



Sustainable Computing: Workshop Introduction

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FH Sustainable Computing Workshop

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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

- This is a **1-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**
- In person, but with zoom available
- We plan to offer this workshop at regular intervals in the future, so that incoming students and postdocs can profit
- Agenda: <https://indico.desy.de/event/40426/>
- Zoom: <https://desy.zoom.us/j/65619422010>
- Mattermost: <https://chat.desy.de/desy/channels/fh-sustainable-computing-workshop>

Agenda

9:00 AM	→ 9:15 AM	General: Tutorial overview	
9:15 AM	→ 9:55 AM	The NAF: Introduction to the NAF Conveners: Dr Kilian Schwarz (IT (IT Scientific Computing)), Yves Kemp (IT (IT Systems))	
9:55 AM	→ 10:40 AM	Coding practices: Basic analysis code I Convener: Thomas Madlener (FTX (FTX Fachgruppe SFT))	
10:40 AM	→ 11:00 AM	Coffee break	🕒 20m
11:00 AM	→ 11:40 AM	Documenting and testing code: Introduction to git Convener: Tadej Novak (ATLAS (ATLAS SM and Beyond))	
11:40 AM	→ 12:30 PM	Coding practices: Basic analysis code II Convener: Thomas Madlener (FTX (FTX Fachgruppe SFT))	
12:30 PM	→ 1:20 PM	Lunch	🕒 50m
1:20 PM	→ 2:35 PM	Documenting and testing code: CI Convener: Michel Hernandez Villanueva (BELLE (BELLE II Experiment))	
2:35 PM	→ 3:30 PM	The NAF: Introduction to the NAF II (batch computing) Conveners: Dr Kilian Schwarz (IT (IT Scientific Computing)), Thomas Hartmann (IT (IT Systems)), Yves Kemp (IT (IT Systems))	
3:30 PM	→ 3:50 PM	Coffee break	🕒 20m
3:50 PM	→ 4:50 PM	Coding practices: Batch computing Conveners: Ben Brueers (Z_ATUP (ATLAS-Upgrade)), Christoph Wissing (DESY)	
4:50 PM	→ 5:00 PM	General: Closing	

→ Will be provided!

→ NOT provided

→ Will be provided!

Ask questions! Try things out! Discuss!

Enjoy!