Topics for discussion

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ECHEP Area Leaders Meeting

Introduction

- Welcome to the first area leaders meeting
- Reminder of a few details:
  - `Progress meeting` held 24/3/20
  - Make sure you are on the mailing list `uk-EffCompHEP@cern.ch`
  - Sign-up sheet and mattermost channels were circulated there.
  - Sign-up sheet can be found `here`
  - You should all be in at least one of the public Work Package mattermost channels in the UK HEP mattermost `here`

Charge for the Areas

- From Sinead's slides last meeting:
  - Review and make contact with international work already started
  - Gather quantitative data (disk/CPU/usage patterns) in the area of interest
  - Review potential avenues for efficiency / resource use improvements, and critically examine which ones may be the most useful
  - Where possible, carry out rapid modelling, trials and feasibility studies of different approaches
  - Document in a short report the work, findings and recommendations for the next stage
  - The main deliverable is an evidence-based set of recommendations on which areas and approaches to pursue with UK resources in the coming years, and a first appraisal of what benefits that may bring if successful.
- ECHEP is a project that should deliver technical studies, proofs of principle where possible, and draw conclusions about what UK expertise can be brought to bear on areas and exactly how in technical detail.

Planning

- Reminder, "[The aim is to] define a detailed plan and impact strategy for a subsequent, three year R&D project."
  - We should do work from which we can develop self-contained conclusions, but in a format suited for inclusion in later bids.
  - This also means for the project writing timescale we should already have preliminary thoughts we can feed in.
- SoI was submitted to Science Board in March. If greenlit, this will happen in May, with a project submission deadline of 22nd July
  - This means making technical recommendations for the work in your areas, what its status is (locally and internationally) and what can be achieved with a small (max. 2×0.5) FTE on that timescale.
  - The strategic question of which parts to focus on in the subsequent project will be decided elsewhere.
- Time is short: 6 months from 1st Jan isn't much time even without COVID situation.
  - We may try to push for an extension based on this, but for now should work to the schedule.

Deliverables

- Sign-up sheets are populated, some areas more than others. Please remind people in your WP channel to add their names if they haven't already. Feel free to reach out to groups you think should join in.
  - Based on interests and background it may be possible to to determine concrete studies that signees can work together on or contribute to.
- Good discussion and nice topics for investigation presented in the progress meeting. General feedback:
  - Area Leaders should organise their own meetings, advertised on the main list, to direct work and begin drafting area-specific sections
  - The outcomes of these meetings can be fed back to the regular general ECHEP meetings: next one around 17th April
  - The same applies to hackathons- Area leaders should assess what trainings are needed/absent in their area (both long- and short- term) and consider arranging tutorials, hackathons and workshops where a shortage is noted. Several data CDT leads have offered to help.

C. Fitzpatrick

Round Table

- The next slides are to aid the round-table discussion
- They include some feedback from our understanding of the presentations at the last meeting as a starting point
- Feel free to add your own comments throughout the discussion.

Feedback: WP1 (Generators)

- Phase-space sampling and negative weights: Not clear if anything concrete can be achieved on a short timescale, but can a more detailed R&D effort be determined with concrete goals?
- General efficiency improvements: Can a comprehensive set of benchmarks be defined/triaged?
- What about dedicated binaries for e.g. large multiplicity processes (ttbar + jets)?
- Tim Martin is one of the ECHEP-funded postdocs and is spending his 0.2 FTE on this area- if he hasn't been contacted yet be sure to get in touch with him.

Feedback: WP2 (Simulation)

- Geant4: Is it realistic to find and focus on one area, and extrapolate?
- What can the UK usefully contribute to the Geant4 R&D planning - should we just be waiting to see or should we take a more proactive role: what work has gone on so far on GPU etc. Can we/should we contribute to that?
- Fast sim: For one of the upcoming meetings it might be useful to look at what this means for each expt, and what tools/packages are/can-be-made common.
- Has there been progress on a proof-of-principle project that can be delivered on the ECHEP timescale?

Feedback: WP3 (Trigger/Reco)

- How realistic is a SYCL test-case? Is there potential to port a fraction of an existing trigger to it on short timescales?
- Has there been progress on a proof-of-principle project that can be delivered on the ECHEP timescale?

Feedback: WP4 (Analysis)

- A lot of good ideas and some ongoing work, but not so clear of the overall plan for a project that can be delivered coherently and with impact on a short timescale.
- Much international work on tools and frameworks ('code free analysis'); first step is to understand where we stand.
- Many questions in this (gigantic) area:
  - Q: how can frameworks and analysis descriptions address resource issues?
  - Q: how do frameworks enable other aspects, e.g. transparent use of new architectures?
  - Q: how much of the solution is sociological, not technical? How do frameworks help?
- Challenge will be to provide a quantitative justification for further work, along with a credible work plan.
- Can we profit from some modelling based on existing instrumented codes / experiment metrics?