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Extending Physics Capabilities of the PHENIX Detector with Calorimetry at Forward Rapidities VASILY DZHORDZHADZE, University of California, Riverside, PHENIX COLLABORATION — The PHENIX detector at RHIC has been designed to study a different signatures of the states of matter created in heavy-ion collisions, and to investigate the spin structure of the nucleon. The PHENIX detector measures muons in two muon spectrometers, located at forward rapidities ($1.2 < \eta < 2.4$) and hadrons, electrons, and photons in the two central spectrometers at mid-rapidity ($|\eta| < 0.35$). To make a next step in the PHENIX research program, it is necessary to extend the rapidity coverage beyond the limits set by the existing central spectrometer. The functionality of the PHENIX muon detectors can be extended with added capabilities to measure photonic and hadronic jets. Tungsten calorimeters with silicon pixel readout and fine transverse and longitudinal segmentation are proposed to attain this goal. The proposed calorimeters will be located in the forward directions on either side of the PHENIX interaction point. In this talk we report on the studies of functionality of the proposed calorimeters: the detector energy resolution, the jet reconstruction capabilities and the characteristics of the pion rejection.

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