

# PHYSICS COMMUNICATION - DIGITAL SCIENCE FOR DEVELOPMENT

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European Spallation Source  
(Afterwork: APS, ASP, CERN, IUPAP)

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15 / 09 / 2025

The poster for the Fourth African Conference on Fundamental and Applied Physics (ACP2025) features a vibrant design with a map of Africa in the center, filled with various scientific and cultural motifs. The title is prominently displayed at the top in green and black text. Below the title, the dates and location are specified. The scientific program is listed in four main categories: Particles and Applications, Light Sources and Applications, Cross-Cutting Fields, and Societal Engagements. Each category includes a list of specific topics. The bottom of the poster shows a photograph of a modern building and a QR code for registration.

**THE FOURTH AFRICAN  
CONFERENCE  
ON FUNDAMENTAL AND APPLIED PHYSICS  
(ACP2025)**

Organized jointly by ASP & the University of Lomé, Togo  
September 14<sup>th</sup>–20<sup>th</sup>, 2025

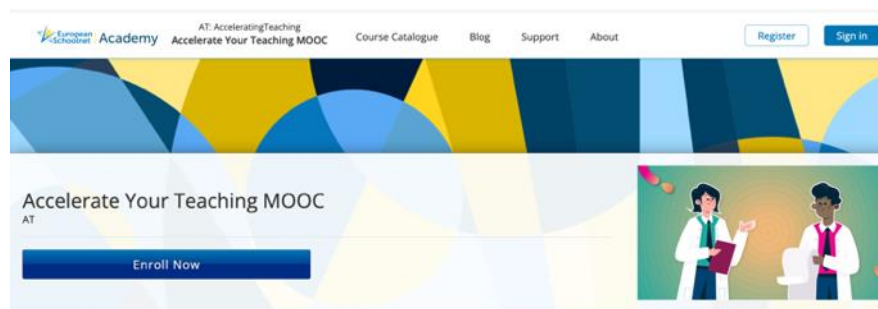
**SCIENTIFIC PROGRAM**

- PARTICLES AND APPLICATIONS**
  - ▷ Nuclear & Particle Physics
  - ▷ Medical Physics
  - ▷ Fluid & Plasma Physics
  - ▷ Heavy-Ion Physics
  - ▷ Astrophysics & Cosmology
  - ▷ Neutron Sources
- LIGHT SOURCES AND APPLICATIONS**
  - ▷ Light Sources
  - ▷ Condensed Matter & Materials Physics
  - ▷ Biophysics
  - ▷ Earth Physics
  - ▷ Renewable Energies & Energy Efficiency
  - ▷ Optics & Photonics, Nanoscience
- CROSS-CUTTING FIELDS**
  - ▷ Artificial Intelligence & Machine Learning
  - ▷ Accelerator Physics
  - ▷ Statistical Analysis
  - ▷ Complex Systems
  - ▷ Detectors & Instrumentation
- SOCIETAL ENGAGEMENTS**
  - ▷ Physics Education
  - ▷ Young Physicists Forum
  - ▷ Women in Physics
  - ▷ Community Engagement

<https://indico.cern.ch/event/1488221/>

# MASSIVE OPEN ONLINE COURSES

Teaching Teachers - [\[Accelerate your Teaching\]](#)



Welcome to the MOOC *Accelerate Your Teaching*  
MOOC: Research Facilities to Support STEM Education



Jump to  
About the course  
Learning objectives  
Prerequisites  
Modules

Course Code	AcceleratingTeaching
Classes Start	Oct 16, 2023
Classes End	Nov 22, 2023
Estimated Effort	5 hours (25h total)

## MOOC: Pedagogical tools



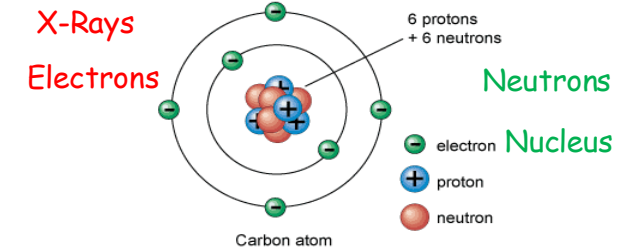
Scientist Stories



Race to Space



Learning Scenarios



Using large scale Research Infrastructure to teach:

- Forces
- Magnetism
- Structure of an atom
- Light
- ElectroMagnetism...

[Trailers](#)

[Descriptions](#)



# FROM EDUCATION TO COMMUNICATION



Produced by Making Science the Star:  
[/ @kenmoestephanemakingscienc7050](https://www.youtube.com/@kenmoestephanemakingscienc7050)


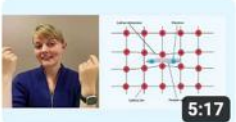




[ess.eu/explore](https://ess.eu/explore)

**Using accelerator-driven research facilities**

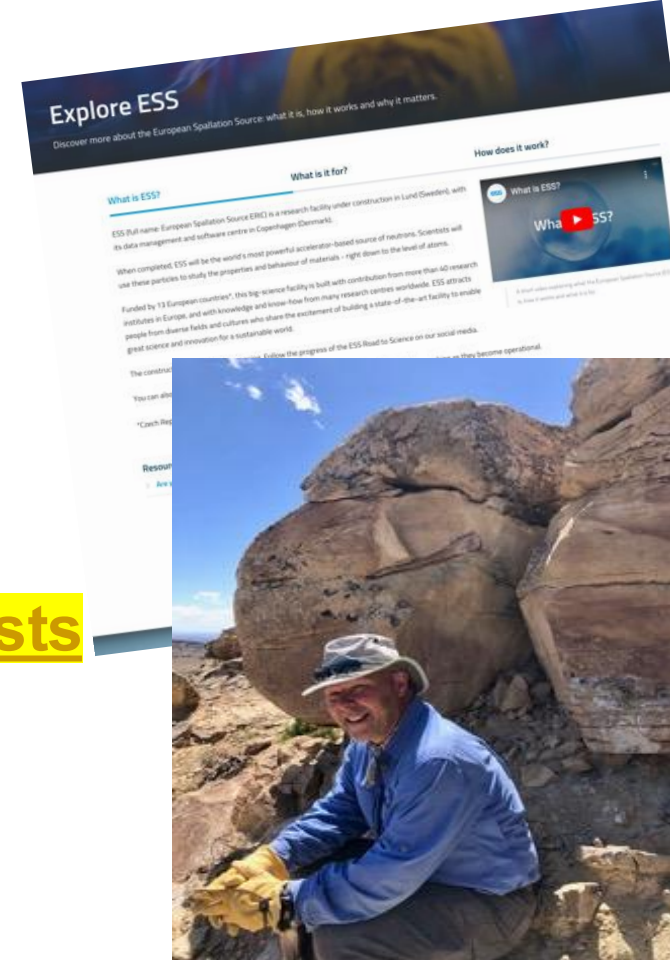
European Spallation Source  
6 videos 86 views Updated yesterday

Play all Shuffle

Scientists talk about how using large accelerator-driven research facilities benefits research.

- **Accelerate Your Teaching MOOC Module 1 Introduction to Scientist Stories**  
European Spallation Source • 16 views • 4 days ago
- **Superconductors and data**  
European Spallation Source • 576 views • 6 months ago
- **Accelerators for life sciences**  
European Spallation Source • 639 views • 6 months ago
- **Accelerators for particles and the cosmos**  
European Spallation Source • 1K views • 6 months ago
- **Accelerators to study the distant past**  
European Spallation Source • 1K views • 6 months ago
- **Who inspires you?**  
European Spallation Source • 2K views • 5 months ago

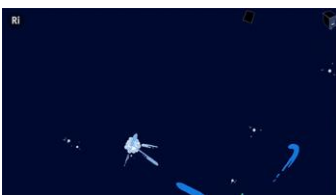
Short Videos of scientists



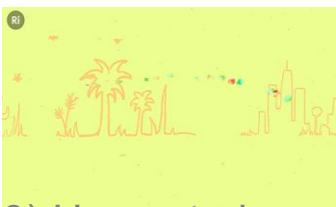
# FROM EDUCATION TO COMMUNICATION

## Teaching Teachers - [Accelerate your Teaching]

### 1) Les Particules



### 2) L'énergie



### 3) Un control



### 4) Collision



### 5) Detection



Ref: "ASP2024 Learners program - Summary Report", - [arXiv:2408.01464](#)

"The Tale of 2 organizations: APS, ASP and beyond..using MOOC as a prototype", April 2024

## Ex. "Introduction to accelerator science:"

### (Part 1 and Part 2)

Sanae SAMSAM –INFN  
Christine DARVE- ESS



By Suzie Sheehy  
(IUPAP WG14)

**APS April Meeting**

As part of  
The American Physical Society's April Meeting  
2024: Quarks to Cosmos

**APS Follow up Session**

Thu. April 18, 2024  
LPHEA, Faculty of Science Semlalia, UCA, Marrakech

**Chair:**  
Pr. Mohamed Chabab  
(FSDM, Cadi Ayyad University, Marrakech)

**Speakers:**  
Christine Darve (European Spallation Source ESRF)  
Farida Fassi (Mohammed VI University, Rabat)  
Latifa El Ouadrhiri (Jefferson Laboratory, USA)

**SCIENTIFIC PROGRAM:**

- Introduction of the Event
- A Tale of Two Organizations: APS and ASP and beyond
- Coffee and Poster
- The African Strategy of Fundamental and Applied Physics (ASFAP)
- APS Nobel's Video
- Q & A
- Vote of Thanks
- Peer Instruction: Teaching physics to teachers

More info



# FROM EDUCATION TO COMMUNICATION

## Science in School ! [Accelerate your Teaching]

Science in School  
The European journal for science teachers

Home Current Issue All Issues Inspire Understand Teach Events About Get involved Author guidelines

Science in School > All Issues > Issue 69 >

**TEACH ARTICLE**

September 2, 2024  
ISSUE 69

Ages: 11–14, 14–16

Topics: Careers in STEM, Engineering, General science, Physics, Science and society

Keywords: Applied science, Geography, Particle accelerators, Particle physics

Available languages  
English

**Accelerators are everywhere, perhaps closer than you think...**

Author(s): Jo Lewis, Christine Darve

Did you know that there are more than 30 000 particle accelerators around the world? Where are they, and what are they for?

What is a particle accelerator? The first technological demonstration to accelerate particles was carried out by Ernest O. Lawrence in Berkeley, USA, in 1929. His cyclotron, which he could hold in his hand, opened a new era, enabling many scientific discoveries. Since then, tools that take subatomic particles and speed them up are used in many applications, from early cathode-ray televisions, which preceded light-emitting diode (LED) and flatscreen televisions, to giant machines used to smash and study the particles themselves.

In these activities, which are suitable for students aged 11–16, students can use an **interactive map** to find and learn about the accelerators near them.<sup>[1]</sup>

Supporting materials

Accelerator infosheet

Accelerator applications infosheet

Teacher Notes

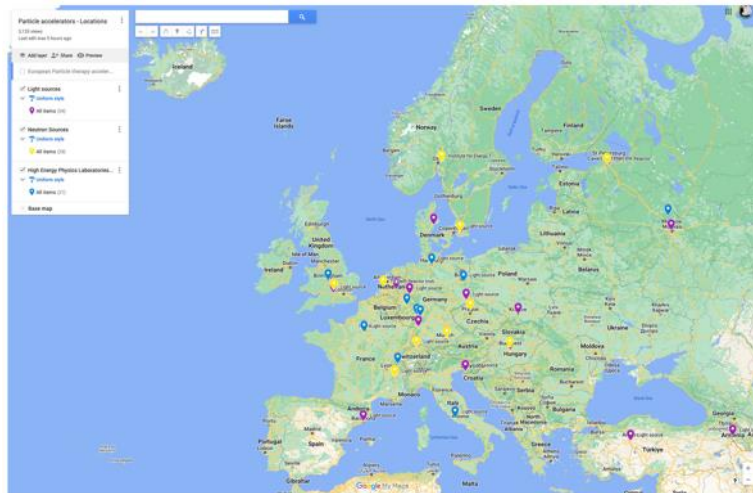
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Particle accelerators



Screenshot of the map activity

Particle accelerators – locations, made with Google My Maps. Map data © 2015Google

"Accelerators are everywhere, perhaps closer than you think...",  
Sep 2024

Science in School  
The European journal for science teachers

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Science in School > All Issues > Issue 67 >

**INSPIRE ARTICLE**

April 4, 2024  
ISSUE 67

Ages: 11–14, 14–16, 16–19

Topics: Biology, Chemistry, Earth science, Engineering, General science, Health, Physics, Resources, Science and society

Keywords: Accelerators, Multidisciplinary science, Particle physics, Teaching resources

Available languages  
English

See all articles in English

**Accelerate your teaching with links to cutting-edge science**

Author(s): Jo Lewis

Accelerate Your Teaching is a free online course for high-school teachers. Discover how particle accelerator stories can bring a range of STEM topics to life.

Introduction

Accelerate Your Teaching

Research facilities to support STEM education

Accelerating Teaching

Science in School  
The European journal for science teachers

Home Current Issue All Issues Inspire Understand Teach Events About Get involved Author guidelines

Science in School > All Issues > Issue 67 >

**TEACH ARTICLE**

April 4, 2024  
ISSUE 67

Ages: 14–16, 16–19

Topics: Engineering, Physics

Keywords: Acceleration, Collisions, Energy, Kinetic energy, Magnetism, Momentum

Available languages  
English

See all articles in English

**Build a linear accelerator model**

Author(s): Jo Lewis, Lukasz Michalak

Build a linear accelerator to demonstrate spallation – the source of high-energy neutrons used by the new European Spallation Source being built in Sweden.

Supporting materials

Activity instructions sheet

Activity worksheet

ESS scheme

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# COMMUNICATION W/ “PHYSICS MATTERS”

Colloquium series @ Forum on International Physics (FIP) at APS



Popular science series **open to everyone!** Please share

❖ ~60 popular science events since Nov.2020!

❖ Connect up to 35 countries at once!

❖ Audience: from 70 to 477 persons

❖ 20-40 min colloquium

❖ Q&A sessions w/ experts & audience



More synergies for the African Light Source!

Accelerating Sciences is a Matter of Facts !

SESAME Light Source (members and observers) and Developing Communities

➤ Matters for Users: Scientific Cases using Photon and Neutron Sources

➤ Particle Accelerator and large Research Infrastructure

➤ Outreach & Education

➤ Organizations & Collaborations

➤ Forums and Topical colloquia:

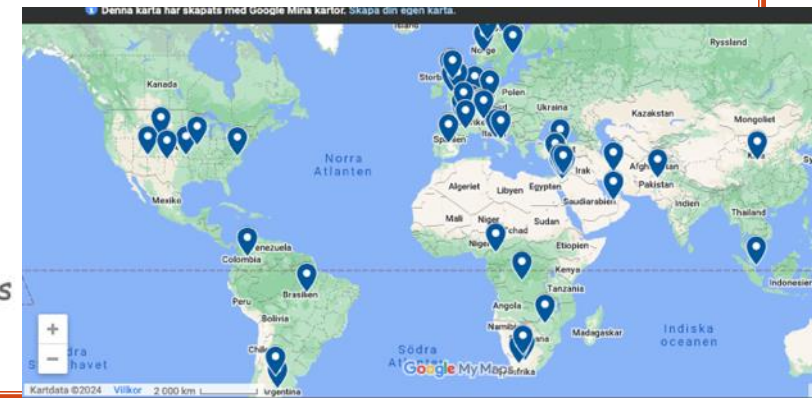
❖ Environment & Sustainable developments

❖ Health & Life Science



Watch  
trailer

YouTube webinars



# COMMUNICATION W/ “PHYSICS MATTERS”

## Examples of seminars

- Sept '22: Momentum grows for the African Light Source by S. Connell
- Oct ' 22: Physics for Development and International Cooperation by Kate Shaw
- March'24: Forum to accelerate a global digital world, by Ch. Darve, Stephane Kenmoe
- Seb. '24: Roadshow on synchrotron science and X-ray imaging techniques in Zimbabwe by Kuda Jakata



## More Afrian Highlights in 2025 !

- July 31: “Materials science and socioeconomic challenges in Africa” by Thierry d’Almeida (Benin)
- August 28: “Astronomy for a Better World: From Stars to Sustainable Solutions” by Joyful Mdhluli (South Africa)
- Sep. 25 : “Nonlinear Science and Its Impact: A View from Cameroon” by Paul Woafu (Cameroun)- [Register here](#)
- Oct. 30 : “UNESCO and Physics: Youth Innovation for Africa’s Future” by RM Wellington (Ghana) - [Register here](#)
- Nov. 20 : “Forum on the African Strategy for Fundamental Physics” by ASFAP Committee- [Register here](#)
- Dec. 11 : “The first hundred quantum years. What next?” by Ana María Cetto (Mexico) - [Register here](#)



Save these dates and stay tuned to Register soon. \*\*\*\*\* Anyone can subscribe to our Physics Matters Webinar Series for free! : [Here is a link for the subscribe/unsubscribe form](#)