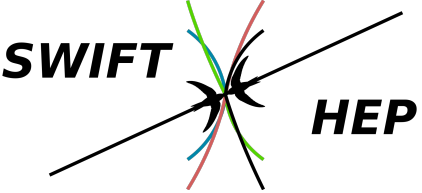


SWIFT-HEP Introduction

1 November 2022

Welcome to the SWIFT-HEP workshop

Fourth workshop since the project started

- Third time in person. After a meeting at Imperial College in November and Durham in March
- This time on our own, joint meeting with GridPP next time

Live notes, Indico agenda, …
Raise hands on zoom and in the room

Project timeline

WPs roughly on time

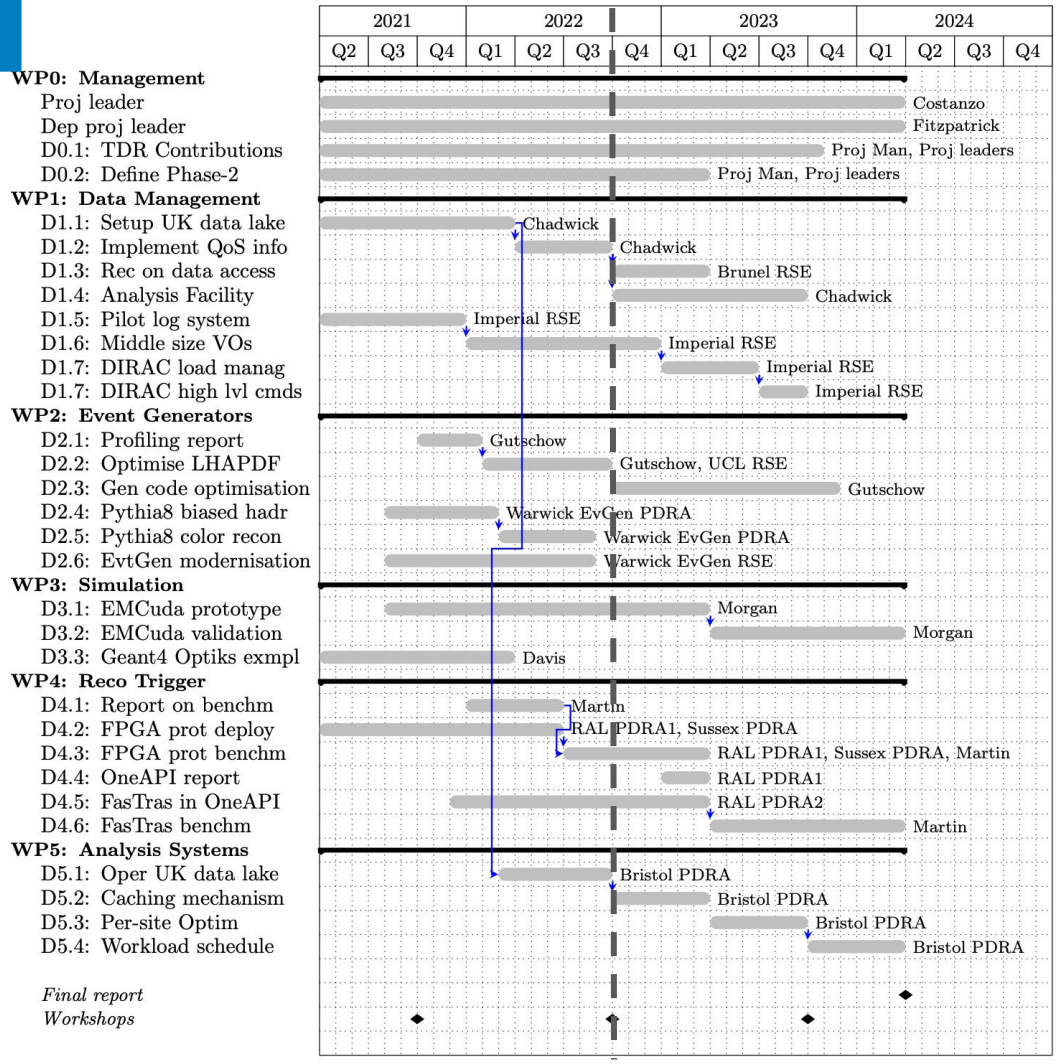
- WP3 making good progress
- WP2 in great shape
- WP5 new person recruited
- WP4 late (2 posts recruited)
- WP1 tracking on time

Oversight committee report sent in 2022

Great chance to reflect on the progress

We are now fully staffed!

New posts started/starting



Some great progress!

We will see today! Some examples

- The event generators work made several headlines given the large CPU saving obtained
- Simulation work on GPU (AdePT/Celeritas) making great progress with full example of showers in real detectors (CMS?)
- Work on photon propagation with NVidia (reported at the last meeting) is a great point for collaboration
- Analysis work about to start. Good collaboration expected

We need more examples, and I'm sure we will see them today/tomorrow!

And don't forget your CHEP abstracts!

Progress in the UK

PPAP published its final roadmap report

development of novel instrumentation in other fields. Both HPC and HTC requirements exist for the PP community, and it is important appropriate levels of resource and expertise be maintained for both. The Excalibur strategic priority fund programme supports exascale computing developments in the UK, and the SWIFT-HEP project has focused efforts on developing new methods for efficient computing. The UK lacks the level of investment seen in some other countries, such as the US and its IRIS-HEP community hub programme. There is scope for an equivalent model of investment in the UK if the core funding for the programme were to increase.

Data processing and a wide range of Machine Learning (ML) and AI methods (including Deep Learning) are a core part of the toolkits required for PP analysis. These methods enhance PP scientific output in accelerator, experimental and theoretical areas. The community has a role to train new generations of experts in data science in concert with industry to the benefit of the UK economy. The rapid development of data science necessitates implementation of comprehensive

I didn't see a report from PPTAP

SEAG (STFC e-infrastructure Advisory Group) meeting 2-3 times/year

Needs to make recommendations on how we evolve

Government office document on computing, Transforming our world with AI document

CDT on "data intensive science" should start.

Encourage people to come forward and collaborate with SWIFT-HEP

ExCALIBUR

A joint bid with the Lattice Field Theory group submitted last Summer (Phase-2)

- ExaTEPP (Exascale for Theoretical and Experimental Particle Physics)
- About £700k over 2 years.
- Funded and starting in December
- Smaller than the phase 1b bid we submitted e.g. we lost data management and FPGA work

Interesting for the experimental PP community:

- GPU simulation, work on optimisation of AdePT/Celeritas. In particular VecGeom (1 FTE of RSE shared between Warwick and Sheffield)
- Training. 0.4 FTE at Hartree. This will hopefully boost our training programme
- Collaboration with industry (e.g. NVIDIA, Intel, etc) with more use cases to present

SWIFT-HEP 1.5 and 2

SWIFT-HEP #1.5 will need to be prepared

- STFC says they would like us to bid for a 1-year costed extension
- Really important to keep the staff levels we have now
- April 24 to March 25 (call it phase-1.5)
- I'm trying to understand the budget envelope (4-5 FTEs)
- New bid for PPRP review for phase-2
- Very little review expected (??)

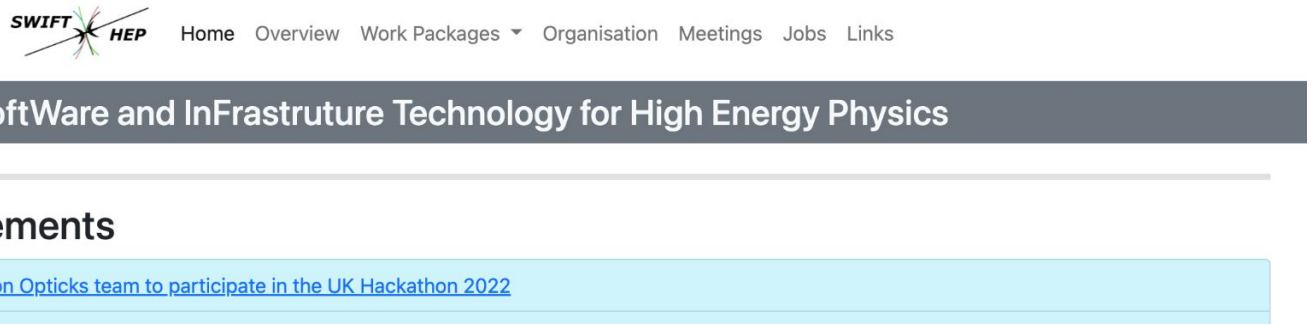
SWIFT-HEP #2 we need to keep growing

- Continue the work we are doing
- Add more projects that are experiment independent
- Think beyond the LHC, we need to start thinking about future collider (discussion ongoing on how to fund R&D for the construction)
- Expertise in the UK on frameworks ("online" to use an old word), particle flow, tracking, simulation, event generators, …

Website

Website http://swift.hep.ac.uk/

- Uses Hugo (Thanks Luke for setting it up!)
- Based on github
- WP coordinators and everyone else **should** fill content and submit pull-requests



Communications

- Keep track of work and contributions at HSF, WLCG, etc (show how good we are!)
- And post them on the website
- Make sure we are not too LHC-centric (or ATLAS/CMS centric)

Today and tomorrow's agenda

Report from WPs

- Analysis discussion and plans for future work
- Axel is here as our "external" guest
- Updates on work across WPs

Space for discussion and collaborative work

- Coffee, lunches, etc.
- Notes

Next workshop: 29-30 March at Coseners together with GridPP

Let the workshop begin