



Hadronic Physics: Examples, Documentation and Ease of Use

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Dennis Wright



Hadronic Examples (1)

- Currently only one hadronic example
 - extended/Hadr01
 - protons and ions into a water target
 - longitudinal profile of energy deposition
 - spectra of secondary particles, particles leaving target
 - scoring + UserStackingAction
 - user may choose among packaged physics lists
 - visualization available for interactive mode
 - histogramming: can choose hbook, root, aida



Hadronic Examples (2)

- A novice hadronic example would be useful
 - demonstrate effect of omitting hadronic physics
 - demonstrate effect of changing hadronic models by comparing histograms, visualizations
 - show how to assign models/cross sections to processes
- Another extended hadronic example?
 - *Wigmans calorimeter?*
- Coordinate new novice/extended examples with EM groups



Documentation of Hadronics (1)

- Full documentation of one pre-packaged physics list ready (QGSP)
 - Is this on the right track?
 - get volunteers to do the others (good way for beginner to learn)
 - current linking to models, processes, cross sections is done by hand – find an automated way
- Make a recommendations page or pages
 - Which physics list to use for a given application
 - Which models to use for desired physics



Documentation of Hadronics (2)

- “Executive summaries” of hadronic models
 - does anyone read the Physics Reference Manual?
 - one page only for each model, cross section
 - should be as qualitative as possible
 - should list strengths and weaknesses
 - link these summaries to recommendation pages
- Same thing for physics lists?
 - Which physics lists to include?



Ease of Use (1)

- Model range checking recently added
 - Cross section energy range checking already exists
 - Add consistency checks (incompatible models, cross sections)
- Use default models for processes
 - Default cross sections already assigned to hadronic processes
 - Use LHEP models as defaults
 - would simplify packaged physics lists
 - need to make it clear to user what the default is
- Hadronic physics by particle
 - Based on physics constructor class



Ease of Use (2)

- Remove user choice of models/cross sections
 - Allow only choice of process
 - Only experts to change models (standard EM working hypothesis)