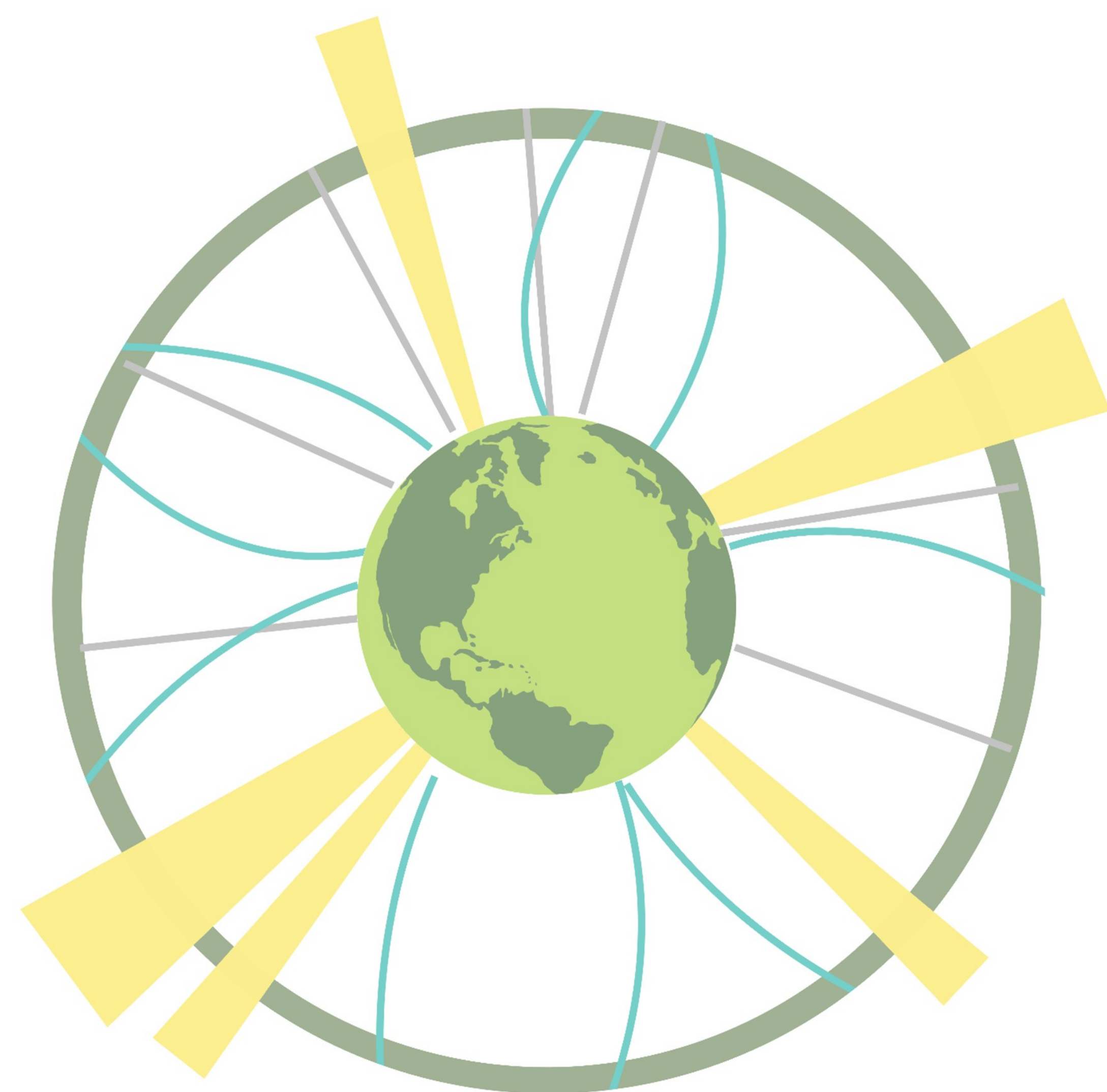


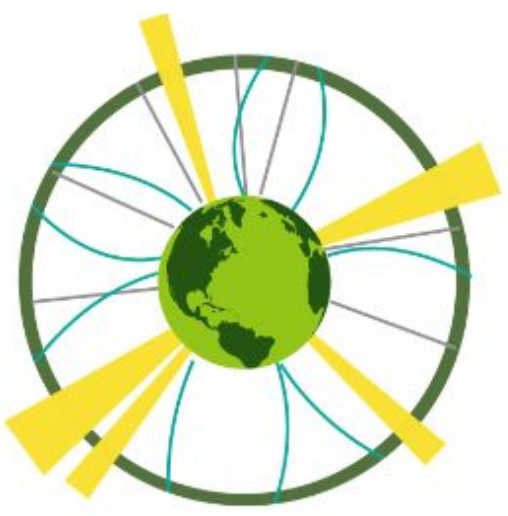
Welcome back to the
5th Edition of the
**Sustainable
High Energy Physics
Conference 2026**

8 - 10 July, 2026



Contact: [susthep26 "at" physics "dot" ox "dot" ac "dot" uk](mailto:susthep26@physics.ox.ac.uk)

Code of Conduct



Zoom Display Name

We encourage you to include your full name and preferred pronouns in your Zoom display name.

Updatable in participants list by clicking on "..." next to your name

Mic & Interaction

Please ensure that your microphones are muted when you are not speaking.

Please use the raise-hand button (🙋) or Mattermost (💬) to attract the attention of session convenors.

Respect & Professionalism

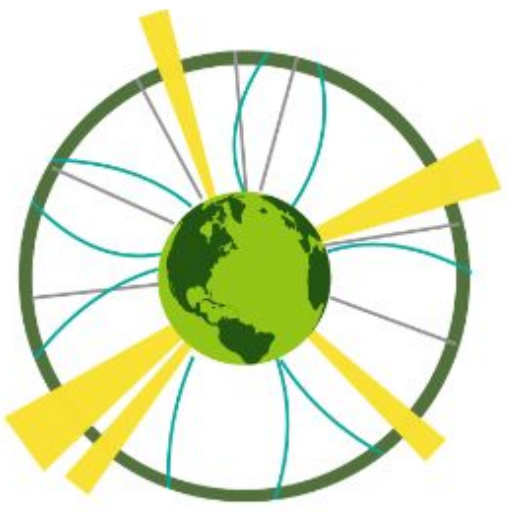
All participants are expected to treat one another with courtesy, respect, kindness and professionalism.

Inappropriate language or behaviour, including bullying or harassment, will not be tolerated across any sessions or platforms.

Global Sensitivity

All participants are expected to act with sensitivity toward the many distressing and ongoing troubles around the world.

Communication



Cameras On

We encourage you to turn your cameras on when speaking.

Having a profile picture and a meaningful display name is useful.

Strict Timing

We will have to be strict with timing your talks.

We have a wonderfully packed schedule! So that we don't have to interrupt you, please keep to time.

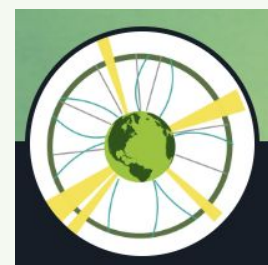
Upload Slides

Please upload your slides before your session starts.

Links & Socials

Sustainable HEP LinkedIn Group and social media:

<https://linktr.ee/susthep>



Mattermost Channel

For questions and further discussions during and after the workshop.

Find the link on the left-hand menu of the Indico page. Channel: [#Town Square](#) (Zoom chat disabled)

8-10 Jul 2026
Europe/Zurich timezone

Enter your search term

Registration is open and free!

Overview
Videoconference
Meet the invited speakers and panelists
Call for Abstracts
Timetable
Mattermost
Introduce Yourself: Slide Deck
Contribution List

Welcome to the 5th edition of the Sustainable High Energy Physics (HEP) conference!

Where: Videoconference link (Zoom) can be found by registered, logged-in users at the "Videoconference" page at the end of the list of pages to the left.

When: 8 Jul 2026 - 10 Jul 2026

Everyone is welcome to register and participate, and we particularly encourage new attendees exploring the topic of sustainability within HEP! In addition, whilst this is a HEP conference, there will be quite a few sessions/talks relevant to the wider science community.

Programme Highlights:

Post-conference

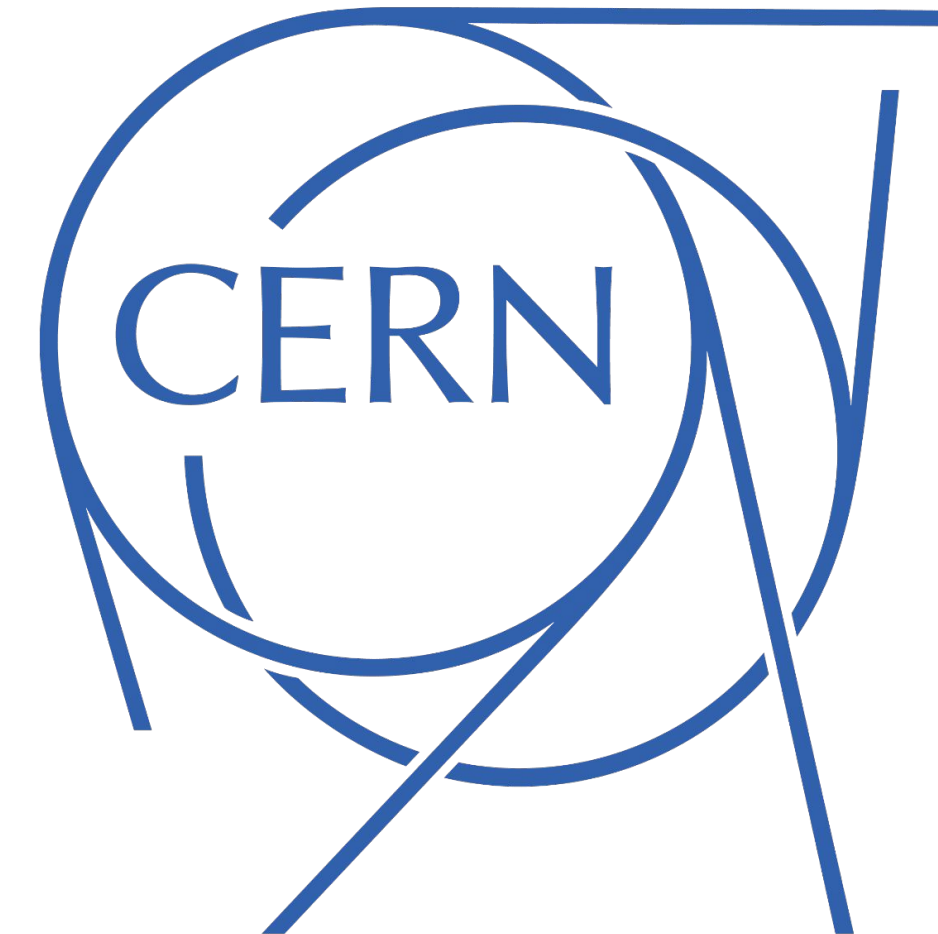
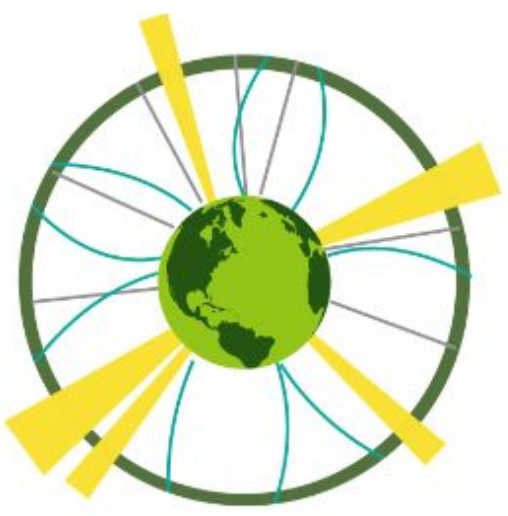
All sessions will be **recorded** and uploaded to YouTube as soon as possible.

Written **proceedings** will be available:

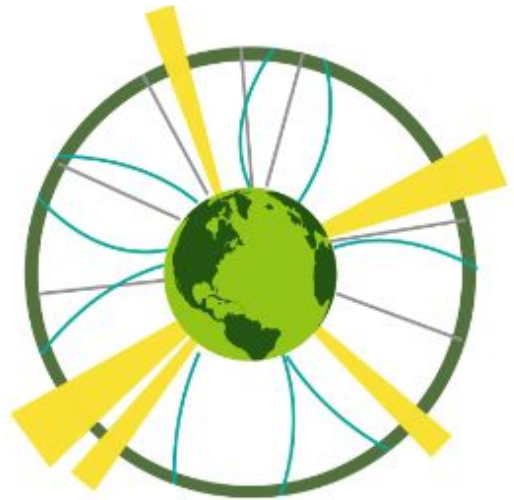
<https://scipost.org/SciPostPhysProc.202607001>

Deadline 30th September

Thank you to our in-kind sponsors!

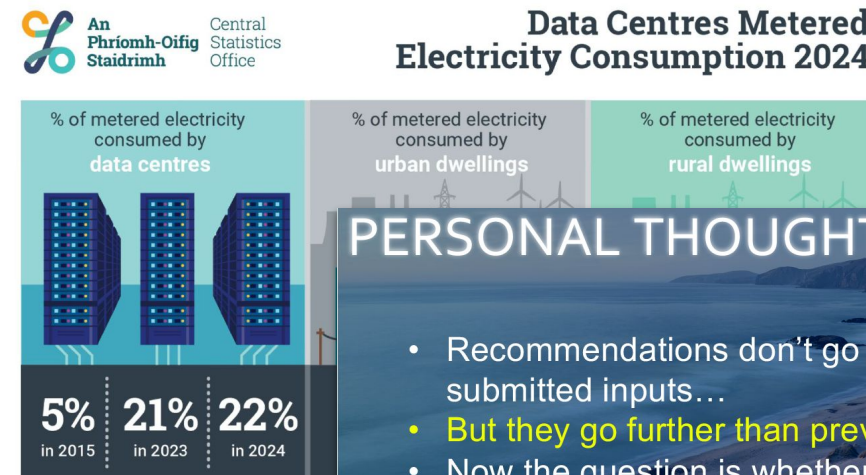


Yesterday's recap



14:00	Welcome/Opening note	14:00 - 14:10
	Keynote opening talk	Prof. Jagadish Shukla
	Science, politics, ethics of climate change	
15:00	Sustainability for Gaseous HEP Detectors	Prof. Archana Sharma et al.
	HEP doing better with gases	
16:00	Health Break	16:00 - 16:15
	News from SC4RC 2026	Rakhi Mahbubani
	Sustainability recommendations from the European Strategy: a historical perspective	Veronique Boisvert
	Nikhef's sustainability roadmap	Catharina Vaendel
17:00	The ULISSE Project: an Opportunity for CERN's waste heat large-scale recycling	Mr William van Sprollant
	Open Event Generation	Julie Hogan et al.
	Reducing simulation-related emissions in rare-event searches through optimised event biasing	Dr Lachlan Milligan
	Energy efficiency of a GPU-based computing system in HEP	Jiahui Zhuo
18:00	Reducing the compute used for calorimeter simulation	Henry D

Why SC4RC?



PERSONAL THOUGHTS...

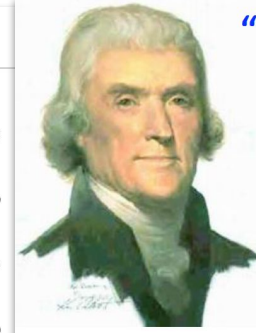
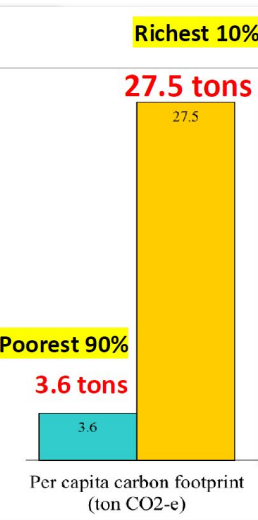
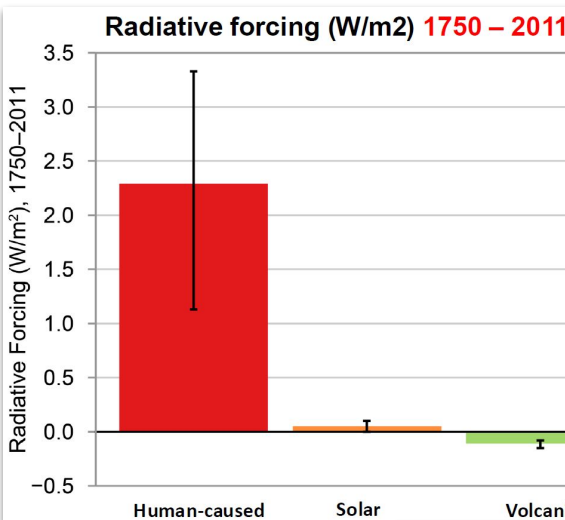
- Recommendations don't go as far and wide as submitted inputs...
- But they go further than previously!
- Now the question is whether they will be implemented
 - Not just by CERN
 - But also by all European Labs and univers
 - It is up to us to hold institutions to account
 - And to individually do our parts
- Will it be enough?

DISCUSSION/QUESTIONS

The Global Challenge



Climate Change: Science, Politics, Ethics, and Hopeful Solutions



"--- laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times."

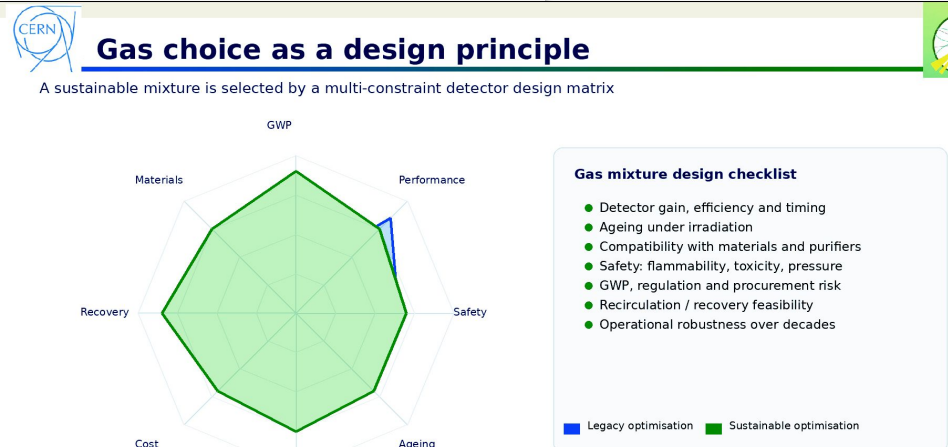
Thomas Jefferson

People Ask: "What Can I Do?"

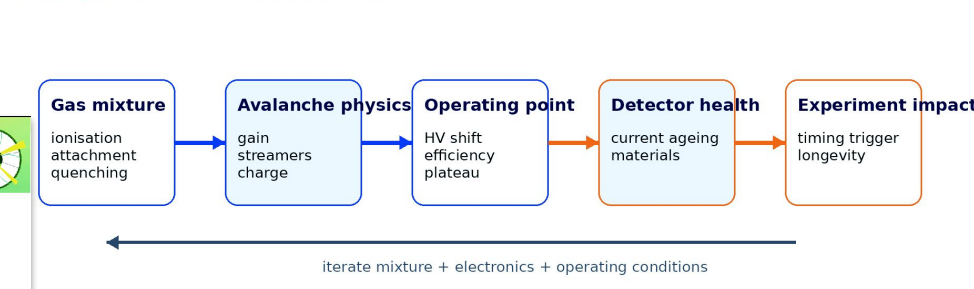
- Reduce personal carbon footprint (car, house, diet, travel); Conserve energy and water
- Vote to elect climate-literate leaders
- Join protests and rallies

Solution to climate anxiety is climate action

highest impact action: educate girls (Project Drawdown)



Why gas replacement is not a drop-in exercise



ECO-GASES ARE A DETECTOR R&D PROGRAM NOT A PROCUREMENT SUBSTITUTION

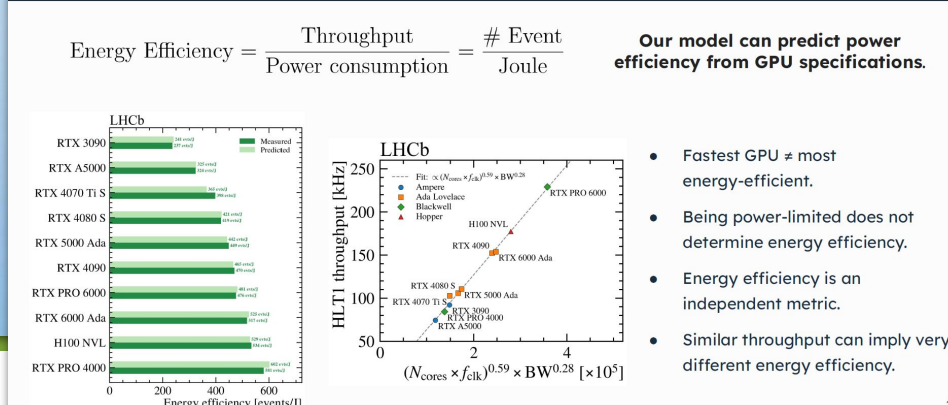
Lessons from the field

- There is no single silver bullet. Reduce, recover, replace and redesign must be pursued together.
- Eco-gas replacement is scientific R&D. Performance, ageing and safety must be validated under realistic conditions.
- Engineering details matter. Leaks, connectors, purifiers and monitoring can dominate the real footprint.
- Culture matters as much as technology. Collaborations need shared responsibility, common standards and training.

Action items

Short-term	Mid-term	Long-term
Improve what we have!	Adopt new techniques	Centralize LHC MC production
Better LHC Open Data event gen materials and tools	Engage experiments beyond CMS & ATLAS	Core team working with generator experts and experiments
Harmonize metadata and CERN Portal usage across experiments	HEPData dataset linking as community standard	Co-releases by

Energy efficiency of a GPU system



The Evolution of Detector Design Philosophy

- 1970s: Can we detect particles reliably?
- 1980s: Can we improve precision?
- 1990s: Can we build larger systems?
- 2000s: Can they survive the LHC?
- 2010s: Can they survive HL-LHC?
- Today: Can they survive without harming the planet?

Jevon's Paradox

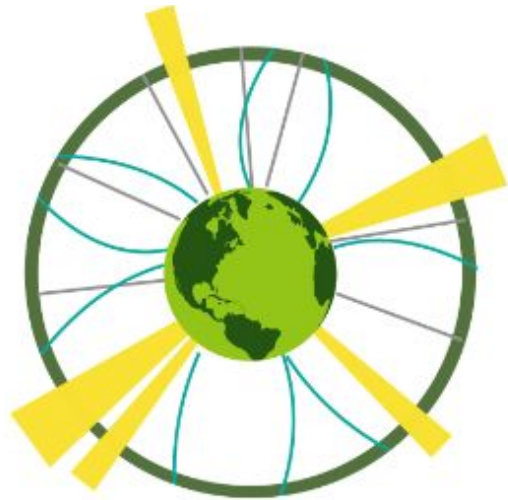
For simulation in physics. We have a bounded object about how we construct bounded objective save paradox.

- Total volume of simulation is bounded by number of real events observed (and some factor for number of groups doing analysis).
- Quality needed is bounded by the fidelity of reconstructed quantities. If we benchmark properly, we will be only as accurate as needed.



William Stanley Jevons

Today's agenda

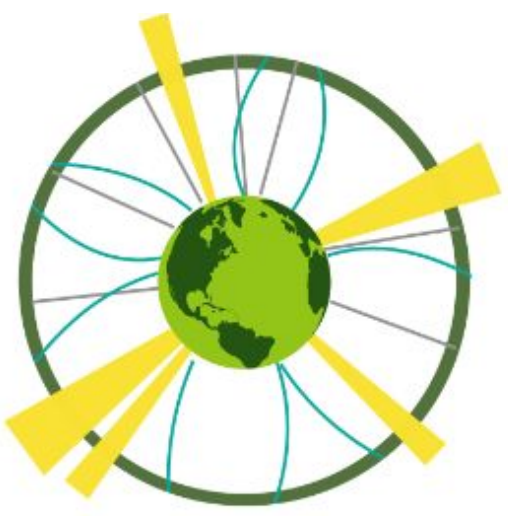


Thursday 9th July
Starting 14:00 CEST

Switch on your camera

14:00	The CERN LDG Sustainability Panel Mr Ben Shepherd 14:00 - 14:55
15:00	Towards Unified Power and Efficiency Monitoring Across the Worldwide LHC Computing Grid Natalia Diana Szczepanek 14:55 - 15:10
	Operational challenges of the Event Processing Nodes GPU farm at ALICE Experiment Federico Ronchetti 15:10 - 15:25
	Increasing sustainability in the community of Research on Universe and Matter Andreas Ralph Redelbach 15:25 - 15:40
	Towards more sustainable operation of Resistive Plate Chambers in the Compact Muon Solenoid Joao Pinheiro 15:40 - 15:55
16:00	Designing the next generation of materials for rare-event searches: high-strength, ultra-pure copper-based alloys Dimitra Spathara
	Photo + Health Break 16:10 - 16:20
17:00	Careers from Physics to Sustainability André Schneider et al.
18:00	16:20 - 18:05

Careers from Physics to Sustainability Panel Discussion



- We have some fantastic panellists lined up on Thursday at 16:20 CEST



Laura Bianchi
Sustainability Officer
United Machining



Dr. Raluca Crucera
Information Systems
Officer - UNEP



Lia Formenti
Junior Toolchain
Developer GHGSAT
(Methane emissions
mapping)



Dr. James Robinson
Engineering lead for
Environmental
Forecasting at the
Turing Institute



Dr. André Schneider
Chairman of World
Climate Foundation

- Submit your questions in advance (as well as during the panel)

- [Sli.do](https://app.sli.do/event/dmP9R634tpDzg7VREt69ce): <https://app.sli.do/event/dmP9R634tpDzg7VREt69ce>



Ben Shepherd

ASTeC, STFC

(UK)

