

9TH HEP C++ COURSE AND HANDS-ON TRAINING

16 — 20 OCTOBER 2023

STEFAN ROISER



SIDIS
Software Institute for
Data-Intensive Sciences

WELCOME

- ▶ Ninth edition of a C++ course and training
 - ▶ Course split into “Essentials” (next spring '24) and “Advanced” (this course)
 - ▶ Stay informed, register at <https://indico.cern.ch/e/HepCppInfo>
 - ▶ We will record the morning lectures and post them on indico and CDS
 - ▶ Lectures and training sessions on Monday, Wednesday and Friday
- ▶ 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
 - ▶ Zoom room used for broadcasting the morning lectures
 - ▶ [Mattermost channel](#), interact with organisers, ask questions ([register first](#))

MORNING LECTURES

- ▶ Mo, We, Fr, 9.00 - 12:00 CEST including a 15 minutes break
 - ▶ Monday and Wednesday lecture in the IT Auditorium (31/3-004, this room)
 - ▶ **Friday lecture in Building 40 (40/S2-C01 "Salle Curie")**
- ▶ The slides are available on the indico page
- ▶ Content is organised in smaller chapters (~ 15 minutes each)
- ▶ Please keep your questions until the end of a section

Monday	Wed	Friday
Recap (language basics & object orientation) Modern C++ 1 (constexpr, move semantics, ...)	Core Modern C++ 2 (lambda, STL, ranges, RAll, ...) Tools (formatting, sanitizers, profiling, ...)	Concurrency Expert C++ (3 way comparison, variadic templates, ...)

AFTERNOON TRAININGS

- ▶ Monday, Wednesday, Friday @ 14.00 - 16.00 CEST for local participants
- ▶ A set of examples are provided at the end of the morning
- ▶ Trainings will happen in room 513/1-24
 - ▶ We also have a second room available if needed
- ▶ 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



**YOU ARE
HERE**

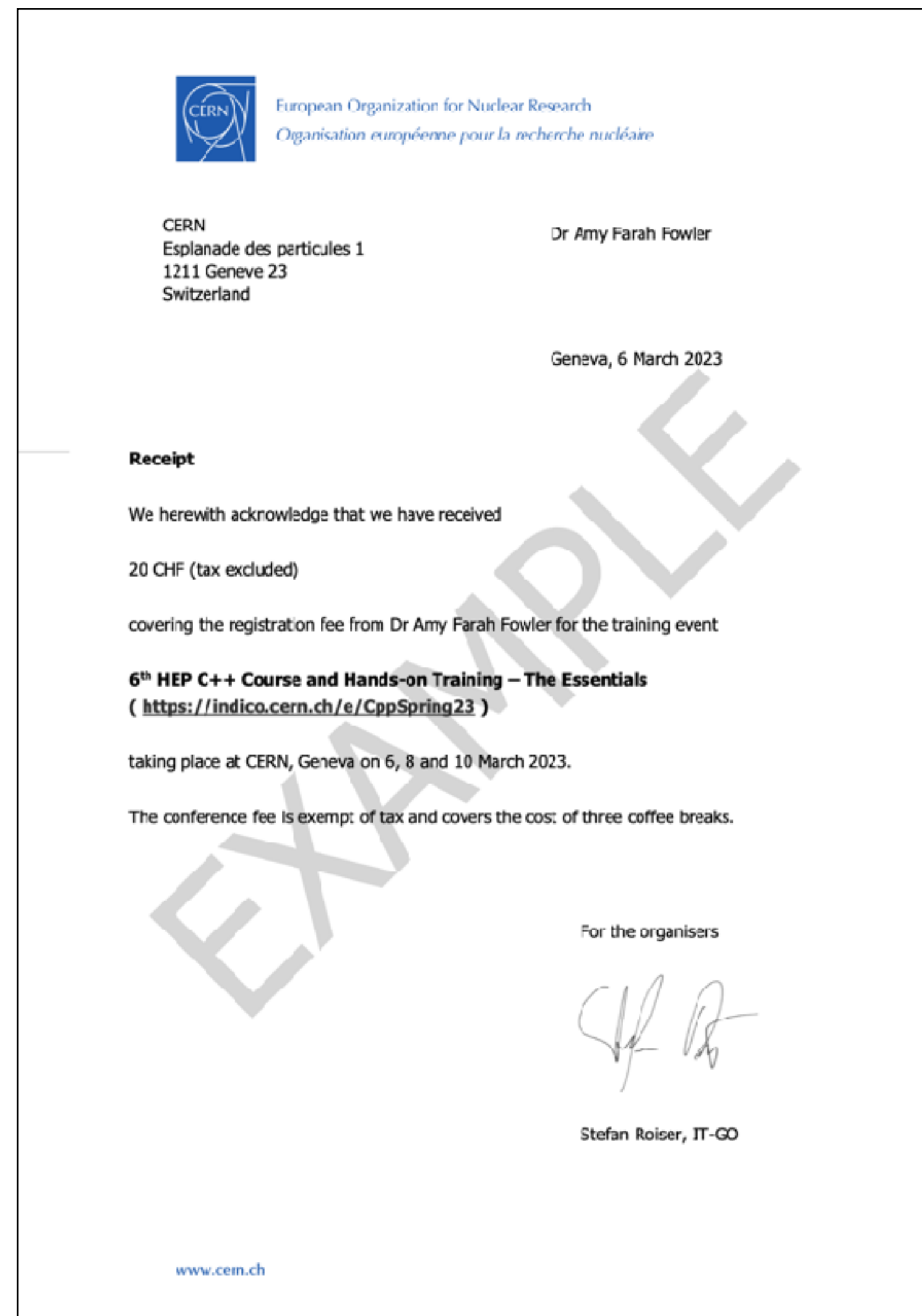
**AFTERNOON TRAINING
BUILDING 513**

**FRIDAY MORNING LECTURE
BUILDING 40**



ATTENDANCE CERTIFICATE AND PAYMENT RECEIPT

- ▶ If you want to receive an attendance certificate pls provide your name at
 - ▶ https://docs.google.com/document/d/1VzDVIKwwxJPjhBIWbjJI9gkPW_M1MnHqB6emBXhWWxGQ/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



The receipt is from CERN, European Organization for Nuclear Research. It is dated Geneva, 6 March 2023. The recipient is Dr Amy Farah Fowler. The receipt acknowledges the payment of 20 CHF (tax excluded) for the registration fee of the 6th HEP C++ Course and Hands-on Training – The Essentials, which took place at CERN, Geneva on 6, 8, and 10 March 2023. The receipt is signed by Stefan Roiser, IT-GO.

CERN
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

[Signature]

Stefan Roiser, IT-GO

www.cern.ch



The certificate is from CERN, European Organization for Nuclear Research. It is dated Geneva, 6 March 2023. The recipient is Amy Farrah Fowler. The certificate acknowledges her attendance at the first HEP C++ Course and Hands-on Training from 12 - 16 October 2020. The course was organized 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-organized 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>.

CERN
European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire

SIDIS
Software Institute for Data-Intensive Sciences

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.

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

[Signature]
Dr. Graeme A Stewart
CERN / HSF

[Signature]
Dr. Sebastien Ponce
CERN / Course Lecturer

[Signature]
Dr. Stefan Roiser
CERN / SIDIS

* <https://hepssoftwarefoundation.org>
** <https://sidis.web.cern.ch>

MORE C++ COURSES

- ▶ Organised by the [CERN training center](#) (registration fees apply)
 - ▶ [Modern C++ – Expert Level](#), 27 – 30 Nov (zoom), register before 20 Nov
 - ▶ More sessions will be added soon in the [CERN learning hub](#)
- ▶ HEP C++ courses organised by this team
 - ▶ Next “Essentials course” ~ spring 2024
 - ▶ Emails about upcoming HEP C++ courses will be sent to registrants @ <https://indico.cern.ch/e/HepCppInfo>

MANY THANKS TO ALL LECTURERS AND MENTORS OF THIS EVENT !!



Sebastien



Stephan



Laura



Attila



Gianluca