

CMS DAS in Hamburg

October 13-17, 2025

First meeting with facilitators
July 15, 2025

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Intro

- The CMS Data Analysis School (DAS) is given several times per year to introduce newcomers to CMS on how to do an analysis
- Focus on CMS tools and practical hands-on short and long exercises
- Some talks on PAGs, POGs, DPGs, perspective from PC, etc.
- At the end of the week (Friday), the participants will present the results of their long exercise

Preliminary agenda: Monday October 13

<https://indico.cern.ch/event/1522042/timetable/?view=standard>

08:00	→ 09:00	Registration	📍 Foyer (Bdg. 5)	🗒️
09:00	→ 10:30	Plenary	📍 Main Auditorium (Bdg. 5)	🗒️
09:00		Welcome note by DESY general director Speaker: Beate Heinemann (DESY and University of Freiburg (Germany))	🕒 15m	🗒️
09:15		Introduction	🕒 15m	🗒️
09:30		Practical information	🕒 15m	🗒️
09:45		Physics analysis with the CMS detector Speaker: Matteo Bonanomi (Hamburg University)	🕒 45m	🗒️
10:30	→ 11:00	Coffee break	🕒 30m	
11:00	→ 13:00	Short exercises		🗒️
13:00	→ 14:00	Lunch	🕒 1h	
14:00	→ 16:00	Short exercises		🗒️
16:00	→ 16:30	Coffee break	🕒 30m	
16:30	→ 18:30	Short exercises		🗒️
19:00	→ 21:00	Welcome reception	📍 HARBOR (Bdg. 601)	🗒️

Preliminary agenda: Tuesday October 14

<https://indico.cern.ch/event/1522042/timetable/?view=standard>

08:00	→ 09:15	Exercise preparation	
09:15	→ 10:30	Plenary	📍 Main Auditorium (Bdg. 5)
09:15		How to survive an analysis	🕒 30m
		Speaker: Aliya Nigamova (University of Hamburg (DE))	
09:45		PPD & POGs	🕒 45m
		Speaker: Anna Benecke (Universite Catholique de Louvain (UCL) (BE))	
10:30	→ 11:00	Coffee break	🕒 30m
11:00	→ 13:00	Short exercises	
13:00	→ 14:00	Lunch	🕒 1h
14:00	→ 16:00	Short exercises	
16:00	→ 16:30	Coffee break	🕒 30m
16:30	→ 19:00	Long exercises	









Preliminary agenda: Wednesday October 15

<https://indico.cern.ch/event/1522042/timetable/?view=standard>

08:00 → 09:15	Exercise preparation	
09:15 → 10:45	Plenary	Main Auditorium (Bdg. 5)
09:15	Overview from spokesperson Speaker: Gautier Hamel de Monchenault (IRFU, CEA, Université Paris-Saclay (FR))	45m
10:00	Overview from PC: CMS physics programme Speaker: Andreas Meyer (DESY)	45m
10:45 → 11:15	Coffee break	30m
11:15 → 12:30	Long exercises	
12:30 → 13:30	Lunch	1h
13:30 → 15:30	Long exercises	
15:30 → 16:00	Coffee break	30m
16:00 → 18:30	Long exercises	
19:30 → 22:00	Social dinner	











Preliminary agenda: Thursday October 16

<https://indico.cern.ch/event/1522042/timetable/?view=standard>

08:00	→ 09:30	Exercise preparation	
09:30	→ 10:30	Long exercises	
10:30	→ 11:00	Coffee break	 30m
11:00	→ 12:30	Long exercises	
12:30	→ 13:30	Lunch	 1h
13:30	→ 15:30	Long exercises	
15:30	→ 16:00	Coffee break	 30m
16:00	→ 18:30	Long exercises	

Preliminary agenda: Friday October 17

<https://indico.cern.ch/event/1522042/timetable/?view=standard>

08:00	→ 09:00	Exercise preparation		
09:00	→ 11:00	Plenary	 Main Auditorium (Bdg. 5)	
11:00	→ 11:30	Coffee break		 30m
11:30	→ 13:00	Plenary	 Main Auditorium (Bdg. 5)	
13:00	→ 14:00	Lunch		 1h
14:00	→ 14:45	Plenary: Award ceremony and closing remarks	 Main Auditorium (Bdg. 5)	
15:00	→ 17:00	DESY campus tour		

In preparing your exercises

- Should include a very practical approach from the user point of view, rather than a too theoretical approach
- Hands-on
- See previous DASes for examples

Short exercises

- Combine - limit setting (Kuan-Yu Lin)
- Combine - unfolding (Matteo Defranchis)
- Machine learning (Joern Bach, Matthias Komm)
- Tracking (Brunella D'Anzi, Jan Schultz, Marco Musich)
- E/gamma (Alberto Belvedere, Ying An)
- Muons (Matteo Bonanomi)
- Jets (Andreas Hinzmann)
- Flavor tagging (Philipp Gadow, Uttiya Sarkar)
- Taus (Alexi Raspiarezza, Andrea Cardini)
- Generators (Dominic Stafford)
- REANA (Aliya Nigamova, Pallabi Das)
- Gitlab CI (Aliya Nigamova)
- Applying central corrections (Daniel Savoiu)
- Outreach (Freya Blekman)
- Please design a 2 hour exercise
- Can be repeated up to 2-3 times on Monday and Tuesday, depending on demand and available rooms

Long exercises

- Inclusive jets (SMP) - Patrick Connor
 - $T\bar{t}$ cross section (TOP) - Evan Ranken, Dominic Stafford
 - Higgs to 4 leptons (HIG) - Daniel Savoiu, Matteo Bonanomi
 - Displaced particles (EXO) - Jeremi Niedziela
 - Anomaly detection (EXO) - ?
 - Dark matter (EXO/NPS) - Danyer Perez Adan
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- Please design an exercise that will start late on Tuesday afternoon and run through Wednesday (except some talks on Wednesday morning) and Thursday
 - Participants will present their results as a group on Friday

Computing resources

- We will use **lxplus** for everything
 - Easiest to interface with previous versions of the exercises
 - Best for future maintenance of code and samples, and better transference to students' future use
- From O&C:
 - Don't expect any major issues running analysis code, as long as the job isn't too long (limit probably around 4 hours)
 - Main concern is the HOME directory, which has a 10 GB quota
 - Checking out code and running it should be fine, but users should avoid producing large outputs there.
 - One option is /tmp, but note that it's machine-specific, you'll need to log in to the same machine each time.
 - Also, if /tmp usage exceeds 90%, the automatic cleanup mechanism will start. More details are here: <https://lxplusdoc.web.cern.ch/evolution/fair/tmp/>
 - Alternatives:
 - Running on EOS, if the user has EOS space available
 - Requesting additional AFS space (should avoid this, requesting for 50 participants for tutorial does not fit the strategy we have at the moment)
- Avoid relying on the Grid and CRAB
- **tl;dr: Could you estimate how much storage space you'll need per participant?**
- **Any other computing requirements on your side?**

Your to do list and questions to answer

- Prepare your exercise :)
- Prepare a short description of the exercise that we can add to Indico such that the students know what to expect
- Are you looking for more facilitators?
 - We want at least 2, ideally one of them being based in Hamburg)
- How much computing space do you need per participant? Any other computing requirements?
- We will recycle the pre-exercises from the last DAS at CERN. Do you have anything to add there?
- Does your exercise depend on another exercise?
 - e.g. PAG inclusive jet depends on POG jets
- Also we request that you register on indico as a facilitator
- Anything else?

Today

- Separate meetings with short and long exercise facilitators
 - To not make the meetings go too long
- For us to convey this information to you
- To a brief idea from each of you about what you plan
- To answer your questions

Next time we meet: ask that you have your exercises basically ready :)