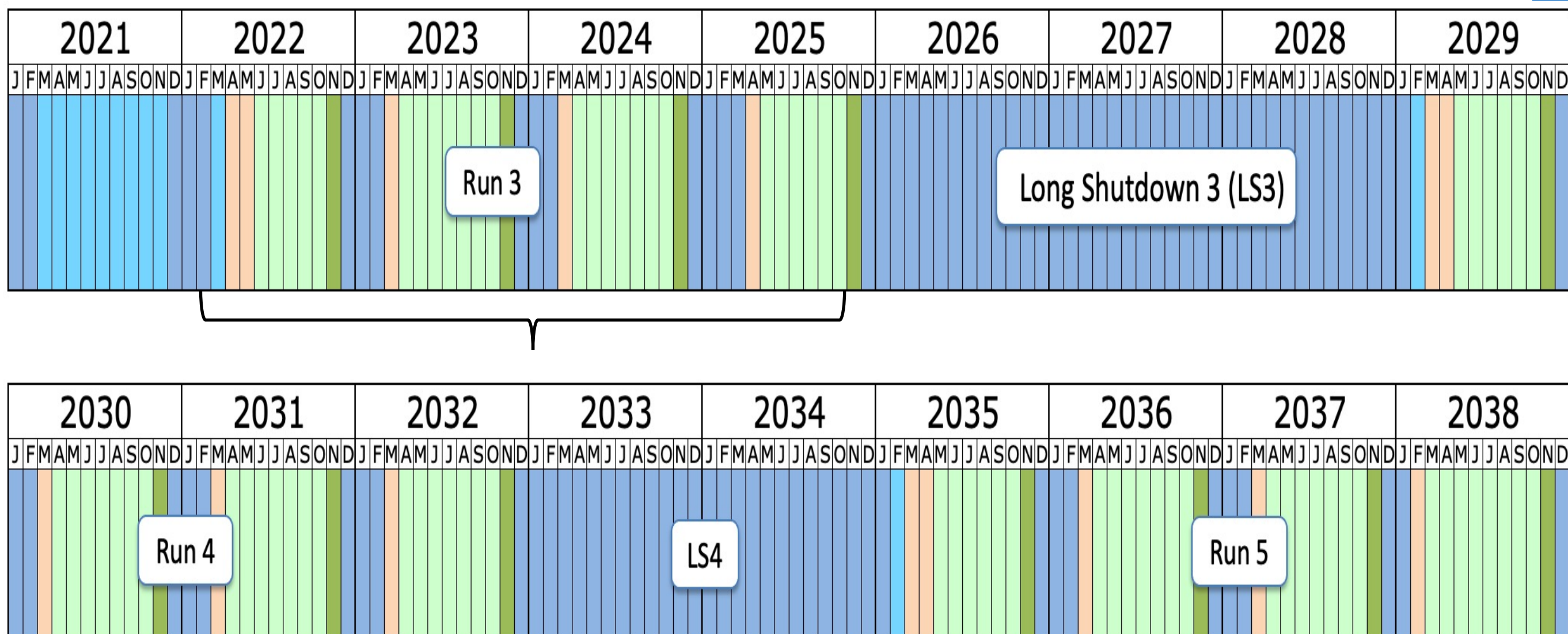
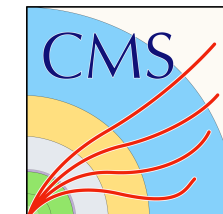


CMS Status

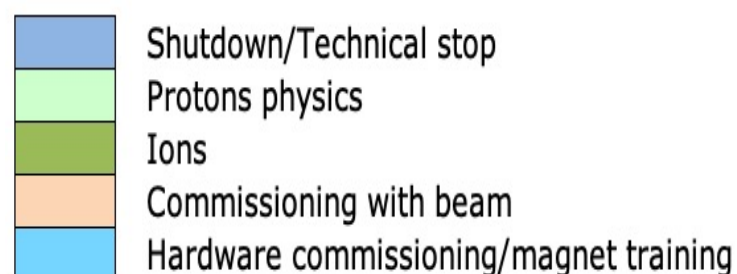
Lucia Silvestris
INFN-Bari, on behalf of CMS Italia
lucia.silvestris@cern.ch

CSN1 May 2022

LHC Schedule and beyond



Last updated: January 2022

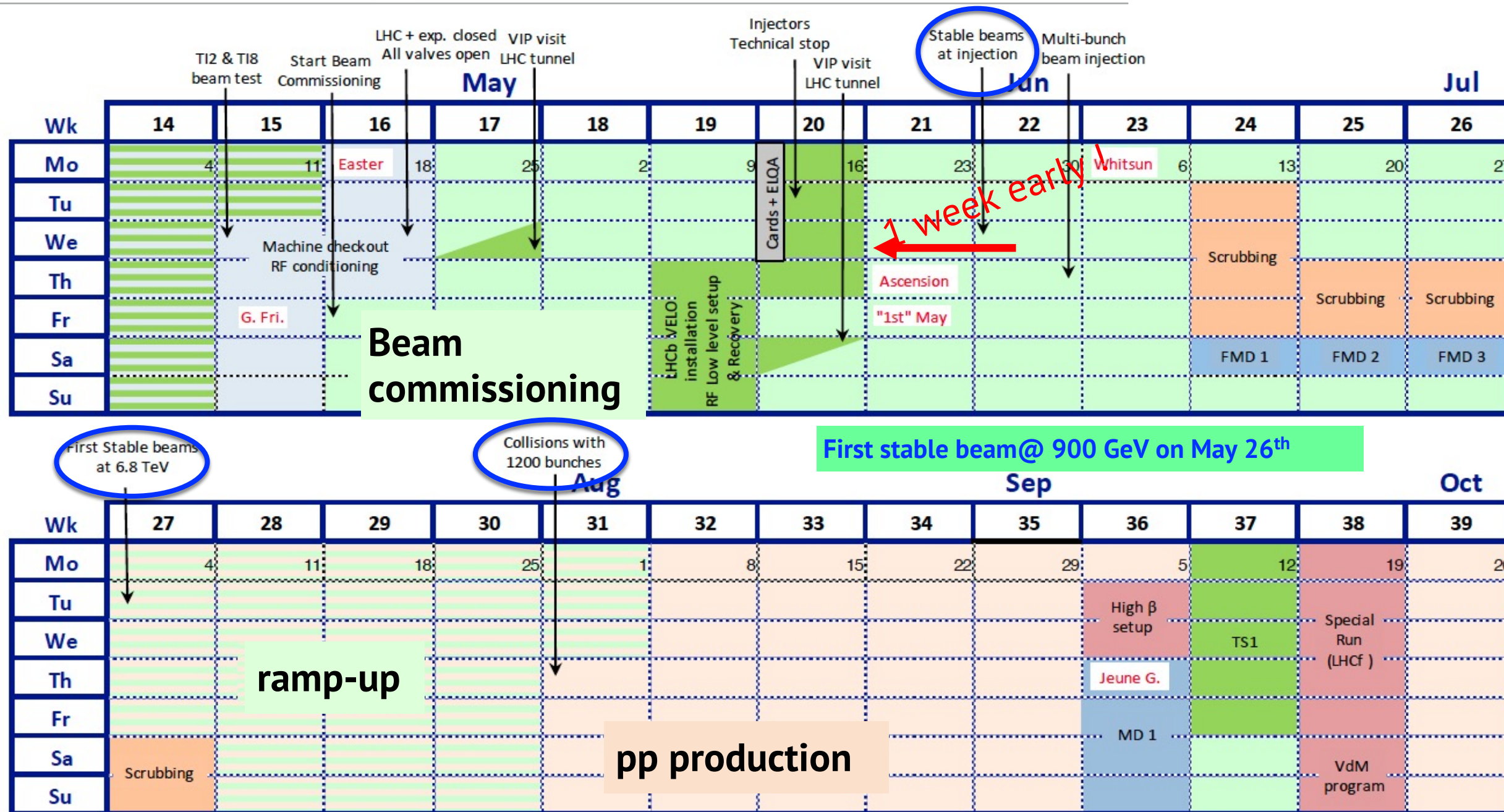
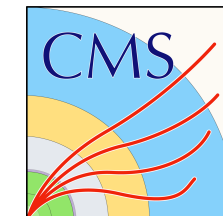


Run 3 extended up to 2025

Expected Run 3 Integr. lum. 270fb^{-1} with leveled lum. $2 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$

LS3 will start in 2026 with a 3 year duration

Latest LHC schedule Q2/Q3



First stable beam @ 13.6 TeV on Jul 5th

Start of 13.6 TeV collisions w/ 1200b on Aug 4th

LHC Schedule 2 weeks delay

- Magnet training of sector 2-3 was slower than expected.
- Cryo-RF incident on March 18
- LHCb needs ~ 1 week stop for Side A Velo installation

4.5 weeks of **intensity ramp up**

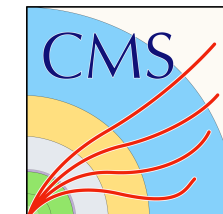
O(200pb⁻¹) collectable by CMS → ~4M (0.4M) W(Z) bosons

12-> 10 weeks of **proton production**

4 weeks of **ion run**

Special physics runs (VdM, LHCf, 90 m beta*)

CMS: LS2 activities completed



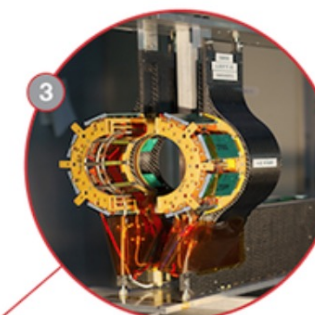
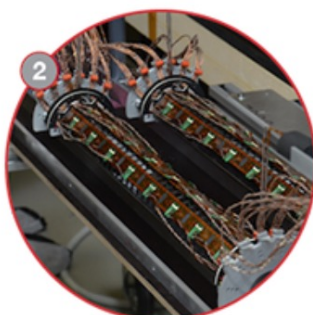
BEAM PIPE

Replaced with an entirely new one compatible with the future tracker upgrade for HL-LHC, improving the vacuum and reducing activation.



PIXEL TRACKER

All-new innermost barrel pixel layer, in addition to maintenance and repair work and other upgrades.



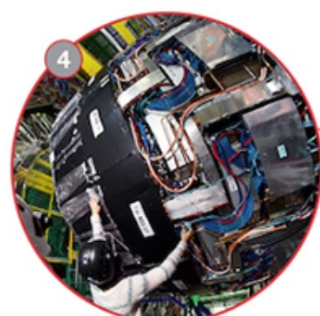
BRIL

New generation of detectors for monitoring LHC beam conditions and luminosity.



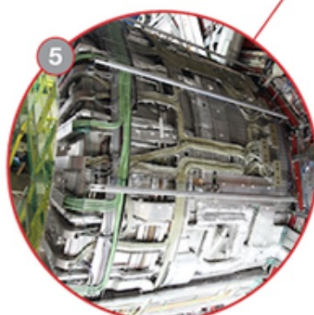
CATHODE STRIP CHAMBERS (CSC)

Read-out electronics upgraded on all the 180 CSC muon chambers allowing performance to be maintained in HL-LHC conditions.



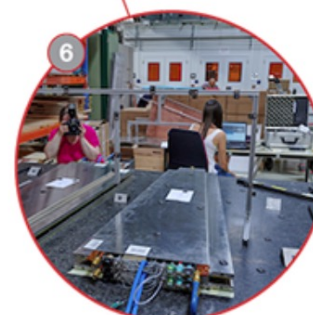
HADRON CALORIMETER

New on-detector electronics installed to reduce noise and improve energy measurement in the calorimeter.



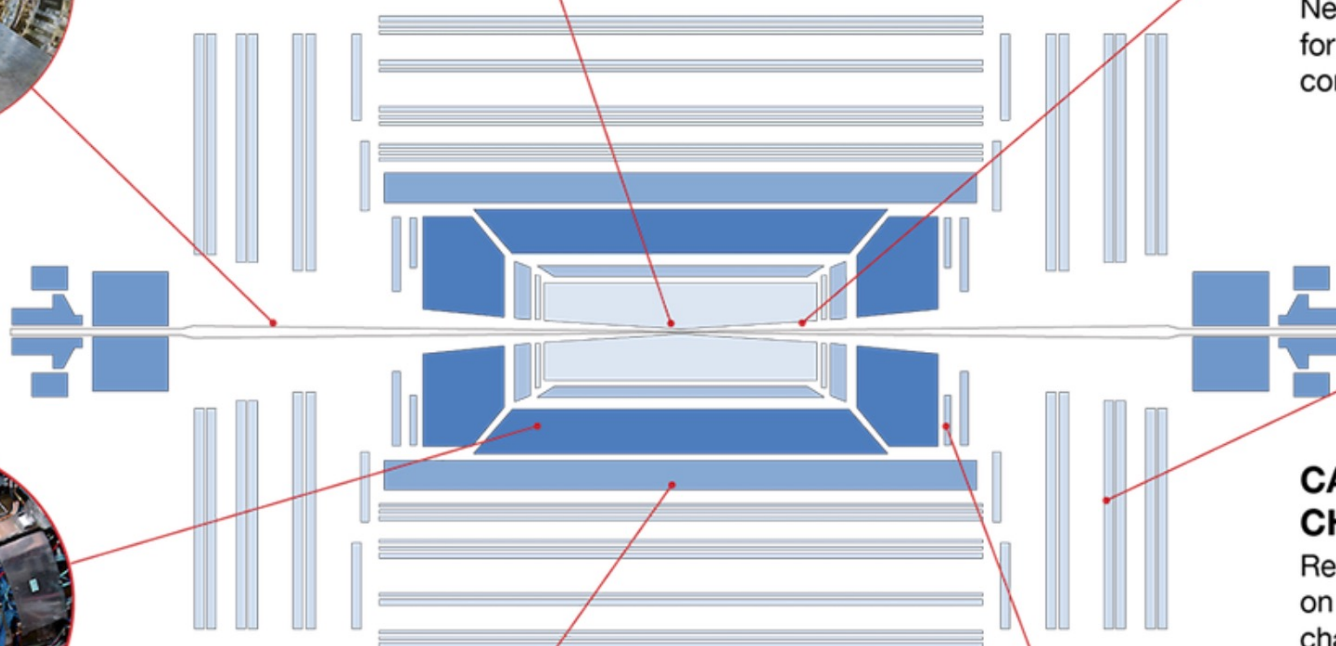
SOLENOID MAGNET

New powering system to prevent full power cycles in the event of powering problems, saving valuable time for physics during collisions and extending the magnet lifetime.



GAS ELECTRON MULTIPLIER (GEM) DETECTORS

An entire new station of detectors installed in the endcap-muon system to provide precise muon tracking despite higher particle rates of HL-LHC.



Pixels:
Successful time and spatial alignment using the 900 GeV data, resolution nearly optimal

Strip Tracker:
Finalized timing, alignment and calibration with cosmic ray and 900 GeV data

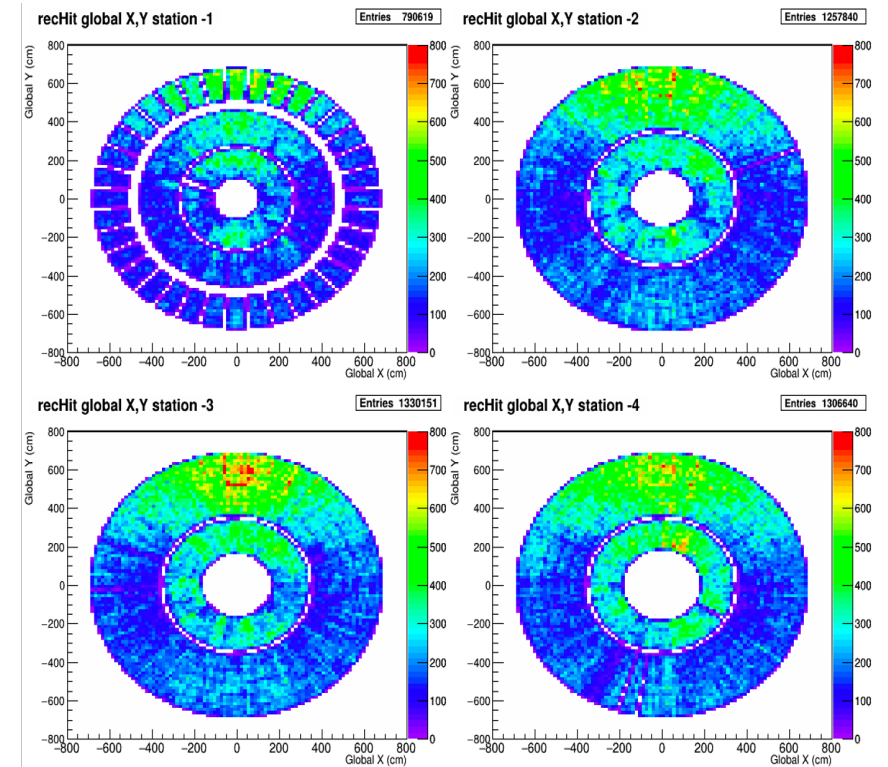
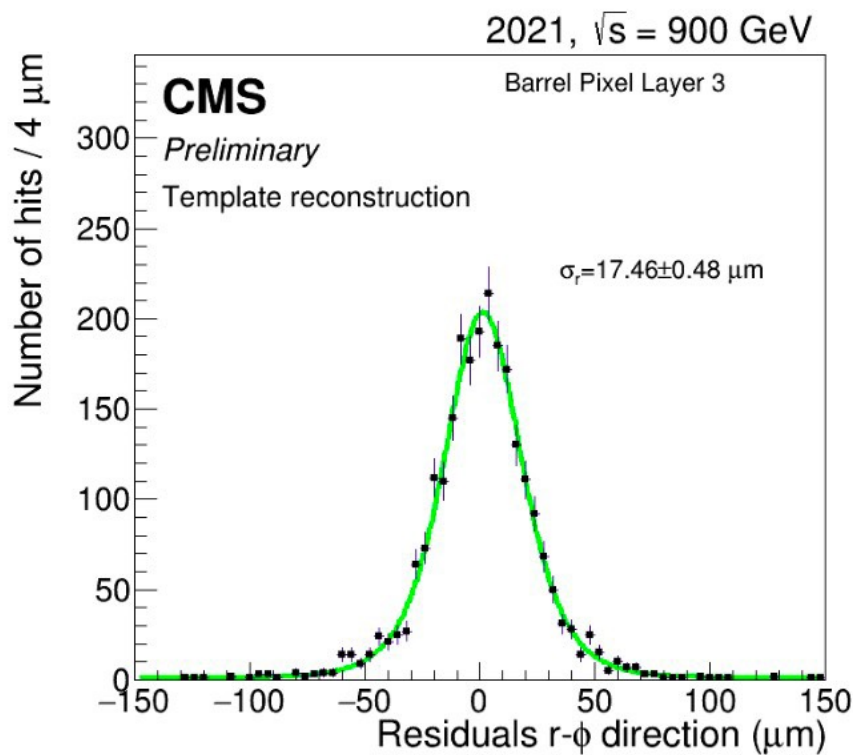
Muon System:
Commissioning in cosmic rays, overall excellent performance

ECAL:
commissioning with cosmic rays

HCAL:
All, including forward calorimeter (HF), participating in global runs

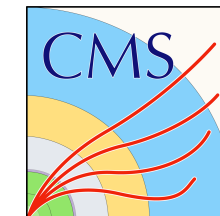
BRIL:
Phase-2 demonstrators installed: BCML (diamond, sapphire) and BLM (ionization chambers)

PPS:
All 4 pixel and 2 diamond detector packages installed



CSC occupancy
@ 2022 MWGR #1

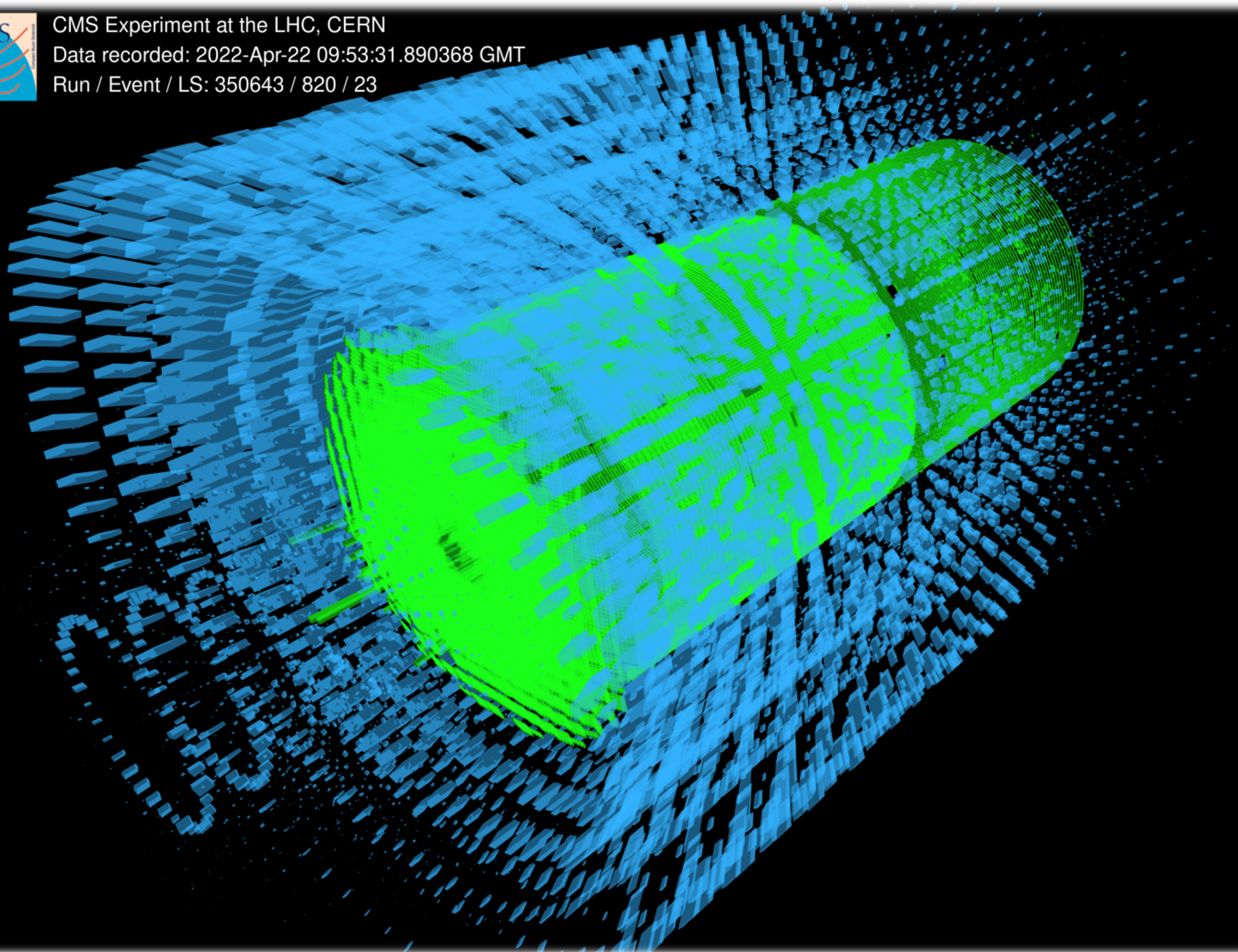
LHC re-starting April 22



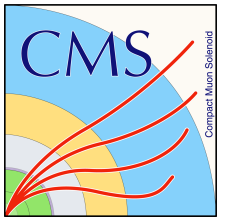
CMS Experiment at the LHC, CERN

Data recorded: 2022-Apr-22 09:53:31.890368 GMT

Run / Event / LS: 350643 / 820 / 23

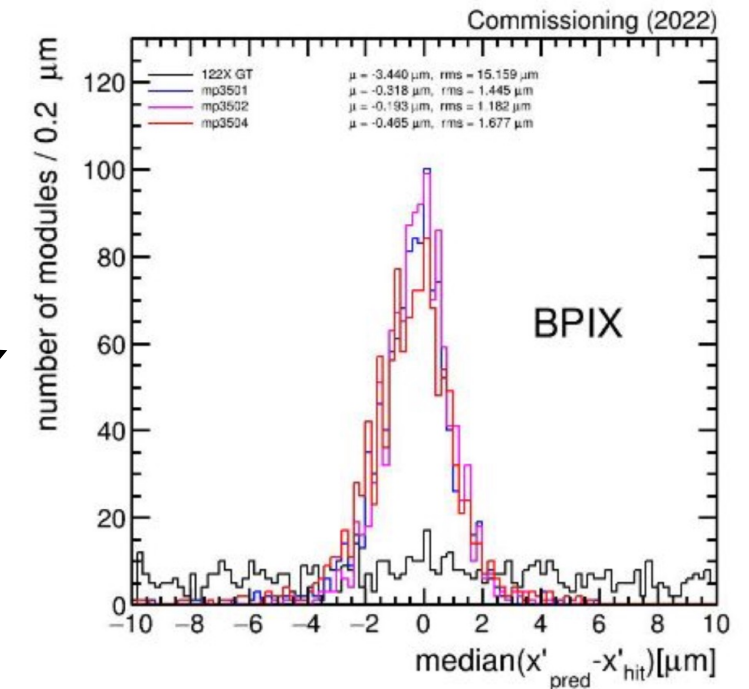


Commissioning of the Tracker System



- Pixel normally ON with HV off, CO₂ cooling at -22C
- Active detector fraction: BPIX=98%, FPIX=98%
- taking data during CRAFT:
 - good data quality
 - alignment improving with data, mean residual at 2-4 μm level
- Readiness review in Apr-2022: detector ok
 - DAQ hardware ok, online software updated
 - Commissioning under finalisation: automatic timing scan; full FED reports, soft-error recovery, powering calibration

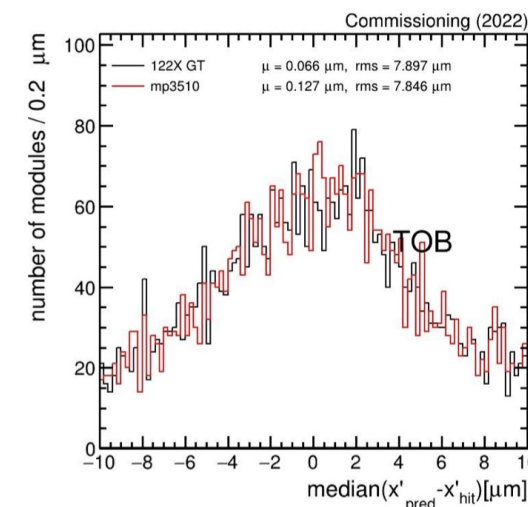
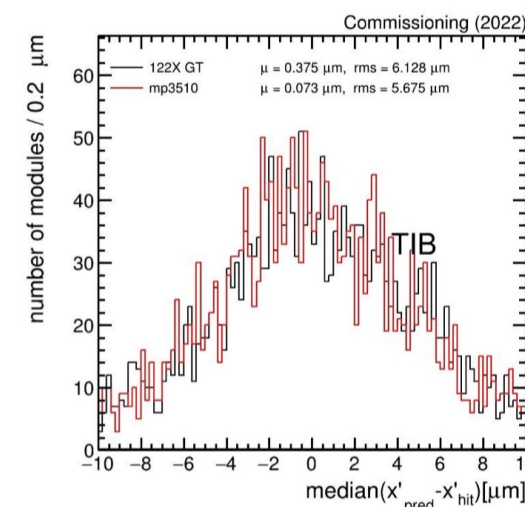
Pixel detectors



- Detector now running at -20C
- Strip Tracker collected 6 million muon tracks during CRAFT of end February

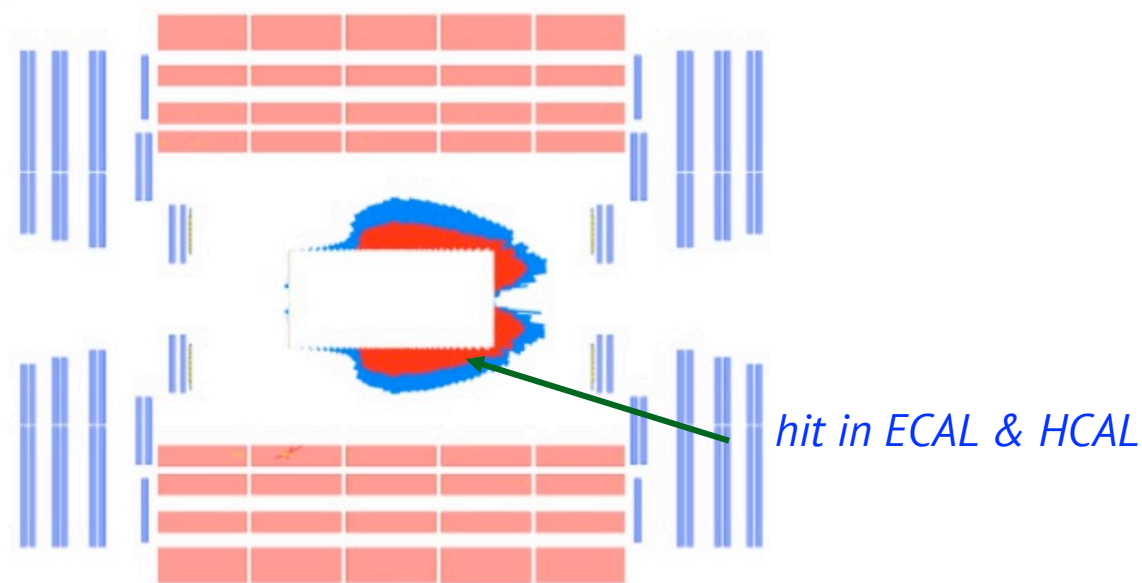
Silicon Strip detectors

- improvements in alignment of TIB, TOB, TEC, TID
- Readiness review in Apr-2022: detector ok
 - DAQ fully commissioned, FED and FEC PC upgraded according to XDAQ
 - Safety system (TCS, DCS) : new generation PLC, DCS upgraded



Beam splashes

ECAL has successfully triggered the beam splashes for CMS.



April 28: Beam Splashes in CMS

Readiness review in March 2022: detector OK

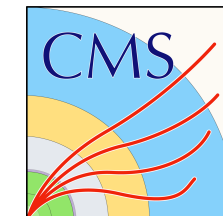
- ❖ DAQ fully commissioned
- ❖ ECAL Trigger optimized for higher pile-up

ECAL ready to acquire data



*ECAL team in control room for beam splash:
R. Tramontano (simil-fellow RM), M. Campana (RM), M.
Chiusi (MI) with ECAL run coordinator*

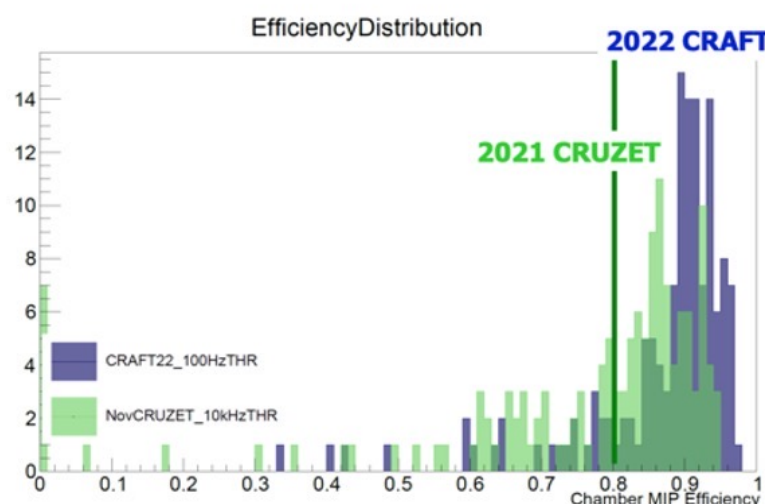
Commissioning of the Muon System



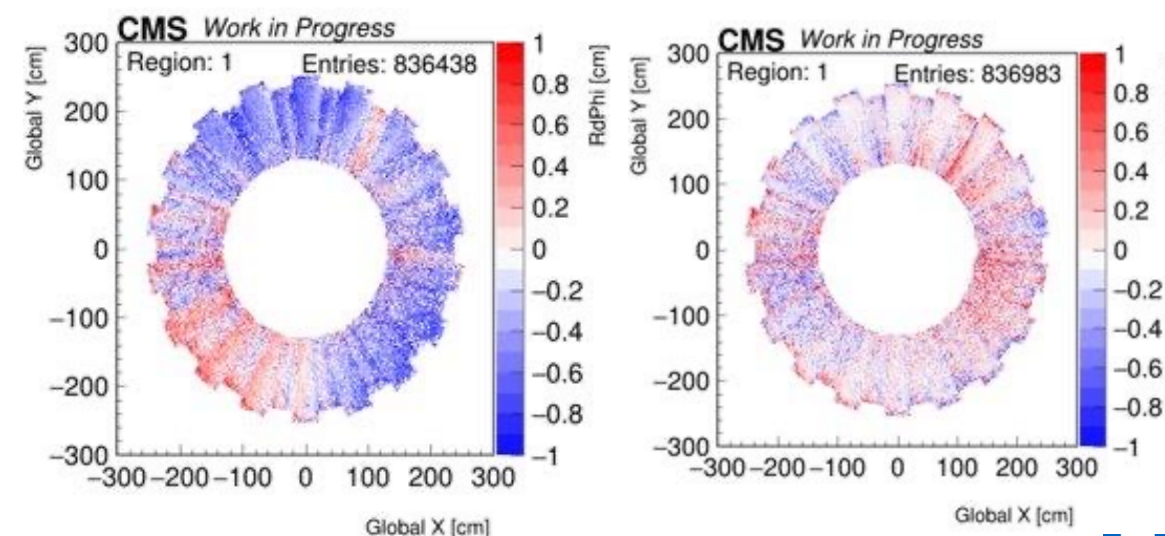
Muon detector commissioning is successfully progressing during CRAFT 2022

Few GE1/1 highlights:

Significant improvement of the GEM efficiency measurements



- GE2/1 demonstrator successfully included in Global Runs



Residual map on GE1/1 super-chambers relative to the ME1/1 geometry (before and after alignment)

CSC & GEM trigger commissioning

Development of firmware for OTMB, old TMB including GEM-CSC trigger integration.

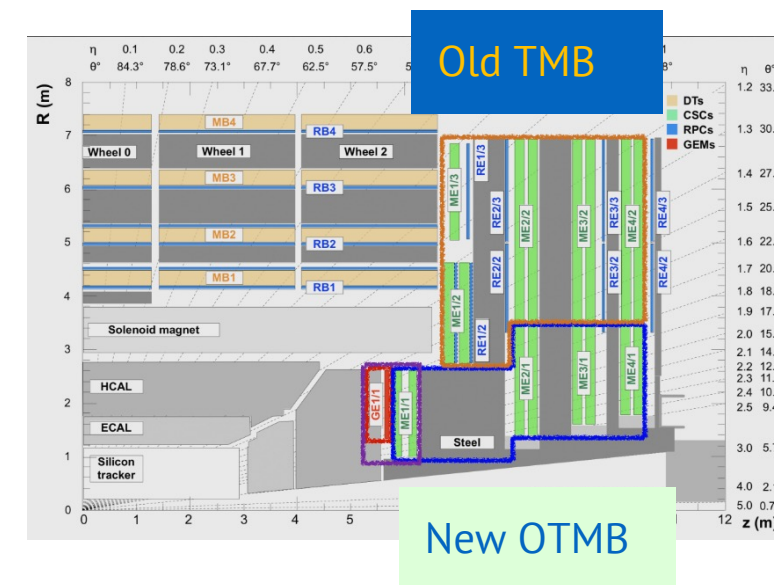
Firmware(s) extensively validated in b904 lab, where the cosmic stands have been continuously running for:

GEM – CSC – EMTF trigger primitives studies (time/spatial matching)

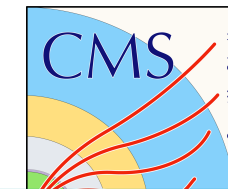
Validation of new FW features and optimization of parameters

Now, firmware(s) deployed and commissioning on-going.

GEM – CSC – EMTF trigger primitives studies



Trigger Strategy for Physics



Several new L1 seeds requested

⇒ we are discussing w/ LHC the possibility to keep the beam for longer reaching lower instantaneous luminosities

- **LLP (thanks also to L1 BMTF) entered the menu w/ high-priority**

- BPH triggers (new phase spaces)

→ **most of the bandwidth to di-Electron : $R(K/K^*)$ analysis (parking)**

L1 seed is very challenging → ~some O(100) of $B \rightarrow K\pi\pi$ events expected in 2022

→ **single-muon parking (2018 strategy) lower priority**

[already billions of event collected in 2018]

→ **di-muon triggers – mainly – for $B_s \rightarrow \mu\mu$ (prompt reco)**

- new **Scouting ~30 kHz** (30% of the input rate of the HLT!)

→ timing 180 ms/event w/ GPU (290 ms/event w/o GPU !)

→ includes tracks, vertex, egamma, muon, MET event size : 7.7 kB

→ Particle Flow candidate based on pixel tracks

- exploit **ramp-up** period (4.5 weeks O(200) pb⁻¹)

Several improvement deployed at HLT

- GPU pixel-tracking and calorimeter local reconstruction

- new DNN based E/Gamma regression

- new Deep taggers : deepTau, deepJet, ParticleNet

Transition to a hybrid GPU/CPU is completed !

New HLT farm w/ > 200 nodes installed @ P5

with AMD EPYC “Milan” 7763 (256 threads) + 2 GPU NVidia T4 (GPU)

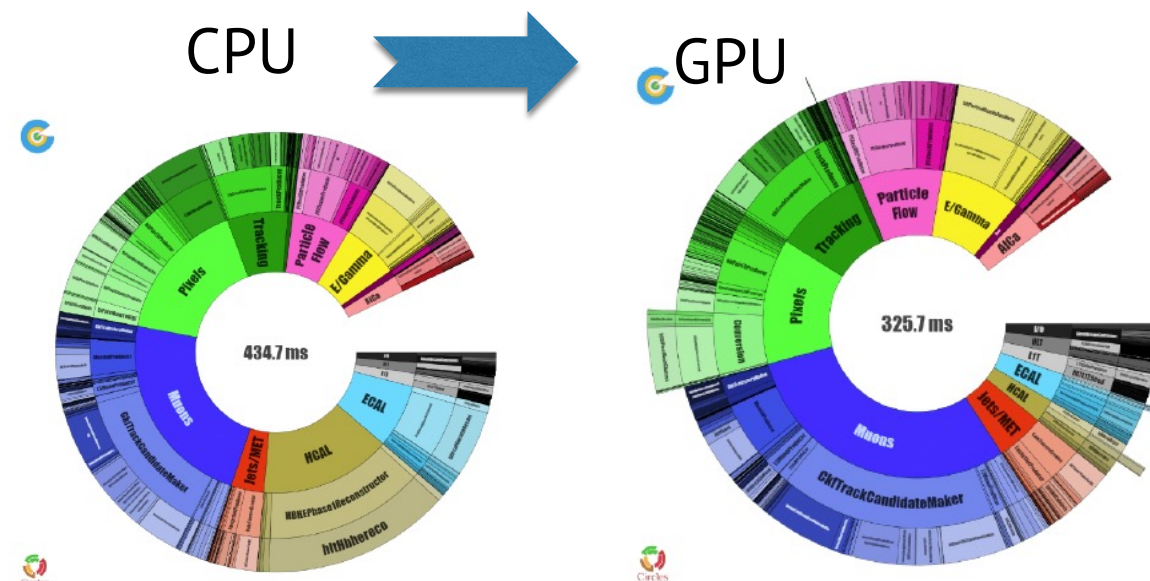
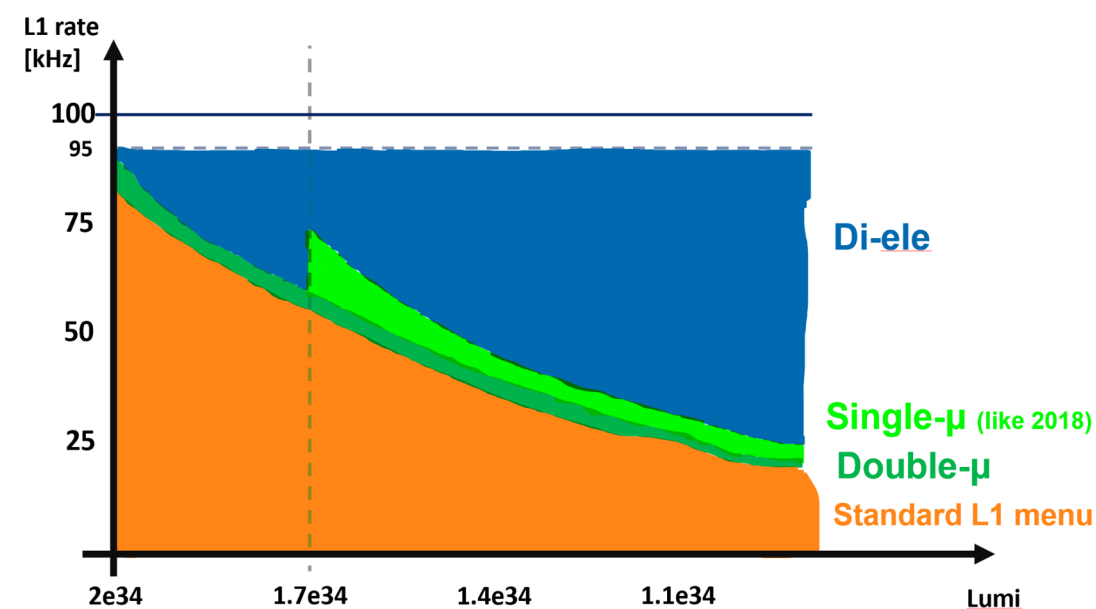
Computing allocated resources:

- **prompt-reconstruction : ~1.3 kHz** (averaged over a fill*)

- **parked for delayed reconstruction : 3 kHz**

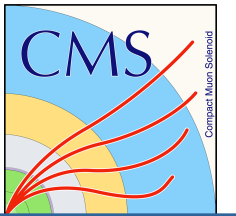
Run3 priorities for Physics

- improve LLP acceptance
- shed light on LFUV anomalies
- investigate our own Run2 excesses
- open new phase space w/ new triggers
- cross section measurements at new energy



~25% offload to GPU

Toward Run 3 – CMS Italia



Analysis activities and preparation for Run3 on multiple fronts:

large datasets are hard to handle (evolving conditions, different reference MC, different LHC energy)

→ **analisi dati @CMS Italia** [10-11/03, Firenze (!) + zoom]

⇒ **INFN analysis facility** prototype presented

→ efficient data analysis in Run3 and beyond
exploiting INFN computing resources

⇒ review common analysis practices across CMS Italia groups

→ there is –of course– a wide variety of use cases,
but some already make use of **Dask** and **traditional HTcondor**
and are already geared towards the **newer tools** like **RDataFrame**

Physics analyses mini-workshop series

→ **HIG @CMS Italia** [11-12/05, zoom w/ CERN as hub]

→ **BPH @CMS Italia** [24-26/05, zoom w/ CERN as hub]

→ **SMP searches @CMS Italia** [at the beginning of June]

→ **searches @CMS Italia** [work in progress]

analisi dati @CMS Italia

RESCHEDULED
NEW DATE ANNOUNCED

~~24-25 Febbraio 2022~~
10-11 Marzo 2022
Firenze

workshop analisi dati @CMS Italia

Overview
Timetable
Contribution List
My Conference
My Contributions
Registration
Participant List
Videoconference
Contact
CMS-Italia-AnalysisMod...

Questo e' il primo workshop sull'analisi dati in CMS. L'evento ha come obiettivo primario quello di fare una "ricognizione" sulle attività di analisi in Italia finalizzato ad un confronto sulle esperienze fatte e maturate negli ultimi anni ed ad una discussione su un modello di analisi per i prossimi anni.

In CMS, si sta discutendo sempre più in modo organizzato il futuro dell'analisi. Ci sono molte attività già in essere od in fase di prototipizzazione su vari fronti (framework, facility di calcolo, dati).

In questo contesto si vuole cercare di sviluppare un'idea comune di come si potrebbe fare in modo efficiente l'analisi dei dati, creando un gruppo operativo e mettendo insieme le esperienze di chi fa analisi e le competenze da chi può realizzare i pezzi di infrastruttura e servizi di calcolo.

Queste tematiche sono naturalmente inquadrare nel contesto del PNRR spoke 2 "Fundamental Research & Space Economy".

Starts 24 Feb 2022, 09:00
Ends 25 Feb 2022, 13:00
Europe/Rome

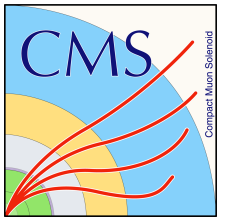
Daniele Spiga
Lucia Silvestris
Mia Tosi
Piergiulio Lenzi

Firenze
Aula 1.07
Dipartimento di Scienze Giuridiche dell'Università degli

GOALS :

- discuss **Run2 results**
- review **Run3 plans** and **new strategies/ideas**
 - → **trigger strategy** and **new tools**
- check **person power** availability

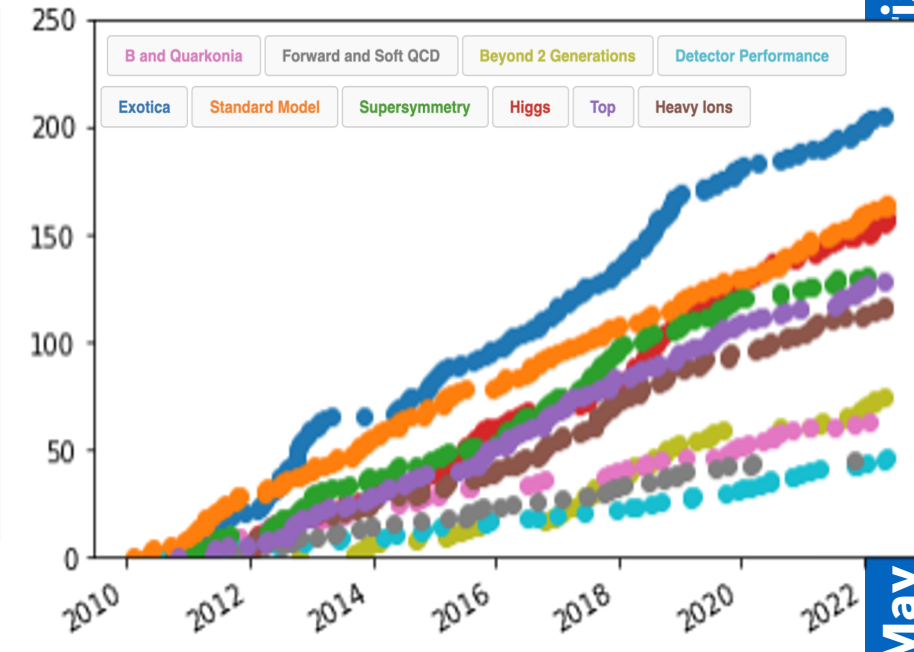
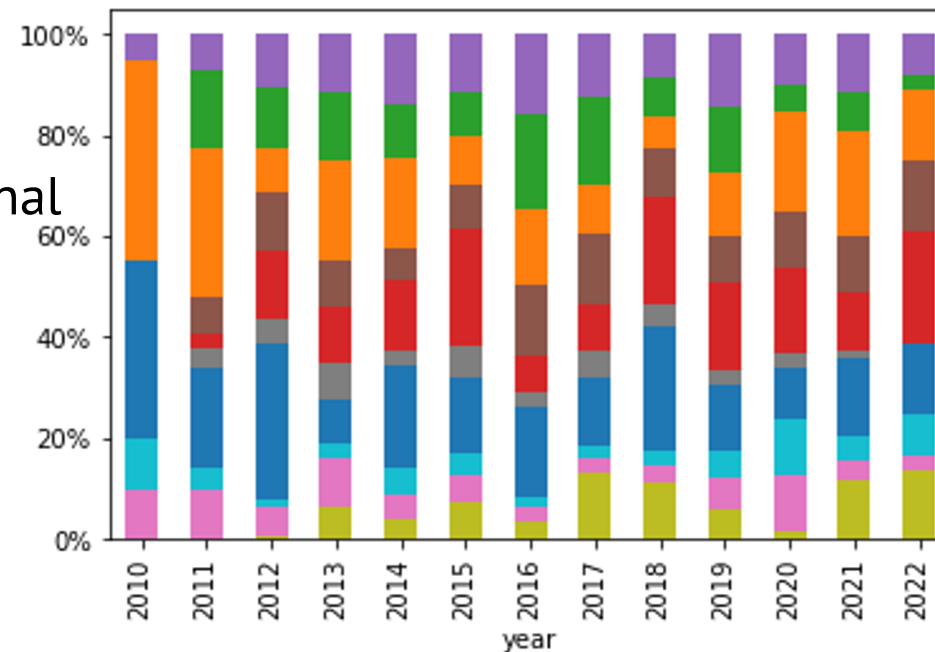
Publications & war against Ukraine



1131 papers on collider data
published or submitted to a journal

28 analyses in CWR or beyond

- 15 CWR – ReadyforSub
- 13 SUB - Accept

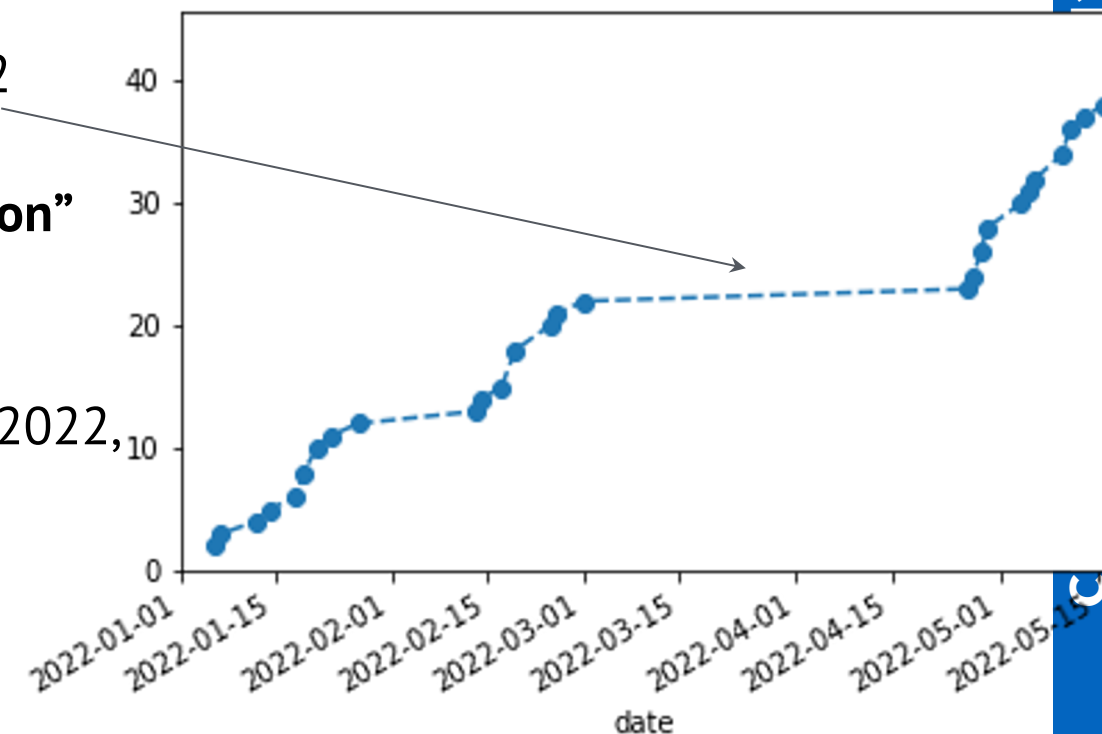


- **paper submissions were halted**
following CMS special CB meeting and the Council in March 2022
and in agreement w/ other LHC experiments
- **paper submissions now resumed temporarily as “CMS Collaboration”**
w/o detailed author lists, affiliations, acknowledgements

decision on how to proceed to be taken after Council on 17 June 2022,
and before final publication

goal is to develop a common strategy w/ other LHC experiments
and maintain the fundamental spirit of CMS

- peaceful collaboration – as much as possible



Trasparent CNAF extension over PowerPC @ Marconi 100

Release validation samples almost produced:

FullSim ✓ ; Data ✓ ;

Samples with Pileup are in progress

- This will enable CMS to run physics on Power architecture at scale

In contact with Nvidia in order to replicate the very same setup on ARM

Project PowerAtCMS Approved

- PRACE Project Access Grant (PI T. Boccali. Co-PIs M. Pierini, D. Spiga)

[RelMon](#) Global Report [DataReport](#)

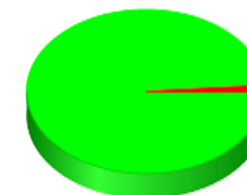
[main...](#)

Summary

107442 COMPARISONS:

- SUCCESS: 98.8% (106102)
- NULL: 0.0% (11)
- FAIL: 1.2% (1329)

[To the DQM GUI...](#)



Releases:

- CMSSW_12_3_0
- CMSSW_12_3_0

Statistical Test (Pvalue threshold):

- CHI2 (1E-05)

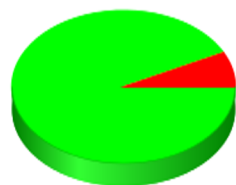
[RelMon](#) Global Report: [FullSimReport](#)

[main...](#)

Summary

- SUCCESS: 92.6% (1637903)
- NULL: 0.0% (103)
- FAIL: 7.4% (130623)

[To the DQM GUI...](#)



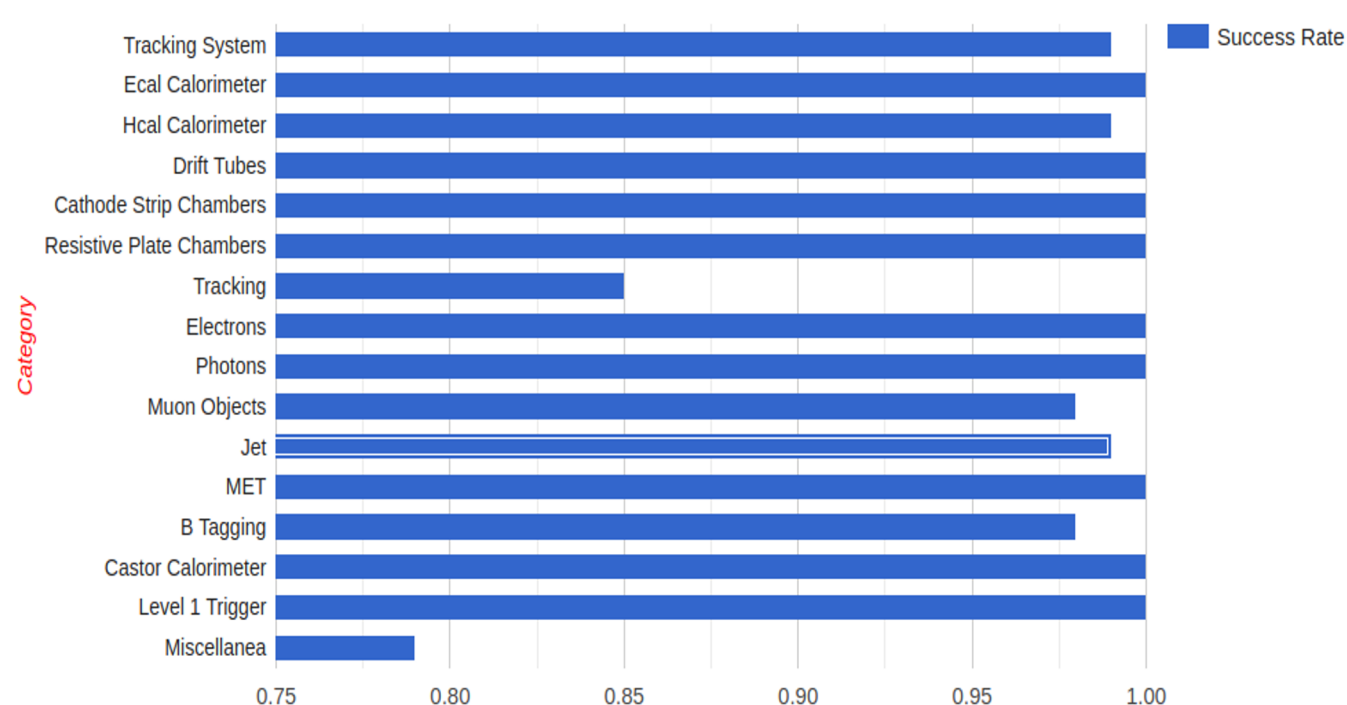
Releases:

- CMSSW_12_3_0
- CMSSW_12_3_0

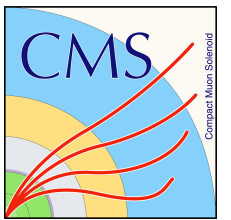
Statistical Test (Pvalue threshold):

- CHI2 (1E-05)

Success Rate



Risks Associated with war against Ukraine



- The suspension/breaking of the International Cooperation Agreements (ICA) with Russia and JINR, that will be considered at the next Council (13-17 June), would cause a full stop of our collaboration with Institutes from Russia and JINR:
 - users would lose their CERN status and most likely access to CERN facilities;
 - we would break all current and future MOUs (legal service to deal with ownership rules);
 - this clearly concerns also **fundings and contributions**.

On the **computing side** the largest contribution will be the loss of the second largest T1:

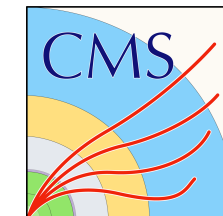
- 30% in terms of T1-CPU capacity
- 13% in terms of T1-tape capacity
- 16% in terms of T1-disk capacity

7% of the members of CMS Collaboration are from institutes in Russia (incl. JINR)

HUGE contributions from Russian, JINR (Belarus, Ukrainian..) to the construction and operation of the detectors: technicians, engineers and physicists

2022 Total	Russia + JINR (%)	JINR (%)
M&O A+B		
19455 kCHF	1231 KCHF (6.3%)	376 kCHF (1.9%)
Core contribution to current detector		
588 MCHF	26 MCHF (4.4%)	7.9 MCHF (1.3%)
Core contribution to Phase 2		
283.5 MCHF	9.2 MCHF (3.2%)	2.4 MCHF (0.8%)
Common funds to Phase 2		
25 MCHF	1.5 MCHF (6.1%)	0.4 MCHF (1.7%)
Current members from Russia and JINR		
5365	306 (5.4%)	88 (1.6%)

Risks Associated with war against Ukraine



- For M&O-A contributions CMS is considering a collaboration-wide fair-share approach.

Effect on the preliminary budget 2023 for INFN

# Phd	PhD %	PhD % wo Russia & JINR	M&O-A	M&O-A wo Russia & JINR	M&O-A increase
197	13.64%	14.61%	1857.8 kCHF	1990.1 kCHF	132.3kCHF

- For M&O-B, the expertise and the current investments will hit mostly the Funding Agency in the same project.

- Most affected projects (% of M&O-B)

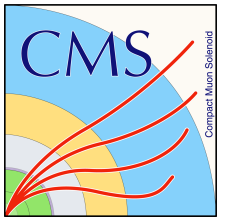
Effect on the preliminary budget 2023 for INFN

- HCAL (12%)
- HGCAL (11%)
- BRIL (10%)
- ECAL (9%)
- PPS (9%)
- MUONS (5%)

	M&O-B cost sharing	M&O-B cost sharing wo Russia & JINR	M&O-B	M&O-B wo Russia & JINR	M&O-B increase
ECAL	20.9%	23.9%	116.9 kCHF	133.8 kCHF	16.9 kCHF
Muons	22.1%	22.1%	406.3 kCHF	407.9 kCHF	1.6 kCHF
PPS	26.3%	29.0%	83.7 kCHF	92.4 kCHF	8.7 kCHF

Experts from Russian Institutes (at least ~30) are vital for the operation: HCAL, CSC, BRIL, Tracker, ECAL, PPS
Loosing the full Russian crew in the Technical Coordination team will have a much higher impact than its monetary cost.

Risks Associated with war against Ukraine



Effect on Computing Resources

- Russia hosts the second largest Tier-1 for CMS and several Tier-2 sites.
 - 30% in terms of T1-CPU capacity
 - 13% in terms of T1-tape capacity
 - 16% in terms of T1-disk capacity
- The dominant effect for Tier-1: they keep the second copy- **custody of raw-data on tape**.
- In case of suspension/breaking of the International Cooperation Agreements with Russia and JINR, **the impact on computing is far from negligible** in particular and fundamentally for 2023 which is a full year of data taking.
- In 2022 the integrated luminosity will be lower (restarting after LS2). With mitigation plans we should be able to handle the situation.
- While for 2023 the resources foreseen and approved in the latest RRB **will not be sufficient**, unless we decide to cut on the physics program.
 - **For this reason CMS will have to ask the different FA to integrate the resources available to address the shortcomings.**
- CMS is writing and finalizing a “Mitigation Strategies Plan” to reduce the impact.
 - For the additional request: higher priority will be given on tape and disk respect to CPU.
 - Among the actions will be a massive deletion campaign (certainly all run 2 non-legacy) which should make room for the new data for 2022

- CMS Technical Coordination is working with the different projects on the LS3 master schedule (3-year duration!)
 - Work is well advanced .. But still on-going!
 - Cost impact on overall project expected in 1 year time.
- **Next year will be the pivot year for the upgrade projects moving out of R&D into production.**
- **CORE cost (from snapshot in March 2022)**
 - HLT cost decrease by 4.8 MCHF due to HL-LHC schedule change
 - We have still uncertainty of funding or unsuitable in-kind constraints
 - Higher CORE cost due to pandemic, war, inflation, supply chain etc.
 - Still around 10% globally with high uncertainties and an uneven spread among projects
 - The “big” projects see the largest increases HGCal, MTD and Tracker
 - E.g. Steel HGCal absorber cost went up from 1.5 MCHF to 5.5 MCHF due to market price and specifications: only one vendor can deliver- order place in January 2022.
 - HGCal steel is a deliverable of CERN as institute: as per MOU commitment CERN will honour since **MOUs are listing deliverables**
 - CMS stays always vigilant to minimise increase and look for mitigation
 - Due to the price fluidity, we can only update at the time of purchase order.
- Missing manpower: O(10) engineers, O(5) applied physicists stationed at CERN.

ECAL: e.g cost increase affecting INFN

- The “enfourneur” is the machine to insert / extract ECAL super modules from CMS. 2 enfourneurs to do the job quickly in LS3.
- The company that won the tender for the construction of “enfourneur #2” (Vettorello) asked for a **price adjustment**. Due to the pandemic, construction materials (**iron, steel, aluminium**) increased by 35% and also the engines and control systems.
- 10% of the increase is borne by the company while the remaining part is to be paid by the contractor: ~122 keuro
- The request was considered more than justified by the RUP and the DEC given the ministerial tables of the cost increase.



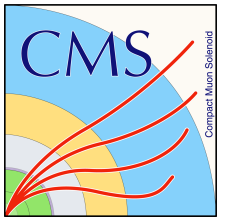
- With respect to the upgrade **CMS is strongly exposed** not only to a) **CORE funds** but also very significant impact on b) **personpower** c) **work sharing** and d) **specific expertise**.
- **Serious problem for resource and schedule**
 - Muons
 - BRIL – beam abort, radiation expertise & neutron monitors
 - HGICAL – serious schedule and resource issue; clearly not easy to mitigate – technically surmountable
 - CORE funding 8.2 MCHF
 - Moulded scintillators (Russia)
 - Machined scintillator (Ukraine)
 - Copper-tungsten base-plates for silicon modules (Russia)
 - CE-H copper cooling plate prototype (Belarus)
- **Many items are needed for on-going prototype and imminent pre-series, thus are time critical !**

CMS Money Matrix	HGICAL	Muons	BRIL	Common Fund	Total
Russia and DUBNA Member states	8200 kCHF	629 kCHF	350 kCHF	1522 kCHF	10701 kCHF

The potential loss of funding, resource and expertise prevents CMS to realize the upgrade if the responsibility is not shared! CMS plan to organize an internal costs and scope discussion in summer.

Proposal in RRB supported by CERN management: if the International Collaboration Agreements (ICAs) and MoUs are suspended **Russian contributions will have to be covered by the other FAs pro-rata.**

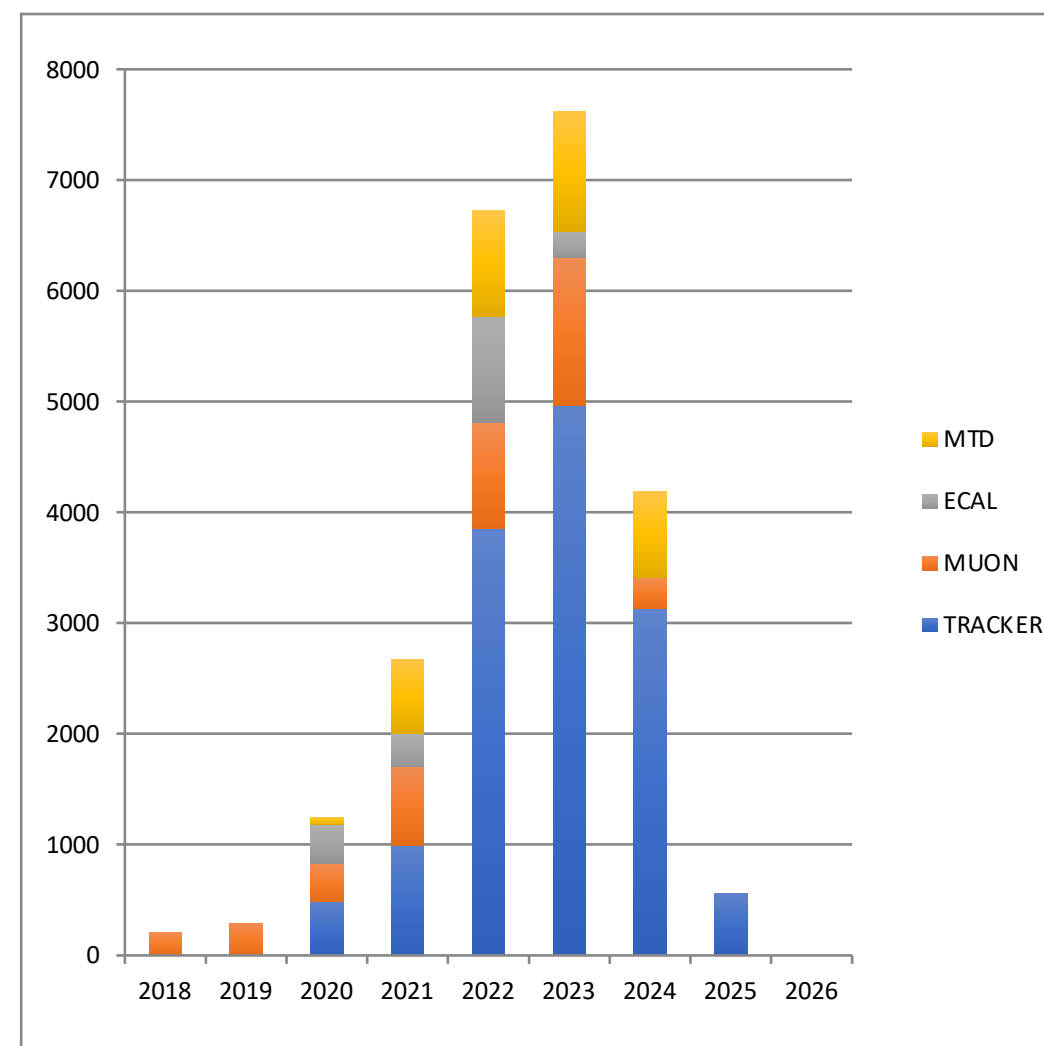
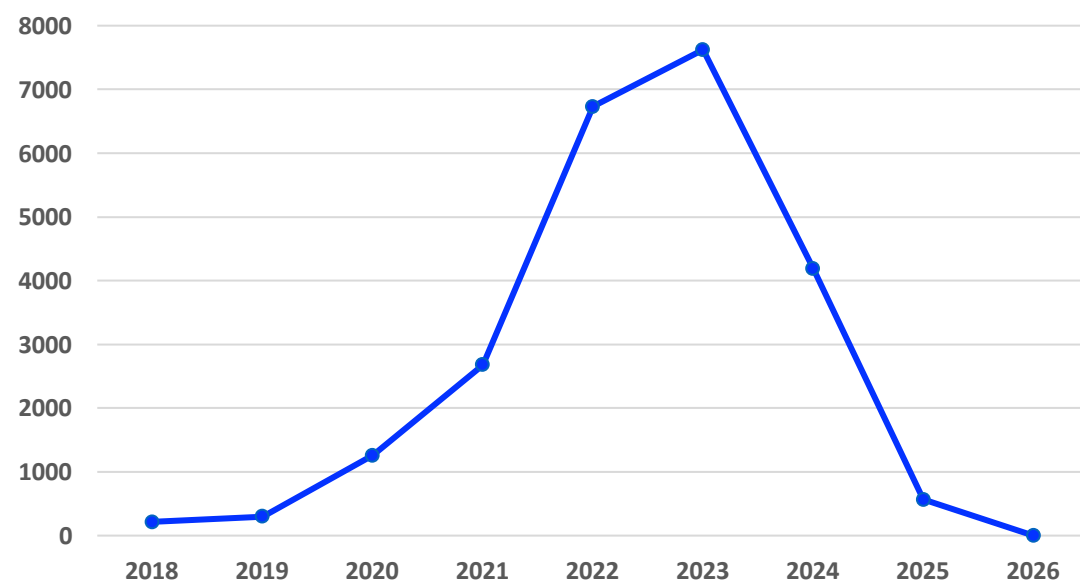
Potential Shelter Programs



- Post-RRB three meetings were held(*) where the potential shelter programs were discussed. CERN is investigating some possibilities in case of ICA suspension:
 - limited time extension of CERN user's contract allowing a transition period (this would allow the COLA payments and "carte de legitimisation" validity for a few months);
 - feasibility of an external contract with a Swiss/French company that might hire technician/engineers in need.
- Other actions seem either too expensive and/or in violation of CERN current rules (contracts only possible at the level of fellows and staff, cap on the number, need to have a home institute for PIAS equivalent positions, etc.)
- The LHC spokespersons are preparing a document for the Council encouraging a more ambitious project that will need flexibility in the current rules **AND** additional resources.

(*) between the LHC Spokespersons, the Director General, the Director for Research, the EP department head, the Head of Finance, the Head of HR and the legal service

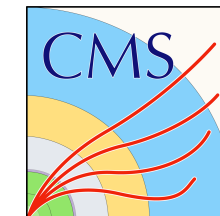
CMS CORE Profile kEur



Recognized INFN CORE up to Dec 2021 at the following link:

https://www.dropbox.com/s/eteaybplb7l4sxr/2022-INFN-P2U-CORE-Contr_20220406.pdf?dl=0

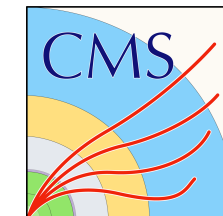
Fase 2 CORE tipo A



Sezione	Richiesta	
BA	ME0: 2.5.3.2 VFAT3 Front-End Cat.A GEM-CORE	136
FI	Tracker /1.2.1 / IT Modules / Acquisto sensori Inner Tracker prima tranche 2022 Cat.A TRACKER-CORE	300
FI	Tracker / 1.2.5 / IT Services / Contributo cavi alimentazione IT Cat.A TRACKER-CORE	15
FI	Tracker / 1.3.3 / Power system / Contributo acquisto prima tranche Power Supply OT Cat.A TRACKER-CORE	200
PI	Tracker/1.1.4 Outer Tracker Services/ Contributo per fibre, cavi di alimentazione, connettori Cat.A TRACKER-CORE	180
PI	Tracker/1.3.1 Common mechanics/ contributo a meccanica bulkhead Cat.A TRACKER-CORE	10
PI	Tracker/1.3.5 Detector safety system/ contributo acquisto PLC e sensori Cat.A DTC: prima tranche TRACKER-CORE	50
PI	Tracker/1.2.3.1 TBPX mechanics/Contributo per materiale TBPX Cat.A TRACKER-CORE	60
RM1	ECAL: Produzione cavi HV EB (PBS 3.1.6.3, Cat A) ECAL-CORE	240
TO	Tracker/1.2.1 - IT Modules: acquisto wafer C-ROC prima tranche 2022 Cat.A TRACKER-CORE	100
TO	Tracker/ 1.2.2 - IT Service Electronics: contributo acquisto elettronica servizi Cat.A TRACKER-CORE	50
TO	ECAL: Produzione, Packaging e Test chip LiTE-DTU (3.1.1.2 LiTE-DTU Chips in CERN-MoU-2019-007) Cat.A ECAL-CORE	836

Tutte le richieste sono confermate tranne la richiesta per i cavi HV di ECAL/Roma che viene spostata all'anno prossimo.

Richieste finanziarie e sblocchi SJ



- **Sblocco SJ Milano Bicocca.**
 - **Sblocco 10k euro SJ** assegnato a Milano alla voce "Prototipi di sviluppo alimentatori.."
 - **Sblocco 5k euro SJ** assegnato a Milano dei 14k alla voce "Meccanica dei tray."
- **Motivazione:**
 - Nelle riunioni di luglio il gruppo di Milano aveva orientativamente richiesto 10Keuro per il prototipo di sviluppo alimentatori. A quel tempo il tender era ancora in corso e non si avevano le informazioni precise. Ora la gara fatta al CERN è conclusa ed abbiamo i numeri dalle tabelle che ci sono state fornite, e quindi abbiamo una stima più precisa dei costi (con qualche incertezza relativa ai costi di spedizione e assicurazioni). Dato che l'ordine è fatto dal CERN noi non abbiamo sottomano un'offerta.
- Comunque le informazioni dettagliate sono le seguenti:
 - per l'acquisto dei moduli prototipo degli alimentatori rad-hard del bias voltage dei SiPM occorrono 6513 E (corrispondono a 2 moduli + 1 chassis/controller)
 - per l'acquisto dei moduli prototipo degli alimentatori rad-hard dei TEC occorrono 7554 E (corrispondono a 2 moduli + 1 chassis/controller)
 - questo porta ad un totale di ~15keuro. I costi sono più alti e pertanto per ora proponiamo di prenderli da "Meccanica dei tray". Attualmente non abbiamo il costo completo della meccanica dei tray, ma speriamo di poter rientrare nel budget complessivo.

- **Richiesta parziale Roma 1 dei costi CORE in Cat-B alimentatori dei SiPM**
 - Si richiede l'assegnazione di 26Keuro relativi ai costi di engineering (costi non ricorrenti) che fanno parte dei CORE.
 - Questi erano stati referati OK nel referaggio di Settembre ma Cat-B (Come da vostra presentazione del 21/09/2021)
- **Motivazione:** La fase di engineering verrà svolta a breve (maggio), quindi sicuramente prima di luglio. Pertanto vi chiediamo l'assegnazione dei seguenti costi:
per gli alimentatori del bias voltage 5125 E,
 - per gli alimentatori dei TEC 20499 E
 - per un totale di 25624 E.
- La restante parte 19keuro sarà richiesta successivamente durante l'anno.

Back-up

ECAL: impatto della Guerra in Ukraina sulle attività

- ECAL ha collaboratori provenienti da gruppi di Mosca e Novosibirsk, che costituiscono circa il 10% dei membri di ECAL. Quindi l'effetto sulle spese di M&O-B qualora questi gruppi non potessero più partecipare al progetto sarebbe di un aumento di circa il 10% sulla quota italiana.
- Per quanto riguarda le competenze tecniche e le responsabilità su Run3:
 - ECAL Prompt-Feedback Group co-coordinator (Mosca) → ha avuto un contratto di sostegno temporaneo da un istituto americano
 - ECAL Front-End expert (Mosca, pagato con subsistence da ECAL) → forse verrà associato a Torino come cultore della materia
 - ECAL laser correction (Novosibirsk) → la responsabilità era di Saclay, poi passata a Novosibirsk nel 2022, forse potrebbe tornare a Saclay
- Non ci sono impegni sull'upgrade

Rappresentante Nazionale
L. Silvestris

Steering Committee

Upgrade S. Ventura	Fisica M. Tosi	Calcolo D. Spiga
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Coordinatori

Tracker L. Demaria	ECAL F. Cavallari	Muons P. Salvini
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PPS M. Arneodo	MTD N. Cartiglia
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Rappresentanti di Attività

Bari
D. Creanza

Bologna
A. Perrotta

Catania
S. Costa

Firenze
G. Sguazzoni

Genova
F. Ferro

LNF
L. Benussi

LNL
S. Fantinel

Milano Bicocca
A. Ghezzi

Napoli
F. Fabozzi

Padova
M. Margoni

Pavia
A. Braghieri

Perugia
F. Moscatelli

Pisa
A. Venturi

Roma
R. Paramatti

Torino
R. Bellan

Trieste
G. Della Ricca

Rappresentanti Locali