6TH HEP C++ COURSE AND HANDS-ON TRAINING

6 — 10 MARCH 2023

STEFAN ROISER

SIDIS
Software Institute for
Data-Intensive Sciences

WELCOME

- Sixth edition of a C++ course and training
  - Co-organised by HSF and SIDIS
  - Course content split into “Essentials” (this course) and “Advanced” (~ fall ’23)
  - We will record the morning lectures and post them on indico and CDS
  - Lectures and training sessions on Monday, Wednesday and Friday NEW
- Organised by volunteers from within the HEP community for HEP

OVERALL ORGANISATION

- Feedback is more than welcome
  - Pre-training survey link sent to participants last week
  - We'll send you a link to a post-training survey on Friday, please fill it in
- Communication tools
  - This zoom room used for lectures and training
  - Mattermost channel, interact with organisers, ask questions (register first)

MORNING LECTURES

- Mo, We, Fr, 9.00 - 11:45 CST including a 15 minutes break
- The slides are available on the indico page
- Content is organised in smaller chapters (~ 15 minutes each)
  - Please keep questions until the end of a chapter & use “raise hand zoom feature”

Monday	Wed	Friday
Basics (syntax, pointers, references, compound types, operators, …)	**Tools** (compiler chain, debugging, …) **Object Orientation** (classes, inheritance, ...)	**Object Orientation** (allocation, advanced OO, functors, …) **Modern C++** (templates, STL, …)

AFTERNOON TRAININGS

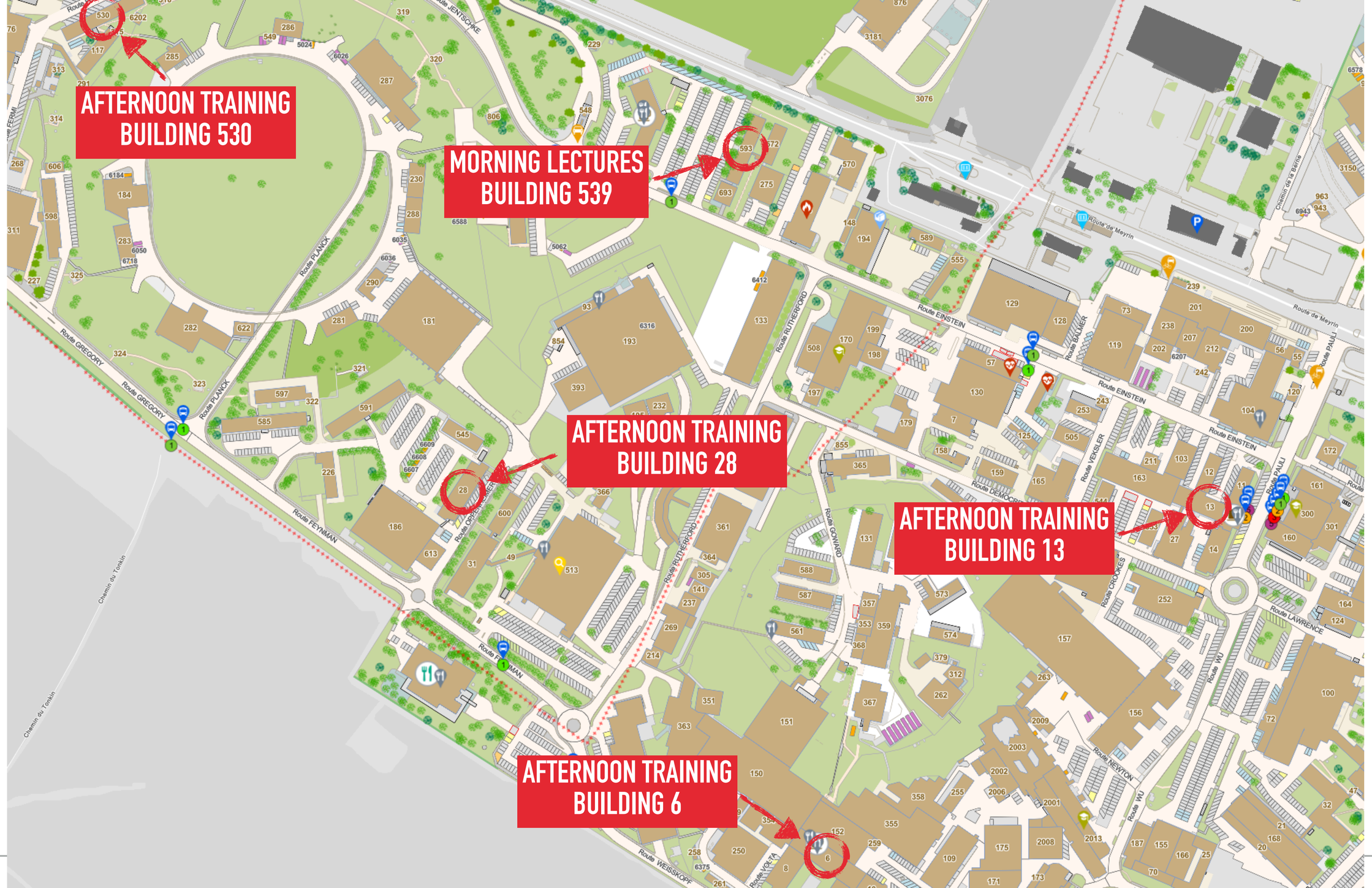
- Monday, Wednesday, Friday @ 14.00 - 16.00 CET
- A set of examples are provided at the end of the morning
- Organised in physical and zoom breakout rooms, 1 mentor / ~ 15 students
  - If you are remote, please connect again to **this zoom room** and you can join breakout rooms from here
- Style “a la university lab”, i.e. students work mostly on their own, ask mentors for help in case they have questions or get stuck

CERN ROOMS FOR AFTERNOON TRAININGS

- 4 rooms for afternoon hands-on sessions:

28/S-029 (16 places)	13/1-017 (15 places)	6/R-018 (15 places)	530/R-030 (16 places)

- If you are on premise, please subscribe to one of the rooms
  - Wir circulate a list in a moment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Route LAWRENCE
Route NEWTON
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Route WEISSKOPF
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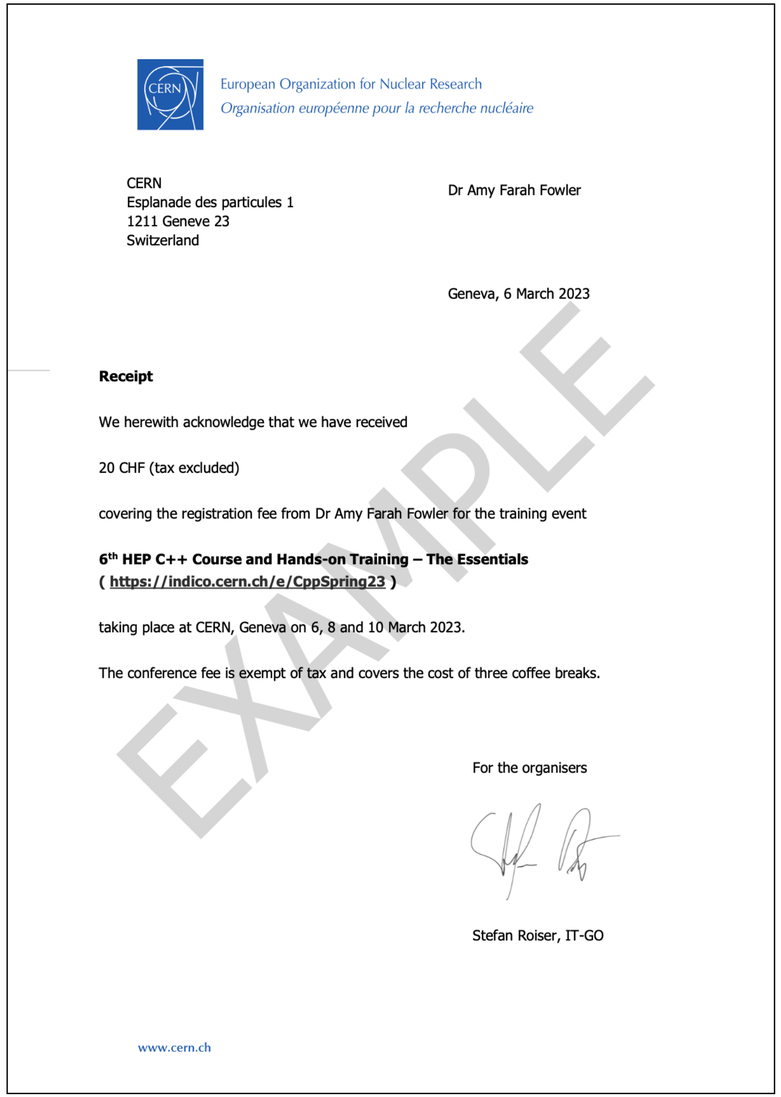
ATTENDANCE CERTIFICATE AND PAYMENT RECEIPT

- If you want to receive an attendance certificate pls provide your name at
  - https://docs.google.com/document/d/1VzDVlKwwxJPjhBlWbjJl9gkPWM1MnHqB6emBXhWWxGQ/edit?usp=sharing
- We will provide receipts for payments
  - If you need a special address / change of the form pls drop me a mail with the details



European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire

CERN
Esplanade des particules 1
1211 Geneve 23
Switzerland

Dr Amy Farah Fowler

Geneva, 6 March 2023

Receipt

We herewith acknowledge that we have received

20 CHF (tax excluded)

covering the registration fee from Dr Amy Farah Fowler for the training event

6th HEP C++ Course and Hands-on Training – The Essentials
(https://indico.cern.ch/e/CppSpring23)

taking place at CERN, Geneva on 6, 8 and 10 March 2023.

The conference fee is exempt of tax and covers the cost of three coffee breaks.

For the organisers

Stefan Roiser, IT-GO

www.cern.ch

EXAMPLE

SIDIS Software Institute for Data-Intensive Sciences

CERN

HSF HEP Software Foundation

CERTIFICATE OF PARTICIPATION

Amy Farrah Fowler

has attended the first **HEP C++ Course and Hands-on Training** from **12 - 16 October 2020**

The course was organised into 12.5 hours of lectures and 8 hours of training sessions.

The lessons were taught by Dr. Sebastien Ponce (CERN) and the training sessions supported by mentors from within the high energy physics community.

The course content ranged from basic to advanced concepts of C++ software engineering and included up to the C++ '17 ISO standard.

The event was co-organised by the training working group of the **HEP Software Foundation*** and the **Software Institute for Data Intensive Sciences****

More information about the event can be found at https://indico.cern.ch/e/cppfall20

Dr. Graeme A Stewart	**Dr. Sebastien Ponce**	**Dr. Stefan Roiser**
CERN / HSF	CERN / Course Lecturer	CERN / SIDIS

* https://hepsoftwarefoundation.org
** https://sidis.web.cern.ch

EXAMPLE

AFTERNOON BREAKOUT TRAINING ROOM ORGANISATION

- Today Monday we start with setting up your environments and some first examples. Mentors today are:

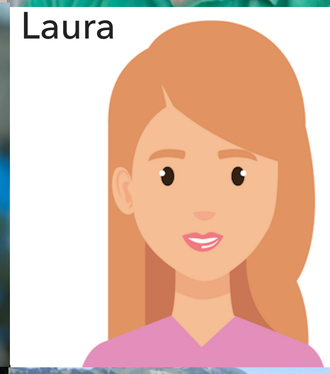
Name	OS	Room
Benedikt Hegner	Linux	13/1-017
Isabella Oceano	MacOS	zoom
Michal Dubovsky	Linux	zoom
Michal Simon	Linux	6/R-018
Attila Krasznahorkay	Linux, MacOS, Windows	530/R-030
Bernhard Gruber	Linux, Windows	zoom
Bernhard Gruber	Windows, Linux	zoom
Laura Promberger	Linux	28/S-029

Many thanks to all volunteering mentors:

SEBASTIEN PONCE
STEPHAN HAGEBÖCK
BERNHARD GRUBER
BENEDIKT HEGNER
ISABELLA OCEANO
MICHAL DUBOVSKY
MICHAL SIMON
ATTILA KRASZNAHORKAY
DAVID CHAMONT
GRAEME STEWART
ANDREA VALASSI
LAURA PROMBERGER
LIZ SEXTON-KENNEDY

MORE C++ COURSES

- Organised by the CERN training center
  - Introduction to Modern C++, next course 22 - 26 May
  - Advanced Modern C++, next course 27 - 30 March
  - Modern C++ - Expert Level, next course 2 - 5 May
  - Design and Sustainability in C++, next course 5 - 7 June
- Other HEP C++ courses organised by this team
  - “Essentials course” @ JLAB Virginia/US, 15 - 19 May
  - “Essentials course” @ University of Manchester, ~ September
  - “Advanced course” @ CERN, ~ October
  - Emails about upcoming HEP C++ courses will be sent to registrants of https://indico.cern.ch/e/HepCppInfo

The organising team of the 6th course

HSF
HEP Software Foundation