Physics Lists Re-organisation

Overview

- Originally “Reorganization of Physics Lists (integration with kernel libs and config system)”
- Certainly it is a major issue
  - But not the only ‘priority issue’

Priority Issues

- Solve the configuration issues, to enable non-HEP experiment users to use G4 physics lists in a simple way
- Maintain existing PL which have large user bases
  - Conservatively, without taking unneeded risks
- Acknowledge and utilize the existing current effort of the team(s) creating physics lists,
- Document what physics lists are tested and validated, and clearly assign responsible person(s) for each
  - For unchecked physics lists, clarify their status
- For new 'beta‘/development PL, find a way to interface to friendly users for feedback.

So .. let’s start fixing

- Help the users - stop confusing them!
  - Move the current physics lists into the makefile system
  - Choose a workable scheme for existing physics lists
    - Starting on those heavily used
- Also could be opportunity to make
  - Make other ‘production’ PL available in parallel ?
  - Find a mechanism to provide ‘beta’/develoment physics lists too

The existing efforts

- “Production” versions
  - the CERN, SLAC, examples WG/authors
    - The teams are making a vital contribution
    - they should get a clear status/mandate
      - responsibles
    - and deliverables should be integrated in G4 planning (including the release schedule)
  - PLs are a significant Collaboration matter
- “Development” versions
  - Mikhail, Vladimir, (others?)
  - Prototypes with new physics choices, functionality, structure
    - Potential new strengths and new risks
    - Can we find a way to get feedback

But going beyond this..

User developed PLs

- Not ignore other options available to users
  - users must always be able to choose, revise, develop their own
- To revise our physics lists they need to understand them
  - Documentation ?????
- How many users need customised physics lists?

Do we need 20 PLs ?

- Hard to maintain large number
  - 14 ‘hadronic’, ~5 SLAC, ~3 EM, ? Adv-ex
- Are these all used ?
  - Hard to say
    - Eg LHEP_HP, QGSP_PRECO_HP .. ?
    - Web search (Dec 2005) showed some surprises
      - Some referenced / used
- Are these all validated ?
  - First we must make clear what is validated – and separate it!
  - What is not validated can still be available as ‘starting points’
- Can we reduce this diversity ? Involve others ?
  - Already took out QGSP_GN (etc)
  - Need to consider impact – vs effort to keep
  - Involving users, who could be responsible to validate