in nuclei is in progress. In this presentation, we will describe the current status of the experiment and the spectrometer, together with an overview of the data taking up to April 2026, and present preliminary results from the first physics run.

Collaboration

J-PARC E16

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