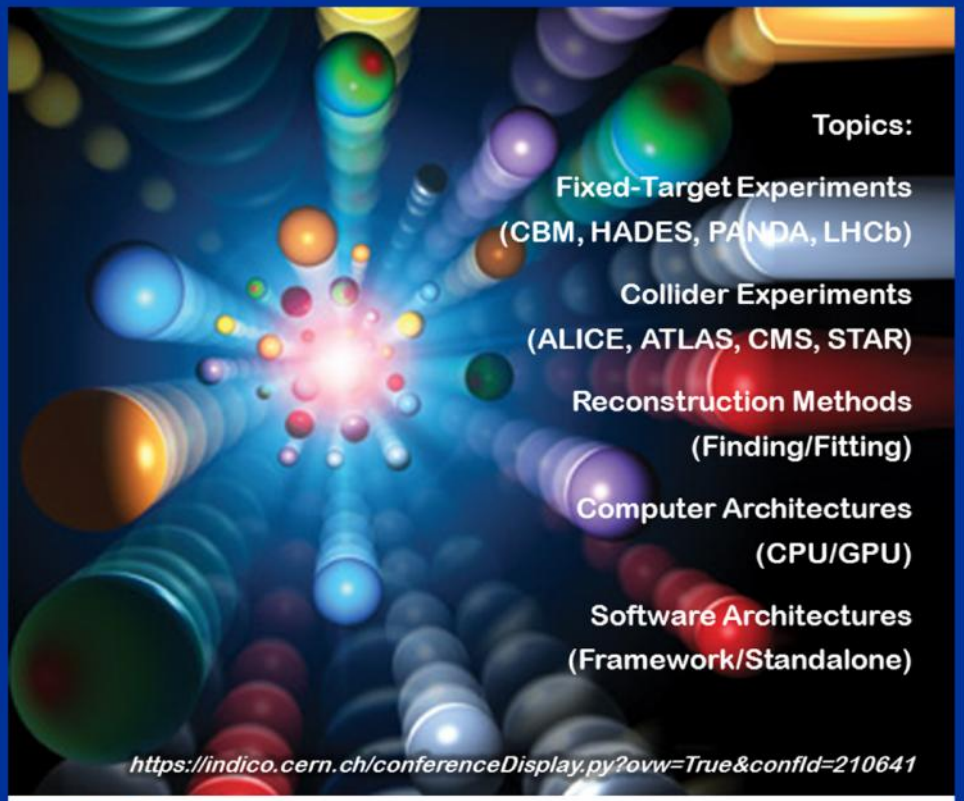
Fourth International Workshop for Future Challenges in Tracking and Trigger Concepts

November 28-30, 2012, CERN, Geneva



4th international workshop for future challenges in tracking and trigger concepts

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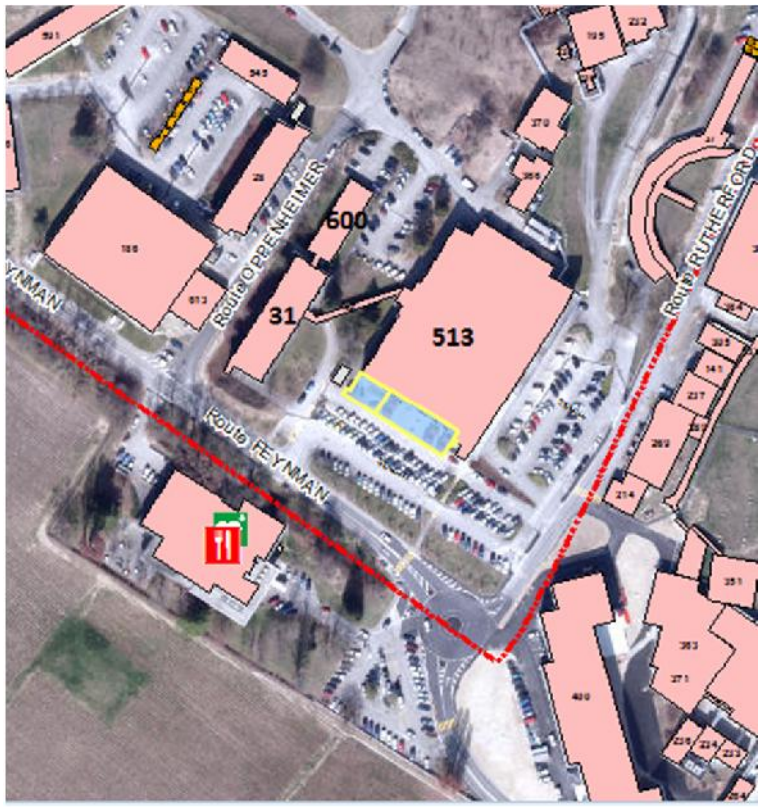
General Logistics



- Locations
  - Wednesday to Friday ~ noon
  - All in 31-3-004
  - Please, upload your slides to Indico
  - Restaurant across the street – 1:30 h for lunch, please discuss and exchange ideas
  - Coffee not supplied (have been looking into it)
  - Very resourceful: Kristina Gunne (IT-DI) Kristina.Gunne@cern.ch (use her name for network registration)
- BUT also
  - This meeting is meant to be an informal workshop, not a politically driven conference
  - While experiments are competing on Physics, the challenges in computing requires
    - Exchange of information, ideas, approach and methods
    - A common strategy & architecture approach: Tracking, Vextexing, ROOT, Geant5, simulation, …

Why those workshops?

- Community facing parallelization and vectorization in the many-core era? A huge challenge
  - Architecture, Fabric and programmatic challenges
    - IO, Amdahl law, C++ / STL abuses, AOS vs SOA etc …
    - Have seen mix of CUDA, OpenCL, fork(), thread, .. CT (gone), OpenMP
    - Hardware changes every other day: Xeon, Atom, Tilera, Nvidia/Tesla (GPU), Xeon Phi, …
  - "Thinking" challenges
    - Intrinsically, algorithms and framework developed thought as sequential or not very well suited to parallelism
- This workshop can help generate discussions horizontally and vertically (within experiments / across experiments; covering for all of the above, …)
- Evolved from "grassroots" efforts
  - Success often starts from a small core team of focused individuals – solutions first

Conclusions from last workshop, (re)new(ed) objectives

- A collaborative set of activities begun around CA/offline, CA/HLT, Vertexing (KFParticles)
  Reaching out to other communities a constant focus
  - Had ROOT representation at the last workshop – *Can we integrate Vc into ROOT?*
  - Missed Geant representation – **One Geant5 talk this time**
  - Missed CMS and LHCb (ATLAS joined last time) – **we now have CMS and LHCb on board**
    - would be great if this sets a "trend"
    - Please, let us know of your interrest

- General agreements for the workshops
  - Create common packages – KFParticles first, allow others to play with CA and re-converge
  - ALICE / STAR KFParticles consolidation (naming convention, standards) + bring back to CBM
  - Keep a strong tracking and vertexing components in the workshops (ATLAS main interests), updates on HLTs

  - Remain opened to community feedback
  - Remain aware of community efforts
  - Remain ware of industry developments

  - Represent the work at major conferences

What we will (still) need to discuss [or better: do]

- Share results
  - ALICE testing online/HLT on many hardware (systematics), CBM/STAR has access to different hardware as well
  - STAR has experience with CA/offline, ALICE so far more of the CA/online (HLT)
  - Do we need a common hardware testbed?
- Sustainable efforts
  - Training, documentation (self-sustained a-la-doxygen), Web site (content management)
  - Disseminate base components: Vc in ROOT for example
  - mailing lists (all can help each other)
  - Code repository: sourceforge, github, …
  - Long term: Nightly build and testing, …

We are still not “there” … but should focus as a common drive forward

Hope you will enjoy our workshop

- Sessions
  - Wednesday – new development
    – experiments (status & plans)
  - Thursday – on/off-line + Vc
    – Reconstruction
  - Friday – Vertexing & concluding remarks, opened discussion

Let the show begin …