



Sustainable Computing: Workshop Introduction

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FH Sustainable Computing Workshop

November 6, 2025

Sustainable Computing: What and Why

- Experimental high energy physics is a **computationally intensive field**
 - **Petabytes/exabytes** of data and simulation
 - Large CPU and GPU demands (trigger, offline)
- **Maximizing the physics potential** requires an **investment in the software** used to collect, process, and analyze the data and simulation
- **Sustainable computing** is the idea that we need to **maintain the computational ability** to perform HEP:
 - At the **rate** we want **(physics)**
 - For **as long** as we want **(reproducibility, preservation, scalability)**
 - While **minimizing the impact on the planet (efficiency, minimizing waste, reducing memory consumption)**



Sustainable Computing Workshop (I)

- This is a **2-day workshop** hosted by the FH Sustainability Forum and FH IT experts
- **You will learn:**
 - Some features of writing **efficient code**
 - Hints to use **batch computing** in a **sustainable** way
 - Some do's and don'ts to **maximize resources** and **minimize waste**
- Examples demonstrated with local computing clusters and **tailored to the needs of the DESY particle physics (FH) division**
- **Short talks followed by hands-on examples - bring your laptop! Let us know before we start if you can't ssh to the NAF**
- In person, but with zoom available

Sustainable Computing Workshop (II)

- This is the fifth installment of this workshop: **targeted towards beginners, including people new to the NAF/DESY**
- We offer this workshop at regular intervals, so that incoming students and postdocs can profit
- Also options for more advanced, topical workshops - let us know if you have ideas for topics!
- **Agenda:** <https://indico.desy.de/event/50950/>
- **Zoom:** <https://cern.zoom.us/j/62785538071?pwd=dXJFZndHK0g4eVNaelArSjVjaUFQZz09>
- **Mattermost:** <https://chat.desy.de/desy/channels/fh-sustainable-computing-workshop>
- **Exercises:** <https://gitlab.desy.de/fh-sustainability-forum/sustainable-coding-tutorial>
- At the end of the workshop: **brief closeout survey**, similar to what you filled in when registering - please fill out!

Today's Agenda Morning: The NAF, ROOT, and Batch Computing

THU, NOVEMBER 6

9:00 AM → 11:00 AM

Thursday early morning

BAH1

9:00 AM

Workshop introduction and overview

15m

Speaker: Juliette Alimena (DESY-CMS)

9:15 AM

Introduction to the NAF

1h

Speakers: Dr Kilian Schwarz (IT (IT Scientific Computing)), Thomas Hartmann (IT (IT Systems)), Yves Kemp (IT (IT Systems))

10:15 AM

Data Access and Storage Systems at DESY

30m

Speaker: Christian Voss (DESY)

11:00 AM → 11:30 AM

Break

30m BAH1

11:30 AM → 1:00 PM

Thursday late morning

BAH1

11:30 AM

Introduction to the NAF Jupyter HUB with ROOT

1h

Speakers: Eleanor Jones (ATLAS (ATLAS-Experiment)), Frank Gaede (FTX (FTX Fachgruppe SFT))

12:30 PM

(Optional) Basic ROOT usage

30m

Speaker: Eleanor Jones (ATLAS (ATLAS-Experiment))

1:00 PM → 2:00 PM

Lunch

1h Canteen

Will be provided!

NOT provided

Today's Agenda Afternoon: The NAF, ROOT, and Batch Computing

2:00 PM → 3:30 PM		Thursday early afternoon		BAH1	
	2:00 PM	The NAF and Batch Computing	Speaker: Christoph Beyer (IT (IT Systems))	1h 30m	
3:30 PM → 4:00 PM		Coffee break		30m	BAH1
4:00 PM → 6:00 PM		Thursday late afternoon		BAH1	
	4:00 PM	Batch computing	Speaker: Christoph Wissing (DESY)	1h	
	5:00 PM	NAF Q&A	Speakers: Christoph Beyer (IT (IT Systems)), Dr Kilian Schwarz (IT (IT Scientific Computing)), Thomas Hartmann (IT (IT Systems)), Yves Kemp (IT (IT Systems))	1h	

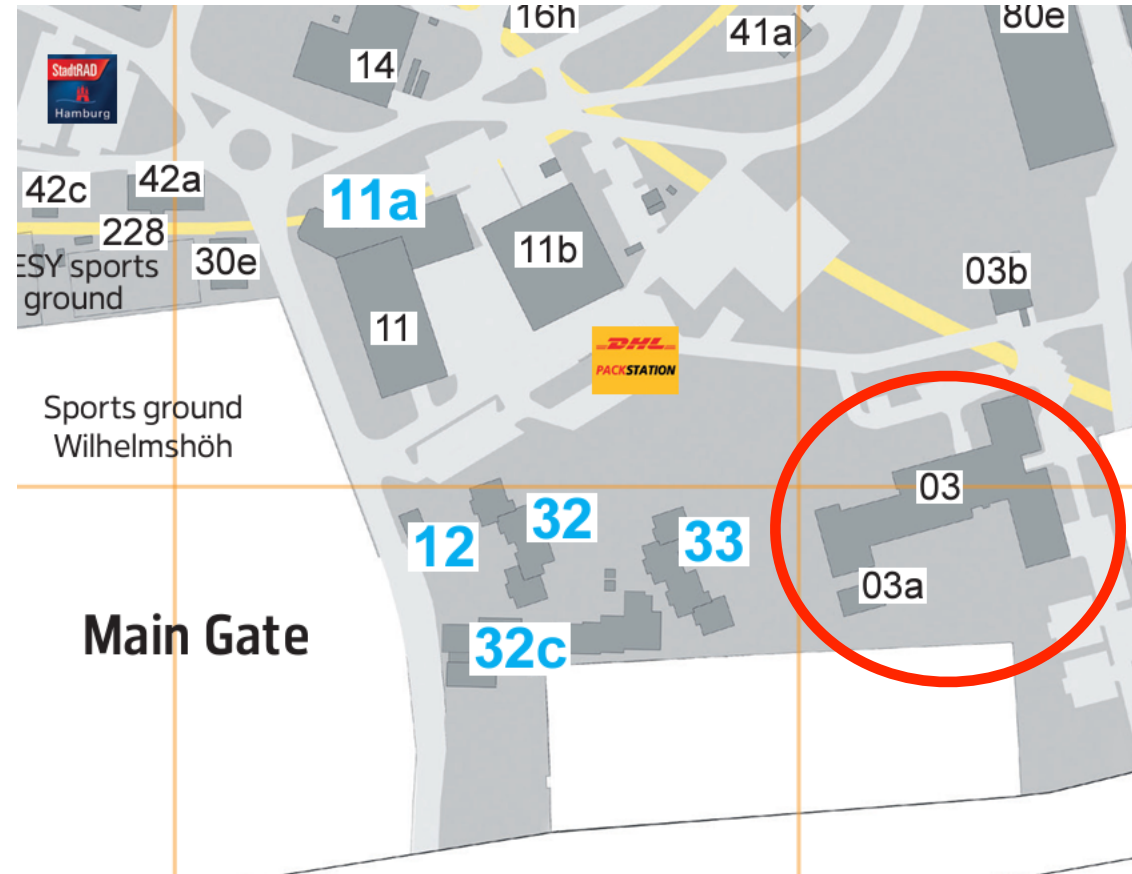
Will be provided!

Open to all. Come with your questions/ issues while using the NAF, to ask the experts directly!

Tomorrow's Agenda: Coding Practices, GIT, CI

FRI, NOVEMBER 7			
9:00 AM → 11:00 AM Friday early morning		BAH1	
9:00 AM	Introduction to GIT (talk) Speaker: Juliette Alimena (CMS-DESY)	30m	
9:30 AM	Introduction to GIT (hands on) Speaker: Juliette Alimena (CMS-DESY)	1h 30m	
11:00 AM → 11:30 AM Coffee break		30m	BAH1 → Will be provided!
11:30 AM → 1:15 PM Friday late morning		BAH1	
11:30 AM	Best coding practices Speaker: Thomas Madlener (FTX (FTX Fachgruppe SFT))	1h 30m	
1:15 PM → 2:15 PM Lunch		1h	Canteen → NOT provided
2:15 PM → 3:45 PM Friday early afternoon		SR BAH1	
2:15 PM	Continuous integration Speakers: Juliette Alimena (CMS (CMS Fachgruppe Searches)), Thomas Madlener (FTX (FTX Fachgruppe SFT))	1h 30m	
3:45 PM → 4:15 PM Coffee break		30m	SR BAH1 → Will be provided!
4:15 PM → 5:15 PM Friday late afternoon		SR BAH1	
4:15 PM	General Q&A / Overflow	45m	
5:00 PM	Closing	15m	Sig

BAH1 is in building 3, by the main entrance



Ask questions! Try things out! Discuss!

Enjoy!