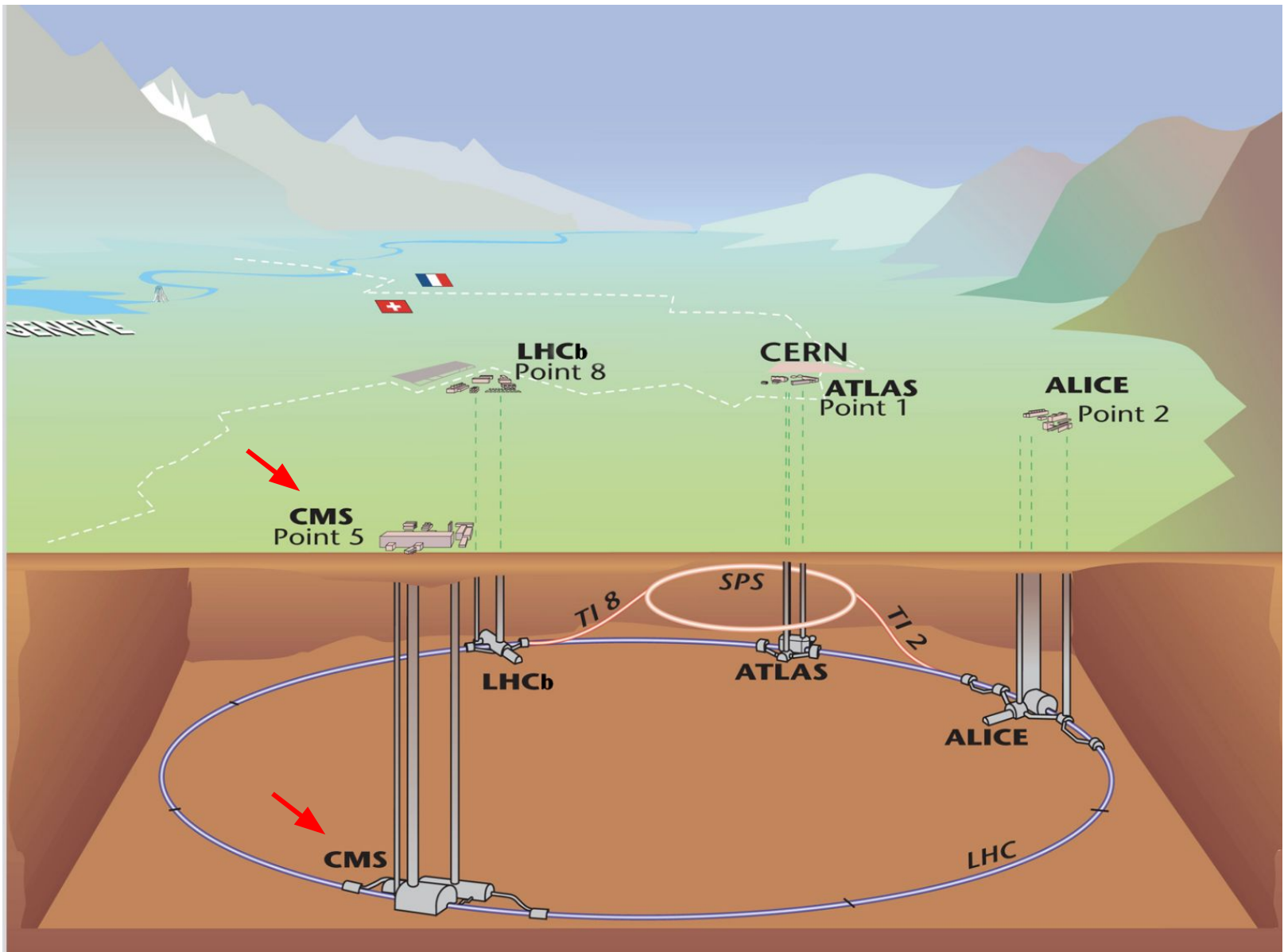




CERN, LHC and Experiments



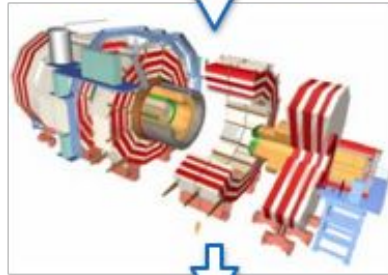


LHC and CMS Experiment

From P5 (online) → offline → Physics



LHC
delivers
Collisions
for physics



CMS Detector
collects
Raw Data



Computing:
Using
CMS Software to
ReConstruct
Data



Analyses

PHYSICS



What is PPD?

- The go between for what happens at the “P5 Data Taking” and what happens in “Computing/Physics”.
- **Lives in the both online/offline world**
 - Online is dealing with RAW data and dealing with information coming off the detector
 - Collect high quality data as efficient as possible
 - Offline is dealing with:
 - (re)processing of data and producing simulated events
 - Certification of the processed data
 - For both online/offline
 - **Provide alignment/calibration constants**
 - Validate software used by HLT/DQM/T0 and more
- To accomplish above there are 4 groups:
 - Data Quality Monitoring & Data Certification (DQM & DC)
 - Physics Data & Monte Carlo Validation (PdmV)
 - **Alignment Calibration & Database (AlCaDB)**
 - Particle Flow (PF) shared with PC





AICaDB (Alignment Calibration & Database)

AICaDB Mandate

- Ensure **data-base structure** development and maintenance
 - Monitor alignment and calibration workflows
 - Develop prompt calibration and alignment workflows for the online data-taking
 - Supervise the status of the conditions delivered by subsystems and ensure they are propagated to the reconstruction of the physics objects
-
- CMSSW calibrations database: store history and keep track of versions
 - CMSSW: main CMS software to process physics data
 - A complete set of all calibration types (*Tag*), each with its history, needed to execute CMSSW is labelled by a *Global Tag*
 - **Online Global Tags** - used for data taking:
 - **HLT**: ~ 300 records,
 - **Express**: ~ 600 records
 - **Prompt**: ~ 600 records
 - **Offline Global Tags**: used for offline data reprocessing or MC production



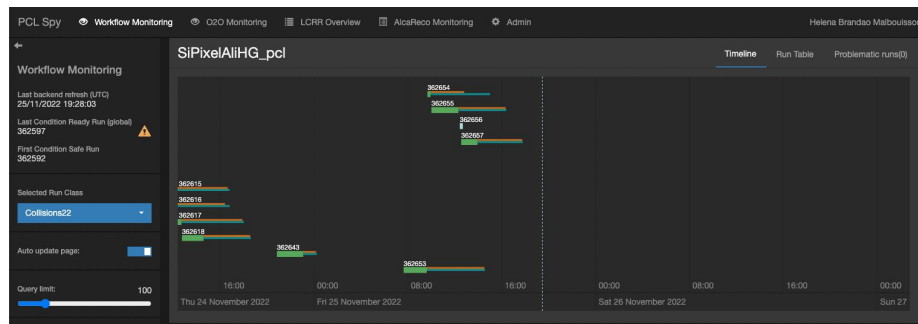
AlCaDB

- Optimal calibration and alignment at all stages of the data and MC
 - major challenge involving DPGs, POGs, PPD/AlCaDb
 - vital to exploit at maximum the hardware potential for physics
- Calibrations & alignment evolve with time in real data → frequent updates needed to follow detector evolution (e.g. bad channels, ageing-induced response variation)
 - both in the reco@HLT & in offline reconstruction
- New in Run 3: fully automated software for Full Track Validation (FTV)
- [AlcaDB Tutorial](#) @ PPD Workshop (Nov30 - Dec2 2022)

Topics covered (hands-on):

- most useful conddb command-line commands
- upload of tags to CondDB
- queueing of tags
- creation of Candidate GTs

PCLSPY (monitoring of PCL) from the recent run



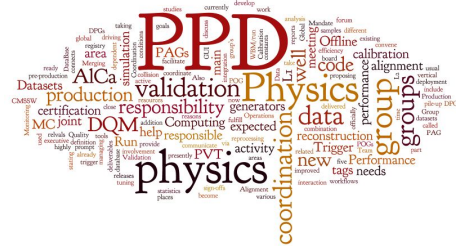


Additional slides



PPD Organization

14-Dec-2022



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Resource Manager
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Database Officer
 Giacomo Govi

PC

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Contacts

Joint PF-JME-BTV ALCA contact
 OPEN

TSG contact
 OPEN

ML contact
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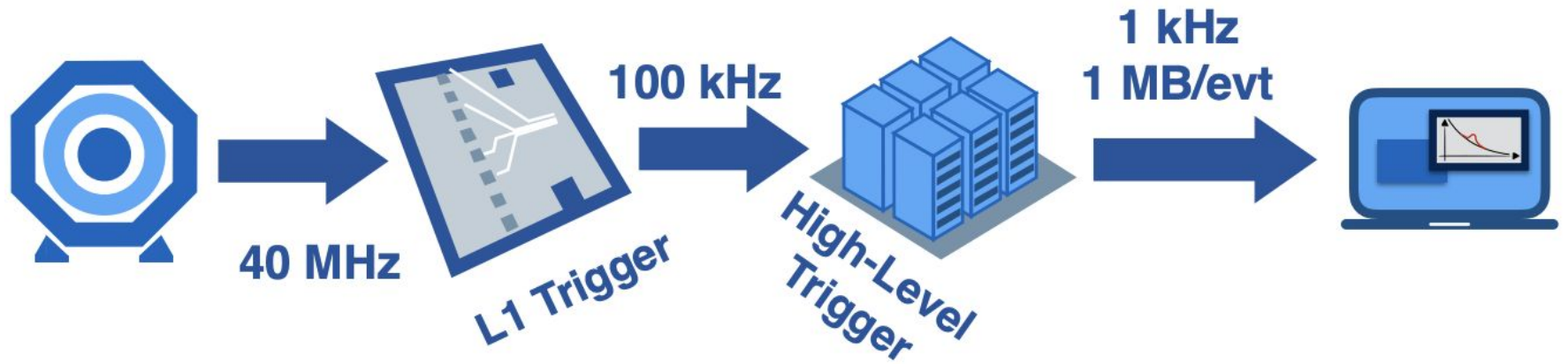
Validation contact
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RECO contact
 Lauren Hay
 OPEN

DPG, POG & PAG contacts and Experts



Data from P5 to Offline



Trigger rate and overlap between PDs