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Commissioning of CMS and early SM measurements with jets, missing transverse energy and photons

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With the first collisions from the LHC in sight, the CMS experiment has entered the final stage of commissioning. Nearly all of the detectors have been installed in the experiment and the last heavy structure of CMS was lowered into the experimental hall in January 2008. The CMS collaboration has launched a series of combined data-taking exercises, so-called Global Runs, with increasing scope and complexity during the past 10 months. More and more components have been integrated with the trigger and DAQ systems, and data from cosmic muons as well as high-rate random triggers have been used to prove readiness for LHC collisions.

Physicists from ATLAS and CMS are taking care that the experiments will make the best use of the early data to align and calibrate the detectors. Analyses are prepared to study and optimize the performance of the triggers and of physics objects, such as jets, missing transverse momentum and photons. The strategies range from energy balancing to exploiting well-known standard model (SM) signatures. Already the first 10 to 100 pb⁻¹ of recorded data will allow QCD measurements with minimum-bias events and will open the window to the top-quark, Z and W Boson production.

This presentation gives the status and history of the CMS commissioning, together with selected results from cosmic-muon data. The second part focuses on strategies for optimizing the reconstruction of jets, missing transverse energy and photons for early SM measurements at ATLAS and CMS.

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