Sustainable Computing: Workshop Introduction

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FH Sustainable Computing Workshop

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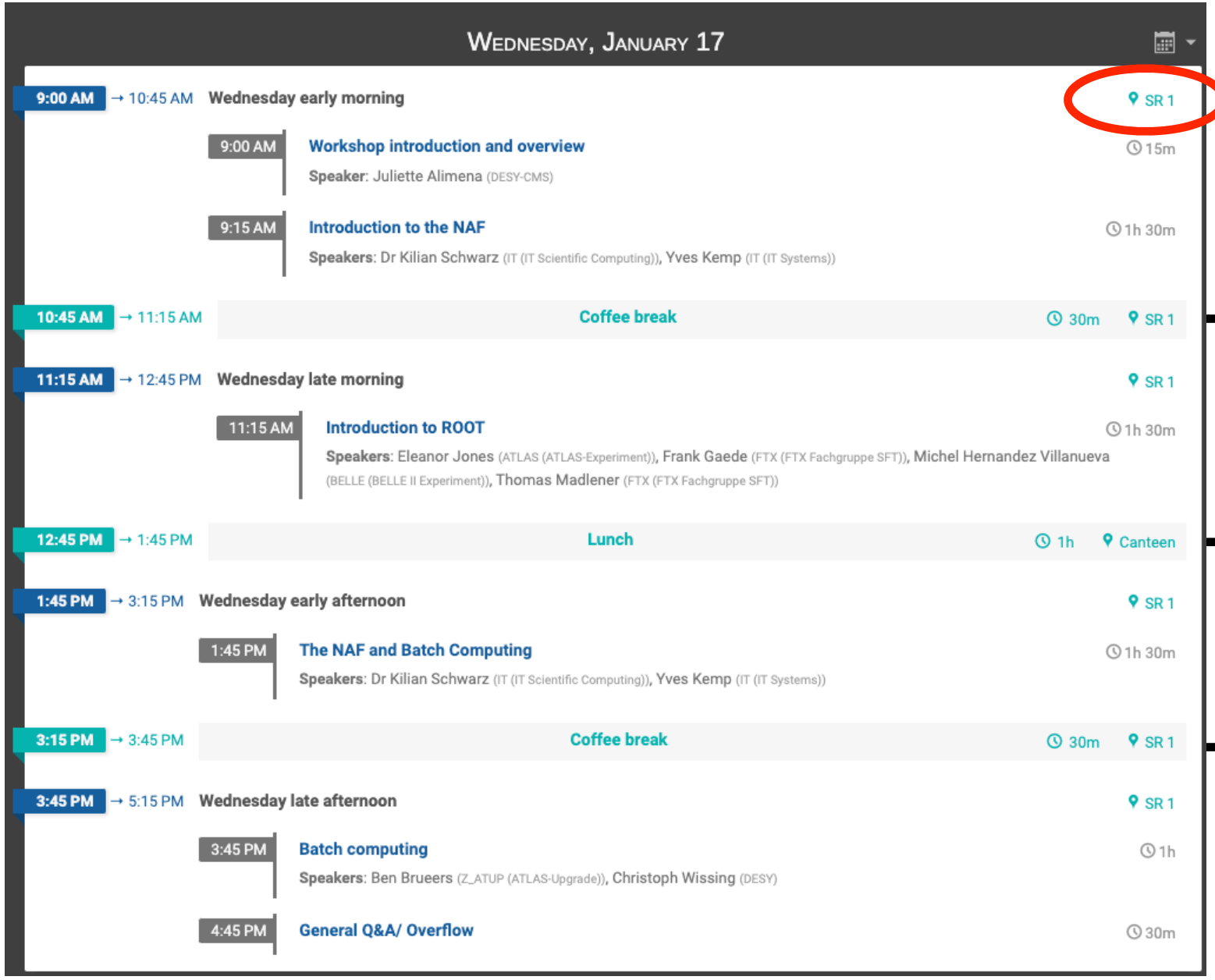
Sustainable Computing: What and Why

- 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 **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**
- In person, but with zoom available
- This is the 2nd installment of this workshop: **targeted towards beginners**
- We plan to offer this workshop at regular intervals in the future, so that incoming students and postdocs can profit. Next workshop: advanced users
- Agenda: https://indico.desy.de/event/42345/
- Zoom: https://desy.zoom.us/j/65619422010
- Mattermost: https://chat.desy.de/desy/channels/fh-sustainable-computing-workshop
- At the end of the workshop: **brief closeout survey**, similar to what you filled in when registering - please fill out!

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



WEDNESDAY, JANUARY 17

9:00 AM → 10:45 AM **Wednesday early morning** — SR 1

- 9:00 AM **Workshop introduction and overview** — 15m
  Speaker: Juliette Alimena (DESY-CMS)
- 9:15 AM **Introduction to the NAF** — 1h 30m
  Speakers: Dr Kilian Schwarz (IT (IT Scientific Computing)), Yves Kemp (IT (IT Systems))

10:45 AM → 11:15 AM **Coffee break** — 30m — SR 1

11:15 AM → 12:45 PM **Wednesday late morning** — SR 1

- 11:15 AM **Introduction to ROOT** — 1h 30m
  Speakers: Eleanor Jones (ATLAS (ATLAS-Experiment)), Frank Gaede (FTX (FTX Fachgruppe SFT)), Michel Hernandez Villanueva (BELLE (BELLE II Experiment)), Thomas Madlener (FTX (FTX Fachgruppe SFT))

12:45 PM → 1:45 PM **Lunch** — 1h — Canteen

1:45 PM → 3:15 PM **Wednesday early afternoon** — SR 1

- 1:45 PM **The NAF and Batch Computing** — 1h 30m
  Speakers: Dr Kilian Schwarz (IT (IT Scientific Computing)), Yves Kemp (IT (IT Systems))

3:15 PM → 3:45 PM **Coffee break** — 30m — SR 1

3:45 PM → 5:15 PM **Wednesday late afternoon** — SR 1

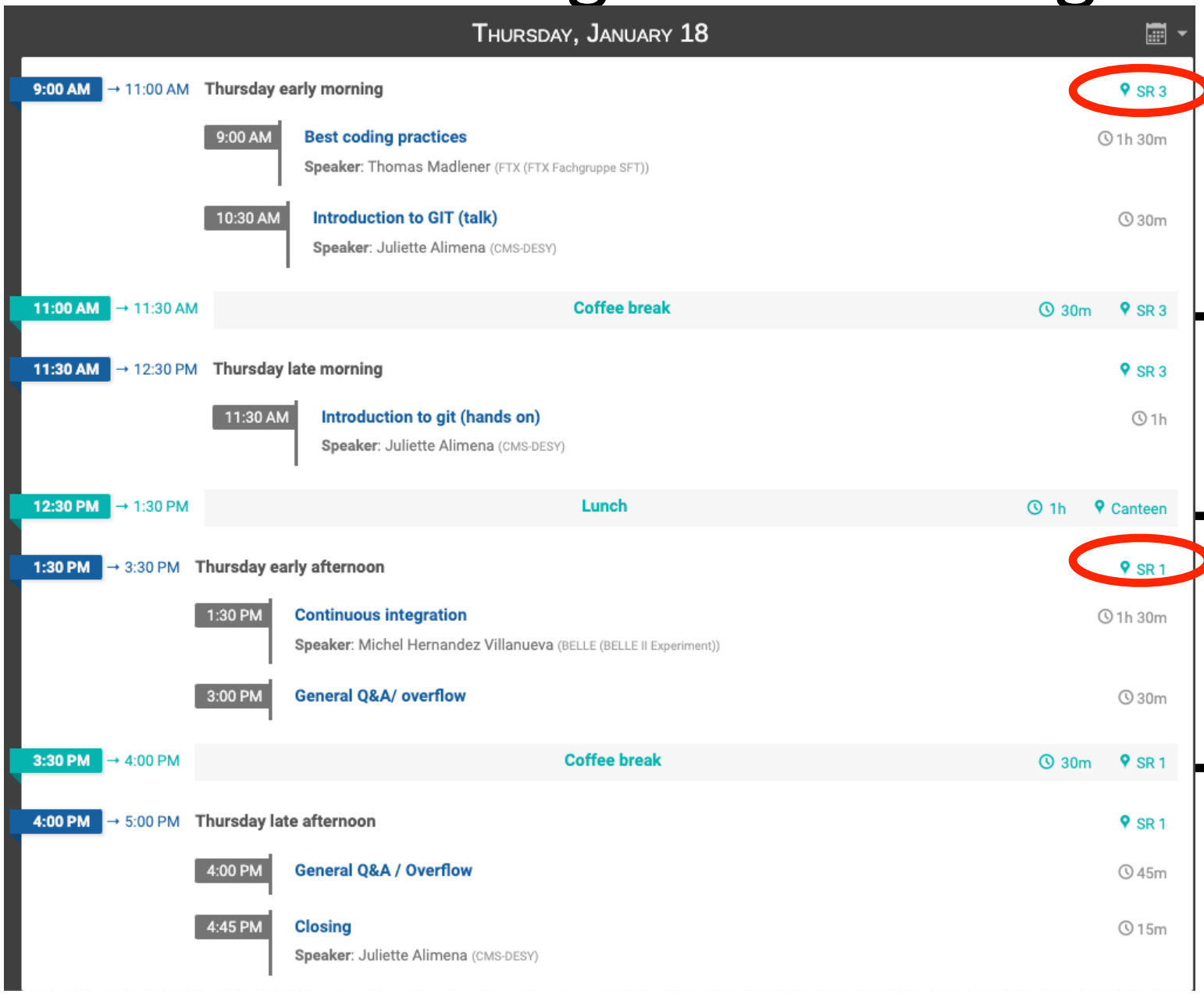
- 3:45 PM **Batch computing** — 1h
  Speakers: Ben Brueers (Z_ATUP (ATLAS-Upgrade)), Christoph Wissing (DESY)
- 4:45 PM **General Q&A/ Overflow** — 30m

→ Will be provided!

→ NOT provided

→ Will be provided!

Tomorrow's Agenda: Coding Practices, GIT, CI



THURSDAY, JANUARY 18

9:00 AM → 11:00 AM **Thursday early morning** — SR 3

- 9:00 AM **Best coding practices** — 1h 30m
  Speaker: Thomas Madlener (FTX (FTX Fachgruppe SFT))
- 10:30 AM **Introduction to GIT (talk)** — 30m
  Speaker: Juliette Alimena (CMS-DESY)

11:00 AM → 11:30 AM **Coffee break** — 30m — SR 3

11:30 AM → 12:30 PM **Thursday late morning** — SR 3

- 11:30 AM **Introduction to git (hands on)** — 1h
  Speaker: Juliette Alimena (CMS-DESY)

12:30 PM → 1:30 PM **Lunch** — 1h — Canteen

1:30 PM → 3:30 PM **Thursday early afternoon** — SR 1

- 1:30 PM **Continuous integration** — 1h 30m
  Speaker: Michel Hernandez Villanueva (BELLE (BELLE II Experiment))
- 3:00 PM **General Q&A/ overflow** — 30m

3:30 PM → 4:00 PM **Coffee break** — 30m — SR 1

4:00 PM → 5:00 PM **Thursday late afternoon** — SR 1

- 4:00 PM **General Q&A / Overflow** — 45m
- 4:45 PM **Closing** — 15m
  Speaker: Juliette Alimena (CMS-DESY)

→ Will be provided!

→ NOT provided

→ Will be provided!

Ask questions! Try things out! Discuss!

Enjoy!