# CMS AND LHC STATUS

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All Experimenter's Meeting 2018/04/02

#### LHC schedule

- The LHC has started injecting protons will do beam commissioning in the next weeks.
- At the end of this month, we plan to have first proton-proton collisions of 2018.
  - Goal for this year is to achieve  $\sim 0.5 \text{ fb}^{-1} / \text{day} \rightarrow 68 \text{ fb}^{-1}$  in total.



## CMS status

- After the big effort of recommissioning the pixel detector (replacement of faulty power converters) and the upgrade of the forward hadron calorimeter (installation of SiPMs, QIE11 readout and increased depth segmentation), the CMS detector is closed and ready for collisions.
- The last month, we collected cosmic rays at 0 T for effectively 325 hours.
  - Needed for alignment of pixel tracker.
- The magnet has been ramped to 3.8 T last week, and we are recording cosmic data right now.
- Also beam splashes are being performed and recorded to synchronize all the subdetectors.
- A teststand for the investigations on the faulty power converters has been setup at the CASTOR table (at outer edge of CMS) for data taking and daily monitoring of the failing 3.3V regulator (picture of CASTOR location in backup).

#### CMS status – beam splash event



## Future of CMS

- CMS is working on the "phase-2" upgrades of the detector needed for the high luminosity-LHC run.
- Both the technical proposal of the MIP timing detector and the technical design report for the calorimeter endcap upgrades had been presented to the LHCC last month.
  - LHCC recommended both documents for approval and to move forward to the next steps.
- Preparation for the RD53 discussion (proposed readout chip for the ATLAS and CMS inner trackers) in next LHCC session: Likely to propose 2 chip designs (needed due to different pixel designs → different chip sizes).
- Also, this week is the Fermilab's Directorate Review of our contributions to the phase-2 upgrades.

# CMS new physics results

• CMS has released 25 results for the winter conferences.

• One result used 2017 data: high mass resonance search in the dilepton final state.



## Castor location / DCDC tesdbed

• In total, we will put 32 DCDC converters next to the CASTOR calorimeter.



#### DCDC converter issue





#### DCDC converter issue

**On-chip V33Dr regulator with clamps** 



The red path is breaking, i.e. current 'burns' resistive path.  $\rightarrow$  The V33Dr is stuck at lower voltage (upt to ~1.4V)  $\rightarrow$  Unver-Voltage Lock-Out is not working properly  $\rightarrow$  DCDC converter does not turn on (restart after dis/enabling).