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**Tests of CMS Phase 1 Pixel Upgrade Back-End Electronics** MATTHEW KILPATRICK, Rice Univ — The CMS detector will be upgraded so that it can handle the higher instantaneous luminosity of the 13-14 TeV collisions. The Phase 1 Pixel detector will experience a higher density of particle interactions requiring new front-end and read-out electronics. A front-end pixel data emulator was developed to validatethe back-end readout electronics prior toinstallation and operation. A FPGA-based design emulates 400 Mbps data patterns from the front-end read-out chips andwill be used to confirm that each Front End Driver (FED) can correctly decode and process the expected data patterns and error conditions. A FED test bench using the emulator can produce LHC-like conditions for stress testing FED hardware, firmware and online software. The design of the emulator and initial test resultswill be reported.

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