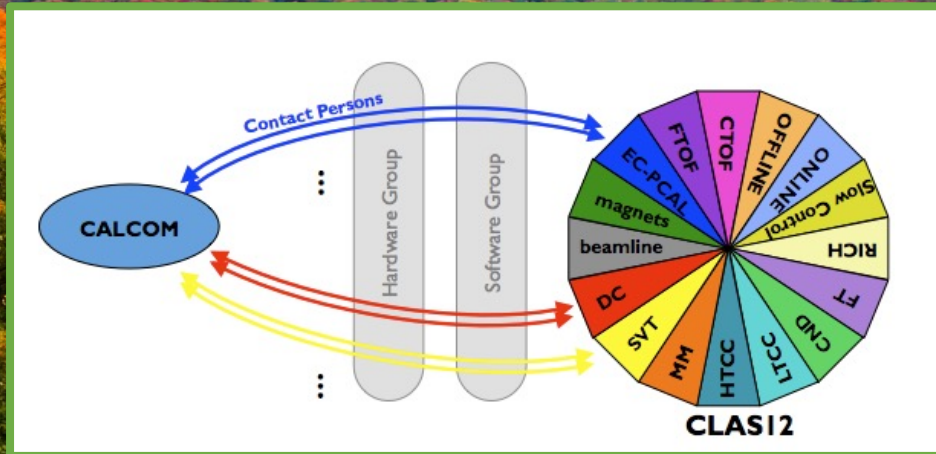# CALCOM Status and Plans

CLAS12

Topics:

- Calibration activities: RG-A, C, D, E, K
- "Online" calibrations: RG-L (upcoming)
- Summary

# Active Run Groups in Calibration Mode – November 2024

#	Run Group	Dataset	Conditions	Run Range	Stage
1	RG-A	Spr18	LH2 6.4, 10.6 GeV, inbending+outbending (+ 2.2 GeV zero-field from engineering run)	3029 - 4325	Calibrating
2	RG-C	Spr23	Polarized NH3, ND3, 10.5 GeV, inbending; FT-On/FT-Off	16843 - 17811	Calibrating
3	RG-D	F23	LD2, C, Cu, Sn 10.6 GeV inbending+outbending	18329 - 19130	Calibrating
4	RG-E	Spr24	LD2, C, Cu, Al, Sn, Pb 10.5 GeV	20015 – 20525	Alignment
5	RG-K	Spr24	LH2 6.4, 8.5 GeV outbending	19200 - 19893	Calibrating

Five different datasets are being calibrated in parallel
+
RG-L/ALERT upcoming

	Analysis Coordinator	Chef
RG-A	Timothy Hayward	Nick Trotta
RG-C	Silvia Niccolai	Li Xu
RG-D	Lamiaa El Fassi	Mathieu Ouillon
RG-E	Hayk Hakobyan	Antonio Radic
RG-K	Annalisa D'Angelo	Lucilla Lanza
RG-L	Mohammad Hattawy	Mathieu Ouillon, Noémie Pilleux

Calibration Timeline: March - October 2024
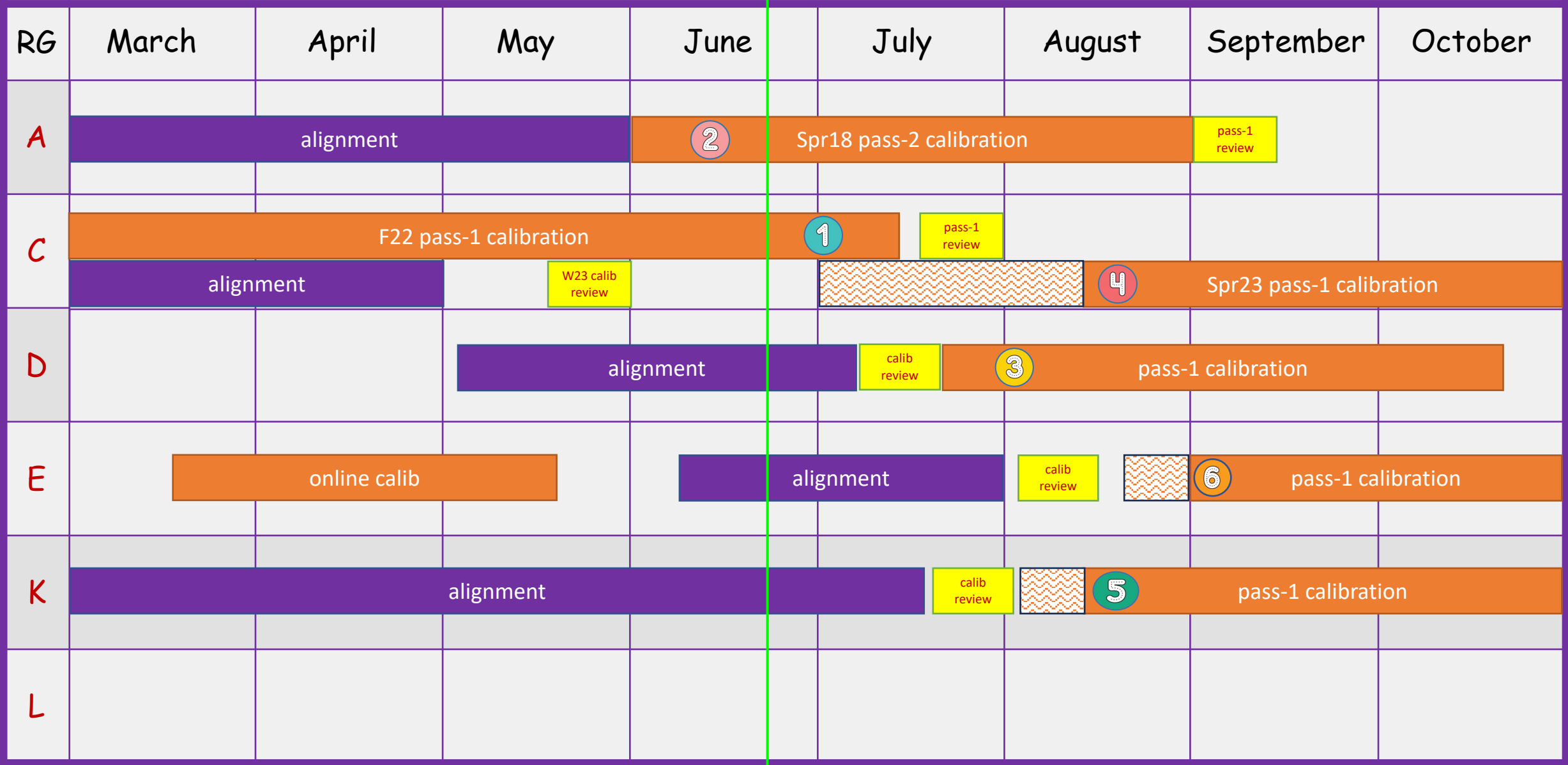
DC Geometry and Alignment

Sector 4 Sector 5 Sector 6
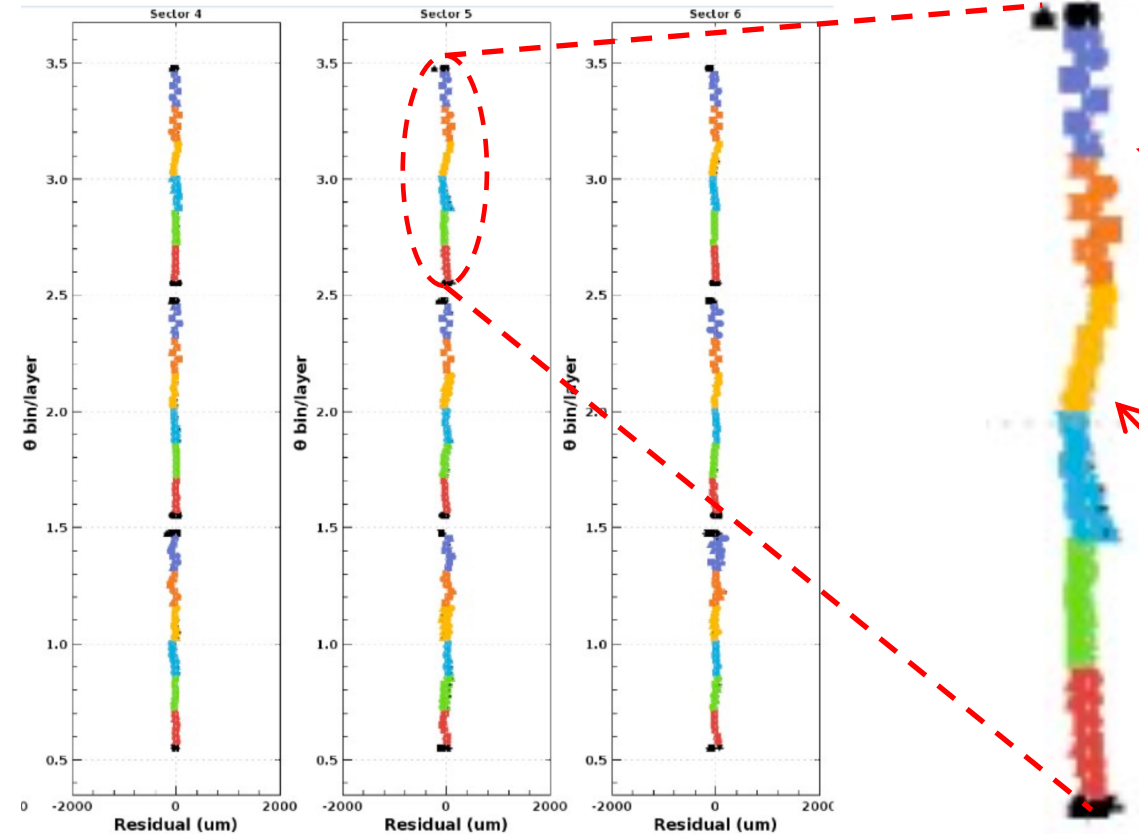
Issue #1: Thermal contraction of cryocell

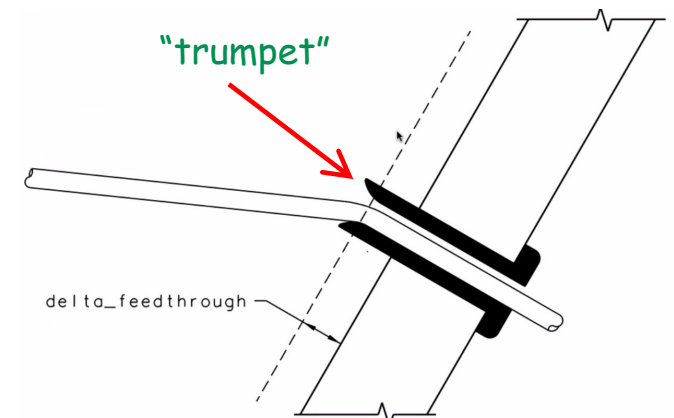- Cryocell shifts 5 mm upstream when cold

Issue #2: R3 S5 and S6 "zigzag":

- Found that reference guard wires did not include a ±300 μm "mini-stagger"
- Possible effect of distorted electric field – compensated for with increased effective mini-stagger ±350 μm

Issue #3: R2 S3 and S4 opposite slope tilts:

- Thought to be caused by incorrect radial distance to reference guard planes
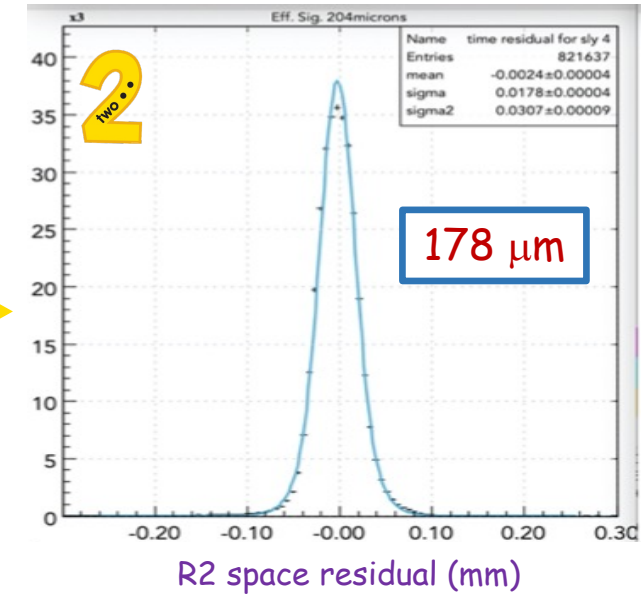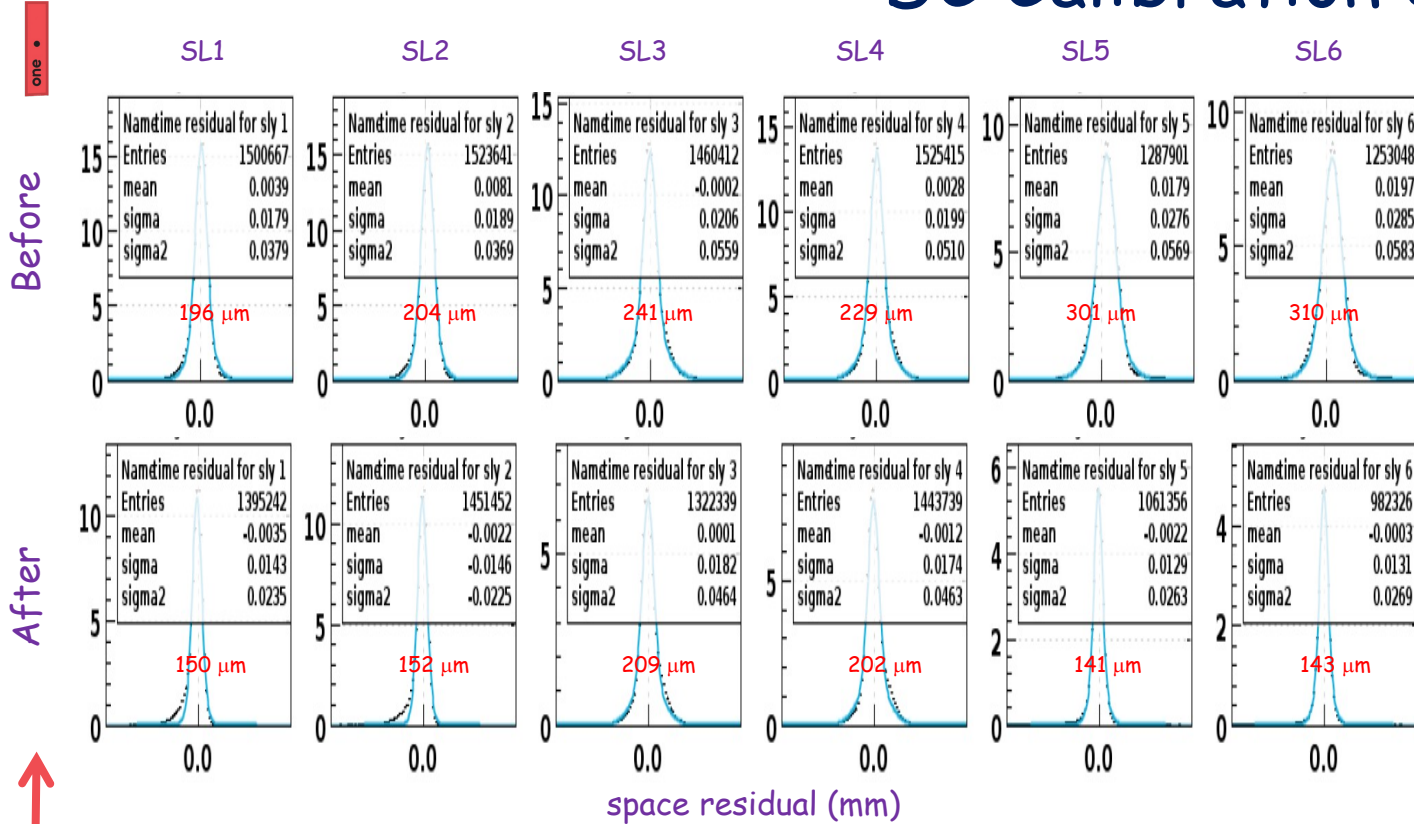- Still under investigation – coupling of effect with R3 geometry

Issue #4: Model of wire positions at endplate:

- Geometry model assumes wire is located at center of hole in endplate – but wire actually shifted due to bending at "trumpet"
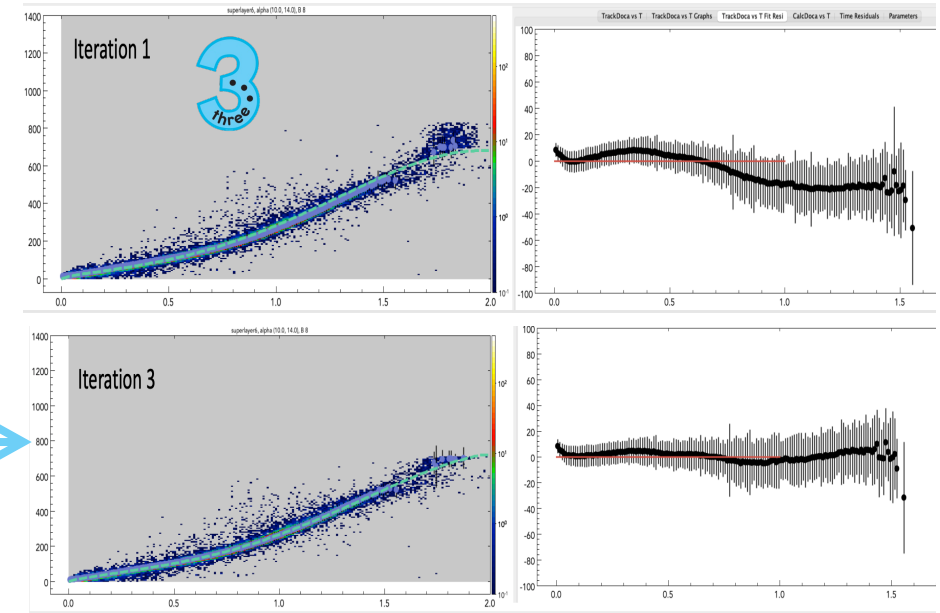- Effect causes wire-length-dependent shift at the level of 200 μm

*Implemented in CJ 11.0.0 – Aug. 2024

"trumpet"

delta_feedthrough

4

DC Calibration Suite

SL1 SL2 SL3 SL4 SL5 SL6

Before

	Name time residual for sly 1		Name time residual for sly 2		Name time residual for sly 3		Name time residual for sly 4		Name time residual for sly 5		Name time residual for sly 6

Entries 1500667, mean 0.0039, sigma 0.0179, sigma2 0.0379 — 196 μm
Entries 1523641, mean 0.0081, sigma 0.0189, sigma2 0.0369 — 204 μm
Entries 1460412, mean -0.0002, sigma 0.0206, sigma2 0.0559 — 241 μm
Entries 1525415, mean 0.0028, sigma 0.0199, sigma2 0.0510 — 229 μm
Entries 1287901, mean 0.0179, sigma 0.0276, sigma2 0.0569 — 301 μm
Entries 1253048, mean 0.0197, sigma 0.0285, sigma2 0.0583 — 310 μm

After

Entries 1395242, mean -0.0035, sigma 0.0143, sigma2 0.0235 — 150 μm
Entries 1451452, mean -0.0022, sigma -0.0146, sigma2 -0.0225 — 152 μm
Entries 1322339, mean 0.0001, sigma 0.0182, sigma2 0.0464 — 209 μm
Entries 1443739, mean -0.0012, sigma 0.0174, sigma2 0.0463 — 202 μm
Entries 1061356, mean -0.0022, sigma 0.0129, sigma2 0.0263 — 141 μm
Entries 982326, mean -0.0003, sigma 0.0131, sigma2 0.0269 — 143 μm

space residual (mm)

Eff. Sig. 204microns

Name time residual for sly 4, Entries 821637, mean -0.0024±0.00004, sigma 0.0178±0.00004, sigma2 0.0307±0.00009

2 two

178 μm

R2 space residual (mm)

time (ns) vs. DOCA   Δtime (ns) vs. DOCA

Iteration 1   **3** three

Iteration 3

Recent improvements in the DC calibration suite:

1) Improve algorithmic approach to account for time-walk correction
2) Improve B-field dependent parameterization for R2
3) Add improved metrics for calibration convergence
4) Improve event selection + fitting approach

Veronique Ziegler/Florian Hauenstein

*now in production use

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Calibration Status – RG-C

DONE

[1] RG-C F22 – Pass-1 calibration review Feb. 23, 2024

Calibrations sequence:
1) DC calibration + pass-0 cooking → monitors & timelines to establish runs to process
2) FTOF calibration
3) RF calibration: run-by-run calibration after FTOF calibrations using pass-0 files + pass-0 cooking → monitors & timelines to make sure FTOF is OK before moving to the next step
4) CLAS12 subsystem calibration: DC, CND, CTOF, ECAL, FT (Hodo, Cal), HTCC (timing), RICH?
5) Pass-0 cooking → monitors & timelines; check of calibration quality vs run – AI training in parallel (do we need to redo it or can we use the network used for Summer2022?)
6) Reiterate, if necessary (for specific run ranges and/or detector subsystems)

Calibration timeline (tentative estimates):
- For 1) cooking needs: ~**2 runs** → **1 day**
- For 1) duration of DC calibration: ~**10 days**
- For 1) pass-0 cooking & timelines: ~**3 days** (MILESTONE 1)
- For 2) and 4) ~**30 runs** should be cooked for calibration → ~**20 days**
- For 2) FTOF calibration of ~30 runs → ~**15 days**
- For 3) RF calibration requires a pass0 cooking: ~2 days + ~1 day for the calibration itself → **3 days**
- For 3) pass-0 cooking & timelines: ~**3 days** (MILESTONE 2)
- For 4) Recooking of the ~7 runs → ~**3 days**
- For the calibrations 4) of ~7 runs → ~**7 days** (done in parallel)
- For 5) **3 days** for pass0 + timelines (MILESTONE 3)
- For 6) ~**10 days** including cookings, recalibrations, and further monitoring passes (MILESTONE 4)
- **+ 2 weeks to account for delays in cooking due to resource limitations.**
- → **TOTAL: ~92 days**

Timeline:
- **Original calibration window:**
  - Aug. 15 – Oct. 31, 2023
- **Updated calibration window:**
  - Mar. 1 – May 31, 2024
  - Start delayed 6 months to finish Sum22 work
  - 1 month delay due to calibration work
  - 1 month delay due to problem with helicity signal
- **Pass-1 review:** Aug. 28, 2024
- **Cooking:** Sep. 6 – TBD (90% done)

[2] RG-C Spr23 – Pass-1 calibration review May 17, 2024

Calibration timeline (tentative estimate):
- For 1) cooking needs: ~**1 run** → **1 day**
- For 1) duration of DC calibration: ~**2 days**
- For 1) raster + beam offset calibration: **2 days**
- For 1) pass-0 cooking & timelines: ~**3 days** (MILESTONE 1)
- For 2) and 4) ~**10 (?) runs** should be cooked for calibration → ~**4 days**
- For 2) FTOF calibration of ~10 runs → ~**7 days**
- For 3) RF calibration requires a pass0 cooking: ~2 days + ~1 day for the calibration itself → **3 days**
- For 3) pass-0 cooking & timelines: ~**3 days** (MILESTONE 2)
- For 4) Recooking of the ~10 runs → ~**3 days**
- For the calibrations 4) of ~10 runs → ~**7 days** (done in parallel)
- For 5) **3 days** (MILESTONE 3)
- For 6) ~**10 days** including cookings, recalibrations, and further monitoring passes (MILESTONE 4)
- **+ 1 week to account for delays in cooking due to resource limitations.**
- → **TOTAL: ~55 days**

Timeline:
- **Original calibration window:**
  - Apr. 15 – Jul. 15, 2024
- **Updated calibration window:**
  - Jul. 1 – Nov. 30, 2024
  - Start delayed 2.5 months to finish RG-C F22 work
  - 1 month delay due to computing resources
  - 1 month delay due to beam offset/CVT position studies
- **Pass-1 review:** TBD
- **Cooking:** TBD

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RG-C Spr23 – Status

Where do things stand?

- CALCOM "ready for calibration" review complete
- DC alignment/CVT alignment complete
- Beam offset calibration complete
- Raster calibration complete
- Forward Detector calibrations complete
  - Battled with correlations between raster calibration, beam offset, tracker alignment
- CND, CTOF, FT-Cal, RICH calibrations in progress

Remaining work:

- Hardware status tables mostly filled
- AI network training for DC ready to begin
- Physics validation and ancillary information checks
- Pass-1 cooking review by Jan. 2025
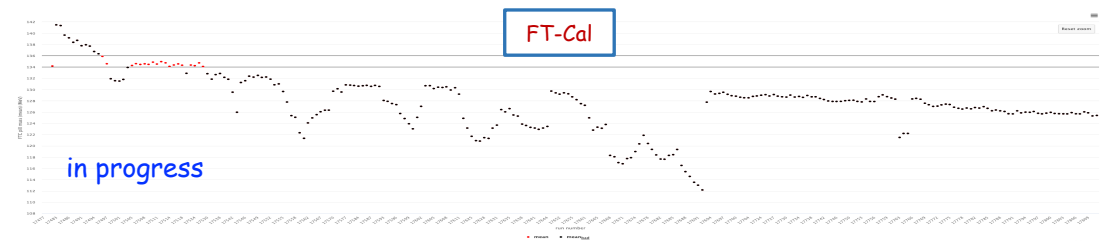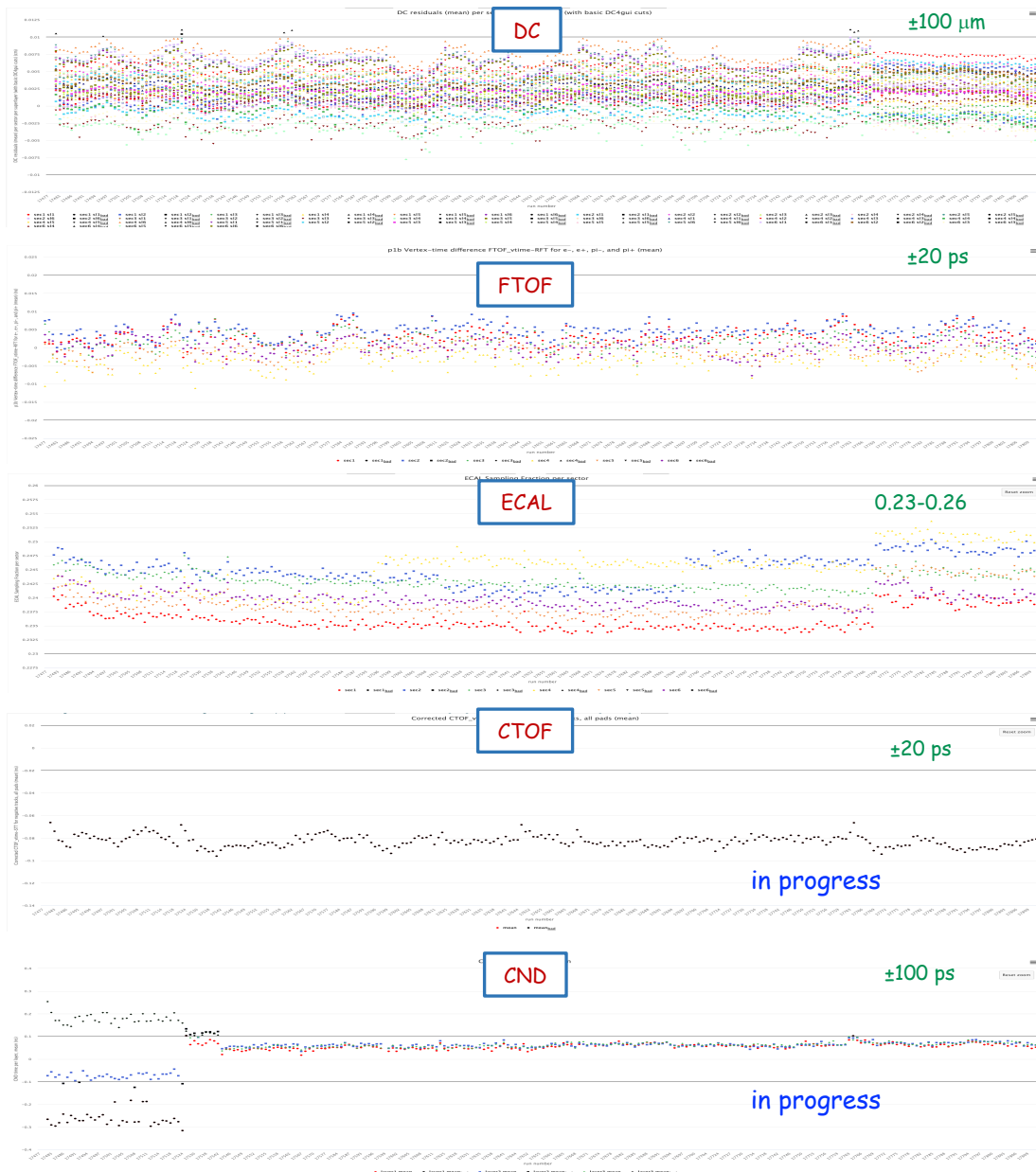
RG-A Spr18 - Status

	Run range	Beam	Torus	Solenoid
1	3000-3069	6.4 GeV	-100%	-100%
2	3070-3087	6.4 GeV	-75%	-100%
3	3097-3105	6.4 GeV	75%	-100%
4	3131-3293	10.6 GeV	100%	-100%
5	3304-3551	10.6 GeV	-100%	-100%
6	3698-3817	10.6 GeV	-100%	-100%
7	3819-3834	6.4 GeV	75%	-100%
8	3839-3853	6.4 GeV	100%	-100%
9	3855-3857	6.4 GeV	100%	-50%
10	3862-3987	10.6 GeV	100%	-100%
11	4001-4325	10.6 GeV	-100%	-100%

Note: DC HV was reduced for this run compared to F18 settings; "massive" version of FMT installed

Timeline:
- Original calibration window:
  - Jan. 8 – Jun. 21, 2024 (included alignment tasks)
- Updated calibration window:
  - Jun. 1 – Aug. 31, 2024 (after completion of alignment)
  - Start delayed 3 months to finish/investigate alignment
  - 1 month delay due to beam offset calibrations
  - 1 month delay due to need for additional calibration iterations
  - 1 month delay due to DC calibration studies
- Pass-1 review: TBD
- Cooking: TBD

1. Day 0 (January 8th): Initial CCDB tables set by Florian for engineering runs
2. Day 1-21: DC and central alignment (central nominally completed)
3. Day 22-32: Beam-offset (forward and central; cooking needed)
4. Day 1-32: Pass 0-v0i, Mini-timelines for initial DC calibrations
5. Day 32-35: Pass 0-v1 cooking with beam-offset and initial DC calibrations
6. Day 36: Pass 0-v1 timelines   *Milestone 1*

1. Day 37-45: Cook ~12 runs for FTOF calibration
2. Day 46-59: FTOF calibration, extra DC calibrations ongoing
3. Day 60-63: Pass 0-v2 with FTOF calibration
4. Day 64: Pass 0-v2 timelines
5. Day 65-69: Cook ~6 runs for FTOF contingency calibration
6. Day 70-74: FTOF contingency calibration
7. Day 75-79: Pass 0-v3 with FTOF contingency calibration
8. Day 80: Pass 0-v3 timelines   *Milestone 2*

1. Day 81-83: RF calibration using pass-0 v3
2. Day 84-87: Pass 0-v4 with RF calibration
3. Day 88: Pass 0-v4 timelines   *Milestone 3*

1. Day 89-100: Cooking of ~20 full runs for subsystem calibration
2. Day 101-115: Subsystem calibrations and AI training/denoising validation
3. Day 116-119: Pass 0-v5 with initial subsystem calibrations
4. Day 120: Pass 0-v5 timelines
5. Day 121-126: Cooking of ~10 full runs for subsystem contingency calibration
6. Day 127-133: Subsystem contingency calibrations
7. Day 133-136: Pass 0-v6 with subsystem contingency calibrations
8. Day 137: Pass 0-v6 timelines
9. Day 138-143: Cooking of ~12 full runs for physics analysis validation
10. Day 143-172: Misc contigency   *Milestone 4*

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RG-A Spr18 – Status

DC

ECAL: 0.25 mm

FTOF ±20 ps

ECAL 0.23-0.26

CTOF ±20 ps

CND ±100 ps in progress

FT-Cal in progress

Where do things stand?

- CALCOM "ready for calibration" review complete
- DC alignment/CVT alignment complete
- Beam offset calibration complete
- Two rounds of subsystem calibrations complete
- CND, FT-Cal, RICH calibrations in progress
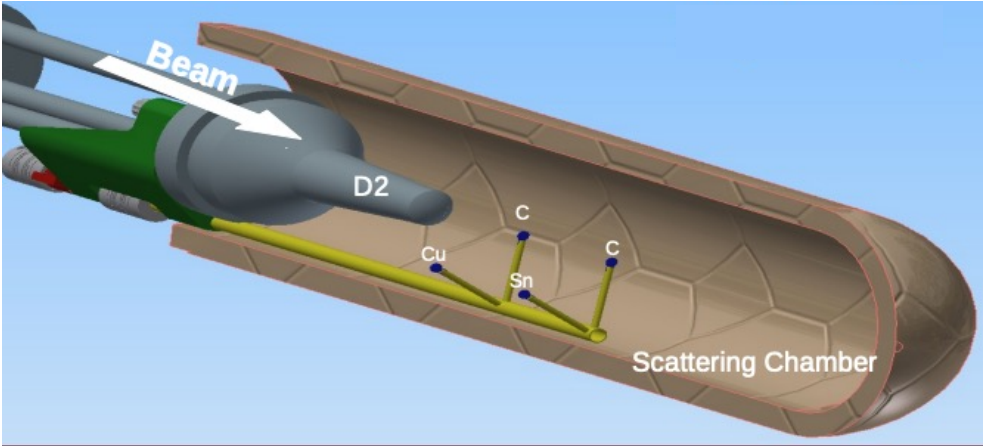- AI network training for DC in progress
- Checks of ancillary information (HWP, FCup, …)

Remaining work:

- Hardware status tables mostly filled
- Complete studies for physics validation
- Perform studies of tracking efficiency with lumi runs
- Pass-1 cooking review Dec. 2024
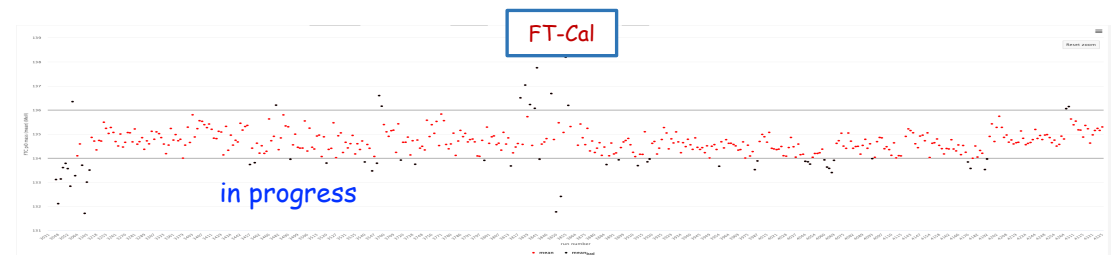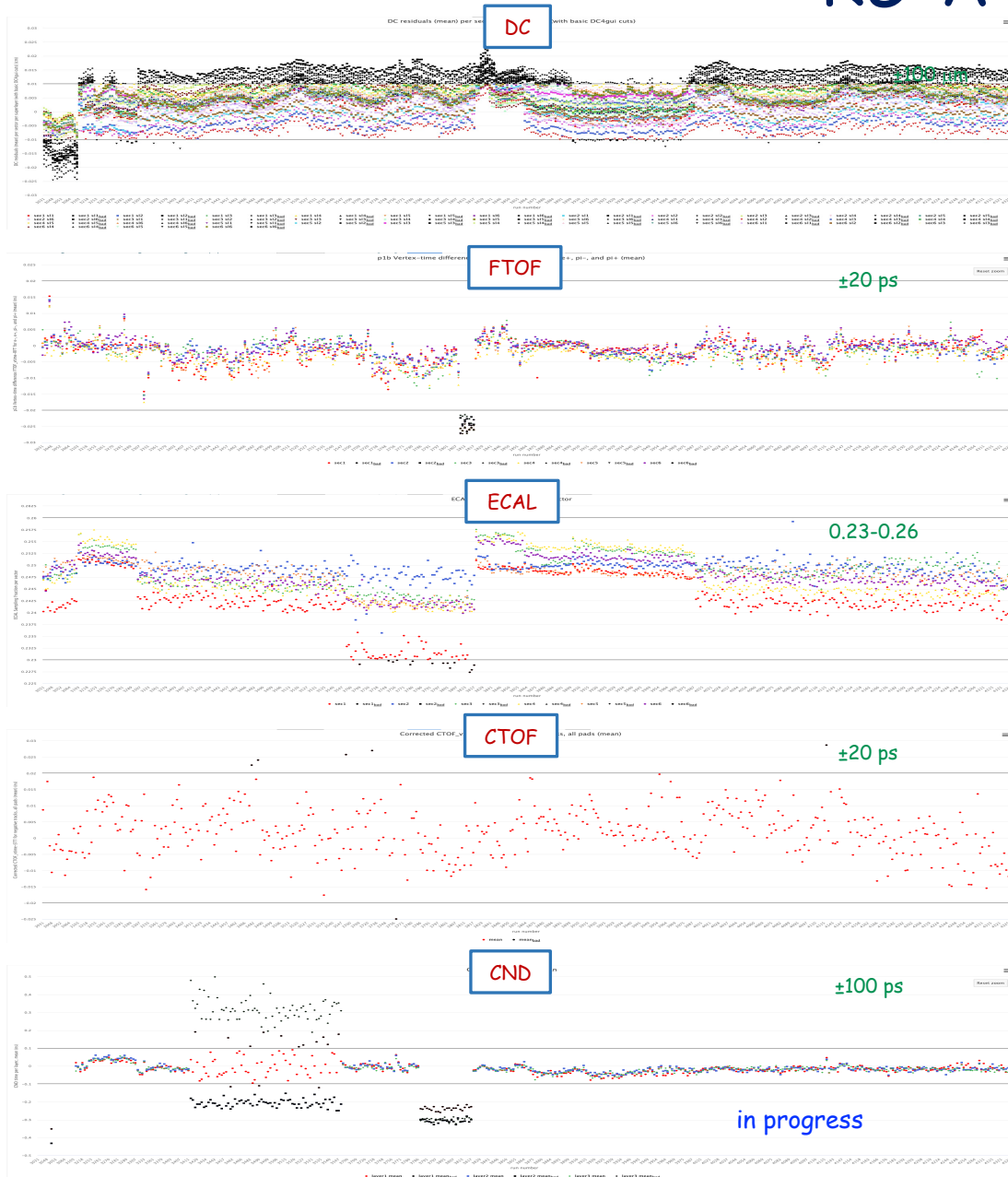
RG-D - Status

[4] RG-D F23 – Pass-1 calibration review Sep. 20, 2024

Target	Schedule
LD_2	3
$^{63}Cu/^{118}Sn$	8
LD_2	3
$^{12}C/^{12}C$	7
LD_2	2
$^{63}Cu/^{118}Sn$	9
LD_2	3
$^{12}C/^{12}C$	7
LD_2	3
$^{63}Cu/^{118}Sn$	11

Timeline:

- DC alignment:
  - Initial alignment in Oct. 2023 – completed re-work in June 2024 – 5-month delay to original schedule
- Updated calibration window:
  - Aug. 26 - Dec. 20, 2024
- Pass-1 review: TBD
- Cooking: TBD

- **Calibration timeline** (*tentative estimates*):
  - I // II: ~ 20-to-25 runs for DC & FTOF (*at least for the latter*) calibrations: **25 days**!
    - ➔ Timelines for QA checks: 1 week each ⟹ **15 days**   (**Milestone 1**)
  - III: RF RbR calibration and associated Pass0 cooking (*10 files*?): **15 days** (*week for cooking and another for calibration*) ✓
    - ➔ Timelines for QA checks: **7 days** (**Milestone 2**)
  - IV: 5 subsystems // calibration, assuming 2 (IB; OB?) runs each: **10 days**
    - ➔ Timelines for QA checks: **7 days** (**Milestone 3**)
  - V // VI: Recook, recalibrate, and monitor via (mini-)timelines as needed and retrain the RG-D AI network: **10 days**   (**Milestone 4**)
  - **Milestone 1** ⟹ **Milestone 4**: **90 days + 10 (15) days** lead time due to any cooking hiccups related to resource limitations → **100 (105) days** could be done by **12/6/24** (?) by counting from 8/20 when the beam spot calibration started!

RG-D - Status
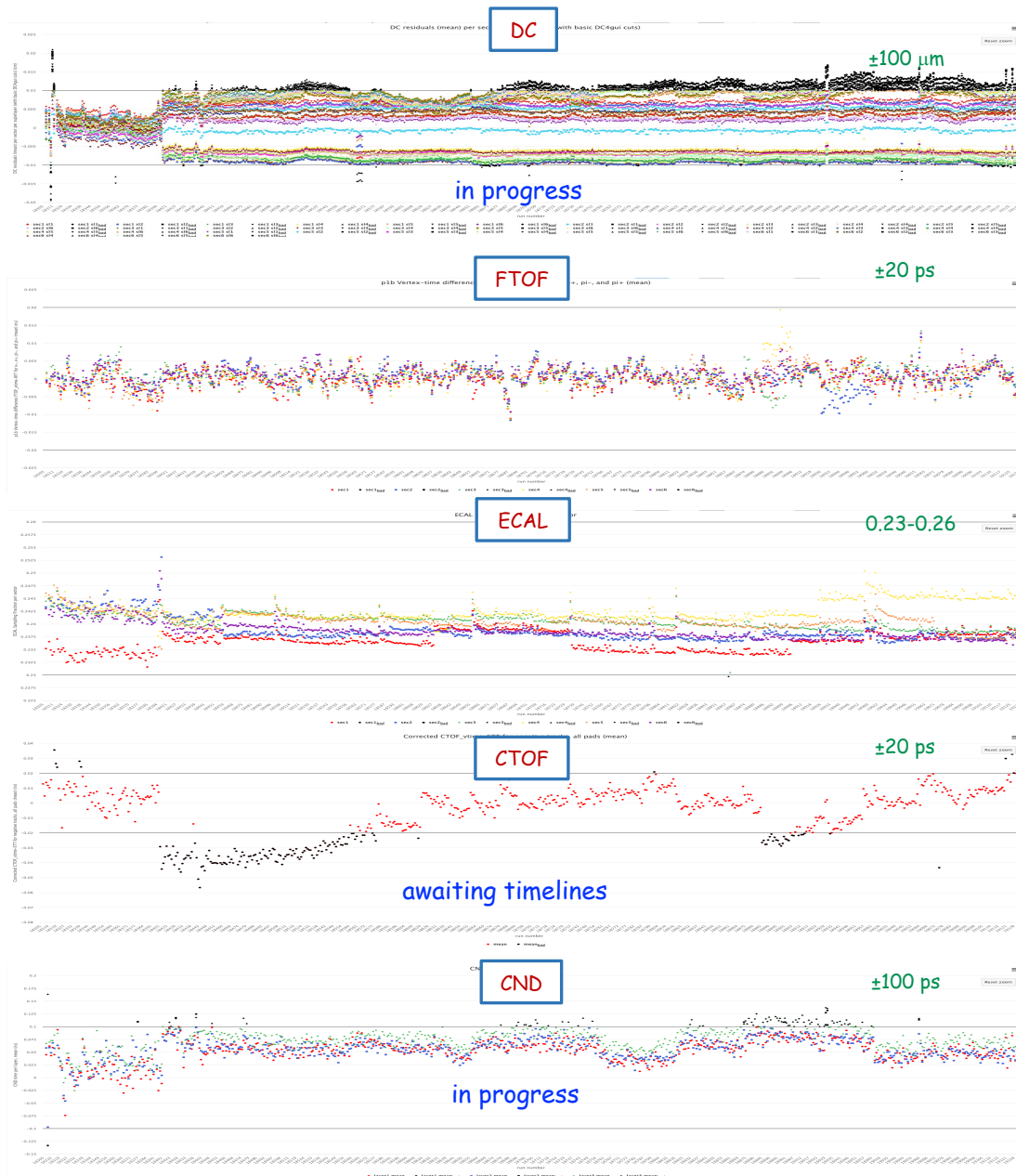
Where do things stand?

- CALCOM "ready for calibration" review complete
- DC alignment/CVT alignment complete
- Beam offset calibration complete
- Calibrations complete: CND, CTOF, ECAL, FTOF, LTCC, RICH, RF
- Calibrations remaining: BAND, HTCC
- DC calibrations in progress – first dataset with new suite and protocols

Remaining work:

- Hardware status tables mostly filled
- AI network training for DC
- Physics validation and ancillary information checks
- Pass-1 cooking review by Feb. 2025

RG-K Spr24 - Status

Where do things stand?

- CALCOM "ready for calibration" review complete
- DC alignment/CVT alignment complete
- Beam offset calibration complete
- FTOF calibration in progress

Remaining work:

- Subsystem calibrations
- Hardware status tables
- AI network training for DC
- Physics validation and ancillary information checks
- Pass-1 cooking review by Mar. 2025

Calibration includes Dec. 2023 commissioning
run – DC HV study + reversed solenoid running

Assumptions and Estimates:
- Average **Processing Speed** = 800 MEv/day   (~ **8 full runs/day**)
- **Milestones** at each **pass0 monitors & timelines**
- Calibration needs are **announced 5 days in advance** to calibrators to maximize calibration time performances
- **Calibration progress** reported at CALCOM **weekly** meetings

Maximum Calibration runs cooking → 20 runs   **→ 3 days processing time**
Pass 0 cooking time + monitoring & timelines
including monitoring checks and quality assessment with calibrators   **→ 7 days**

Re-Calibration Timeline:

1) Beam-Offset Calibrations:

	Started by Mariana – goes in parallel with other calibrations

2) FTOF calibration:

week 1	Cook 20 calibration runs for FTOF calibration	
week 2	pass 0 & timelines	
week 3	FTOF calibration iteration	
week 4	pass 0 & timelines	Milestone 1

3) RF calibration:

week 5	RF calibration using pass 0	
week 6	pass 0 & timelines with RF calibration	Milestone 2

4) CLAS12 subsystem calibration:

week 7:	Cook specific calibration runs for subsystems calibration(DC, ECAL, FT, HTCC,…)	
week 8:	Subsystem calibration (done in parallel), test of high-level QA on fully cooked runs	
week 9:	Pass 0 & timelines with subsystem calibrations, cook of ~4 full runs to check high-lev physics	
week 10:	Final check of specs, investigation of full runs	Milestone 3

5) AI and denoising studies,
   final validations :

week 11-12	AI training for tracking detectors and denoising studies
week 13:	Hardware status table, cable swaps, efficiency versus beam current studies, Final validation

Run #	R1 HV Setting	R2 HV Setting	R3 HV Setting
19220	10	11	11
19222	11	12	12
19223	9	10	10
19224	10	10	10
19225	10	10	11
19226	10	10	11
19228	10	12	11
19229	10	11	10
19238	10	11	12
19239	12	13	13
19243	11	11	11
19244	10	12	10

RG-E - Status

[6] RG-E Spr24 – Alignment

Very Preliminary

- C
- Cu
- Sn
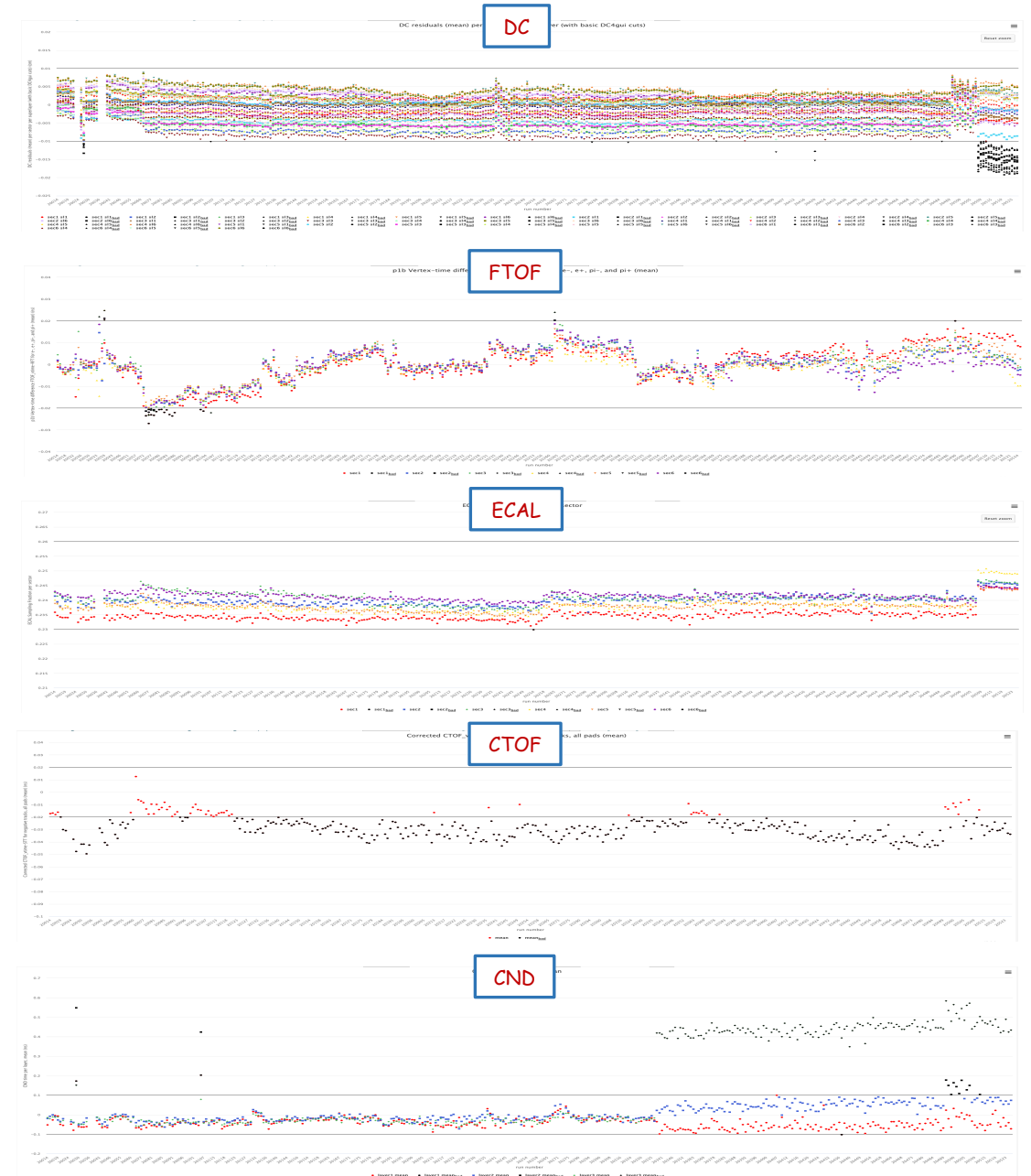- Pb

Matias Barria, Antonio Radic
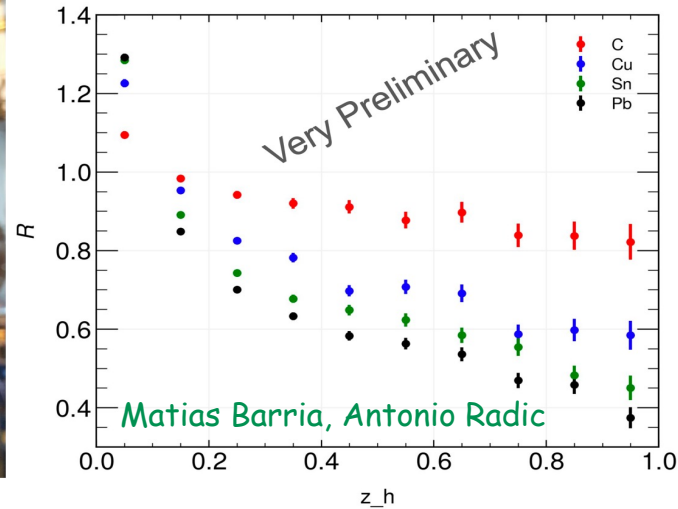
Target configurations: LD2+(C, Cu, Al, Sn, Pb)

Where do things stand?

- CALCOM "ready for calibration" review upcoming
- Validation of DC alignment now underway
- Subsystem calibrations to begin by end of year
- Pass-1 cooking review by Apr. 2025

DC

FTOF

ECAL

CTOF

CND

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RG-L - Status

- RG-L (ALERT) – Jan. 27 – Jul. 2, 2025:
  - Initial commissioning key to verify ALERT detectors (AHDC, ATOF) are working and data is sensible for physics running
  - Setup online pass-0 monitoring to cook data/update timelines daily
  - Complete initial calibration of Forward Detector subsystems following standard protocols
  - Test AHDC and ATOF calibration suites with beam data to continue development, validation, and procedures
- Analysis Coordinator (Mohammad Hattawy)
- Chefs (Mathieu Ouillon, Noémie Pilleux)
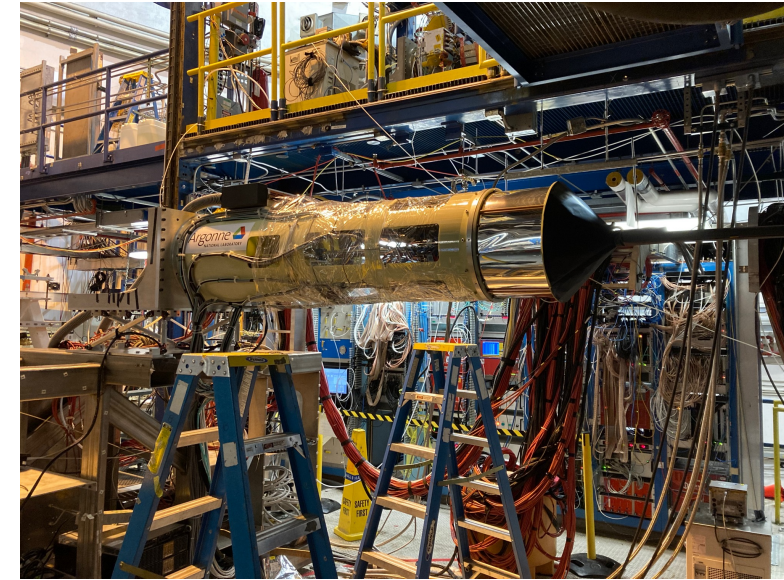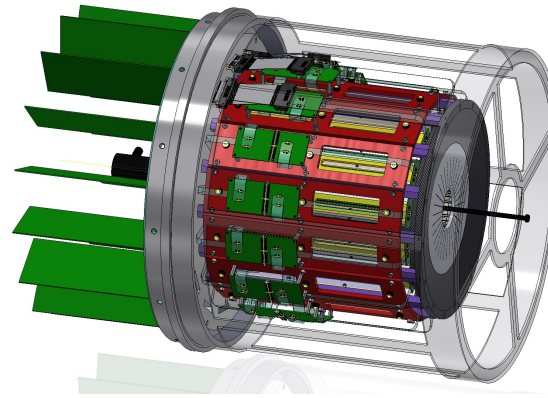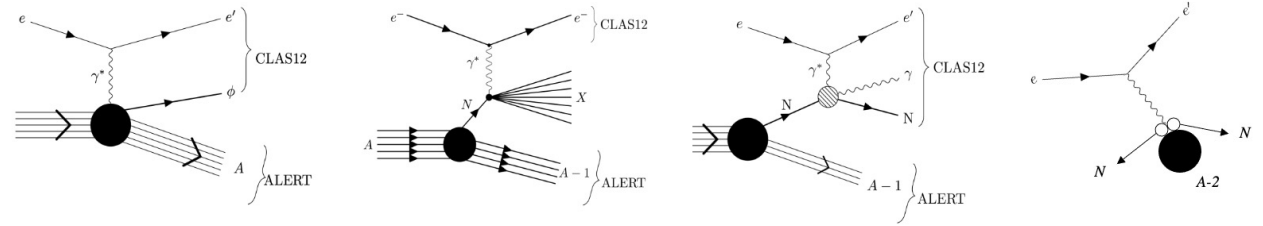
Configurations:

- 1-pass commissioning (7 days)
- 5-pass production (100 days)
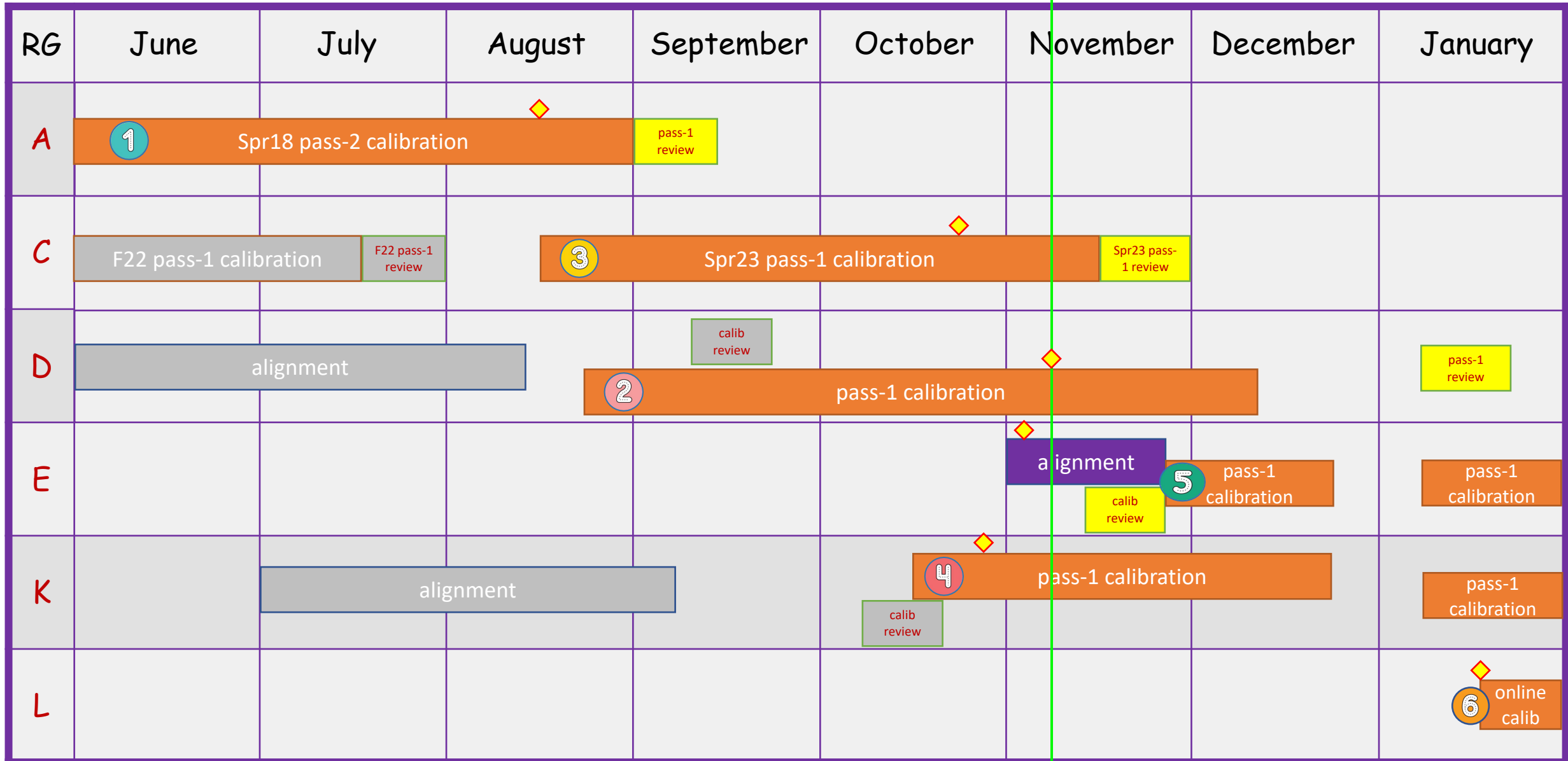- 3-pass production for extension (37 days)

Integration into CALCOM in progress

WELCOME TO THE PARTY PAL!

Goal: complete all pass-1 calibrations within 6 months of the end of the run

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Calibration Timeline: June 2024 - January 2025

November 8, 2024

RG	June	July	August	September	October	November	December	January
A	① Spr18 pass-2 calibration			pass-1 review				
C	F22 pass-1 calibration	F22 pass-1 review		③ Spr23 pass-1 calibration			Spr23 pass-1 review	
D	alignment			calib review / ② pass-1 calibration				pass-1 review
E						alignment / ⑤ pass-1 calibration / calib review		pass-1 calibration
K		alignment			calib review / ④ pass-1 calibration			pass-1 calibration
L								⑥ online calib

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Summary

- CALCOM has been overseeing the detector calibrations of the different CLAS12 datasets:
  - Current focus: RG-A, C, D
  - Ramping up: RG-E, K
  - On the near-term horizon: RG-L

- Work on DC alignment + geometry and DC calibration algorithm took significant effort and forced a *calibration pause for the first half of 2024* – we have been working this summer to try to recover
- We have been forced to stage some work in recent months due to computing resource limitations – this situation will continue to be an issue as RG-A/C/D pass-1 cooking will be ready at the same time
  - Will need to be in close contact with the Run Groups, Software Group, and CCC about priorities

- CALCOM is a critical service-work committee for the CLAS Collaboration:

  clas12_calcom@jlab.org

  - Lots of folks are part of this work:
    - ❏ CALCOM, Analysis Coordinators, chefs, timeline crew, subsystem group leaders, calibration team, alignment team, software group, data validators
- Notes:
  - Beginning work to streamline+automate calibration tools for improved speed/quality - Raffaella De Vita
  - Discussion of upcoming pass-3 (DC tracking + AI for CVT tracking) – plans not yet firm

Backup Slides

CLAS12 Calibration and Commissioning

Contents [hide]

CALCOM Committee

The role of the CALCOM (Calibration and Commissioning) Group is to be responsible for the development of the tools/algorithms to calibrate the CLAS12 detector and to help ensure that the design performance specifications are met. In addition the CALCOM group is responsible for developing the CLAS12 commissioning plan and overseeing its execution.

The committee is composed by:

- Daniel Carman ✉ (chair / hardware)
- Raffaella De Vita ✉ (software / hardware)
- Gagik Gavalian ✉ (common tools)
- Maurizio Ungaro ✉ (simulation)
- Veronique Ziegler ✉ (reconstruction)

CLAS12 Subsystem Contact Persons

System	Subsystem	Contact Person(s)	Software Contact Person
Calorimeters	ECAL	C. Smith	C. Smith
Central Tracker	SVT	Y. Gotra	V. Ziegler
	MM	Y. Gotra	F. Bossu, M. Defurne
	RTPC	M. Hattawy	M. Hattawy
Cerenkov Counters	HTCC	Y. Sharabian	I. Illari, W. Phelps
	LTCC	M. Ungaro	V. Mascagna, M. Ungaro
	RICH	M. Contalbrigo	M. Mirazita
Forward Tagger	FT-Cal	R. De Vita	R. De Vita
	FT-Hodo	N. Zachariou	R. De Vita
	FT-Trk	R. De Vita	V. Ziegler
Forward Tracker	DC	F. Hauenstein	V. Ziegler
	FMT	Y. Gotra	V. Ziegler
RF		R. De Vita	R. De Vita
Scintillation Counters	FTOF	D.S. Carman	D.S. Carman
	CTOF	D.S. Carman	D.S. Carman
	CND	S. Niccolai	S. Niccolai
	BAND	F. Hauenstein	F. Hauenstein

CLAS12 Calibration

Ready for Calibration Reviews

- RG-A: F18 🗋 , Spr19
- RG-B: Spr19, F19/W20 🗋
- RG-C: Sum22 🗋
- RG-K: W18
- RG-M: F20/W21 🗋

Information for Analysis Coordinators:

- Calibration sequence [1] 🗋
- What are the calibration standards for CLAS12? [2] 🗋
- General information on CALCOM and "online" calibrations [3] 🗋
- Calibration and Software Development Teams: [4] 🗋
- Run-Based Monitoring 🗋
- CCDB Tables and Usage Policies 🗋
- CLAS12 Hardware Status Word Definitions 🗋

Calibration Suite Documentation:

- Alignment: DC and FMT 🖉
- BAND:
- Beam Offset: suite 🖉
- Cherenkov:
  - HTCC: suite 🖉, tutorial 🗋
  - LTCC: suite 🖉
  - RICH: suite 🖉, Time calibration 🗋 Cherenkov angle calibration 🗋 Monitoring histograms and timelines 🗋
- CND: suite 🖉, tutorial 🗋, algorithms 🗋
- CTOF: suite 🖉, tutorial 🗋, algorithms 🗋 ,ccdb 🗋 , geometry 🗋
- CVT:
  - MM:
  - SVT: suite 🖉
- DC: suite 🖉, tutorial 🗋, calibration wikipage 🖉
- ECAL: suite 🖉
- FT:
  - FT-CAL: suite, tutorial 🖉
  - FT-HODO: suite, tutorial 🖉
- FTOF: suite 🖉, tutorial 🗋, algorithms 🗋, ccdb 🗋, geometry 🗋
- RF: suite, tutorial 🖉
- RTPC: geom 🖉, ccdb 🖉

Meetings and Minutes

- Zoom meeting connection: [5] 🖉
- 2011 Meetings
- 2012 Meetings
- 2013 Meetings
- 2014 Meetings
- 2015 Meetings
- 2016 Meetings
- 2017 Meetings
- 2018 Meetings
- 2019 Meetings
- 2020 Meetings
- 2021 Meetings
- 2022 Meetings
- 2023 Meetings
- 2024 Meetings

clas12_calcom@jlab.org

Fridays @ 10 a.m.

https://clasweb.jlab.org/wiki/index.php/CLAS12_Calibration_and_Commissioning

Pass-X Readiness Reviews

Readiness Review for "PASS-X" cooking of CLAS12 data

Cooking any CLAS12 data set is a computing-intensive process requiring detailed planning and preparatory work to guarantee the output data quality. For this reason, a "readiness review" is requested to authorize the start of the reconstruction data processing of any data set that makes a formal request for cooking to the CCC. The charge for this review is outlined below.

The review committee is requested to answer the charge questions based on the material presented by the Run Group and report its findings, comments, and recommendations to the CLAS Coordinating Committee.

Review Charge:

Charge #1: Is the quality of detector calibration and alignment adequate to achieve the performance specifications foreseen for CLAS12 or achievable at the current time, given the "state-of-the-art" calibration, alignment, and reconstruction algorithms?

Charge #2: Is data quality as a function of run number or time for the data set proposed for cooking stable and understood? Have runs been classified in terms of type (empty target, calibration, special, production, …) and quality (golden run, known issues, …), and is a detailed list available? Based on validation studies, have all CLAS12 subsystem performances been understood and issues identified?

Charge #3: Has a 'Hardware (HW) status table (i.e., bad channel table) been compiled for use in the data and MC reconstructions? Has the efficiency versus beam current been studied? How does it compare to MC simulations with the merged background? Are the DAQ translation tables correcting for all known cable swaps? At what stage(s) in the software?

Charge #4: Are analysis plans for the data set developed at adequate levels? Is the list of planned skims defined and tested running the analysis trains on preliminary data? Is all ancillary information (helicity, Faraday Cup, …) available and understood?

Charge #5: Are the data processing tools that will be used adequate for the proposed processing task? Is the data management plan (staging area, tape destination, directory structure, logs, …) defined and appropriate given the available resources? Is the estimate of processing time per event available and resources needed to complete the task sound?

Charge #6: Have the tools for monitoring the quality of the cooking output and identify/correct failures been defined and ready to be used?

Charge #7: Is the person-power identified and in-place for the proposed data processing?

Committee: Marco Battaglieri (chair), Nathan Baltzell, Marco Mirazita, Cole Smith, Larry Weinstein

Role: Final review of calibration quality, status tables, software and scripting before recommendation to CCC to approve production cooking (see the generic review charge).

Reviews:

- RG-B Spr19: Oct. 28, 2022
- RG-M 21/22: May 23, 2023
- RG-A Spr19: May 31, 2023
- RG-K W18: Aug. 16, 2023
- RG-A F18: Sep. 22, 2023
- RG-B F19/W20: Nov. 1, 2023
- RG-C Sum22: Jan. 26, 2024
- RG-C F22: Aug. 28, 2024

> 8 reviews completed since Oct. 2022

Notes:

- The calibration quality for all subsystems should meet the defined QA specifications for all datasets to allow for minimal systematics when combining data taking years apart.
- The calibration QA specifications are well defined and the Run Groups are held to the same standards.
- The committee prepares their report for delivery to the CCC to give approval to start data processing.