Progress for 11.3.beta and beyond

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Geant4 Hadronic group meeting

26 June 2024

Current status of radioactive decay

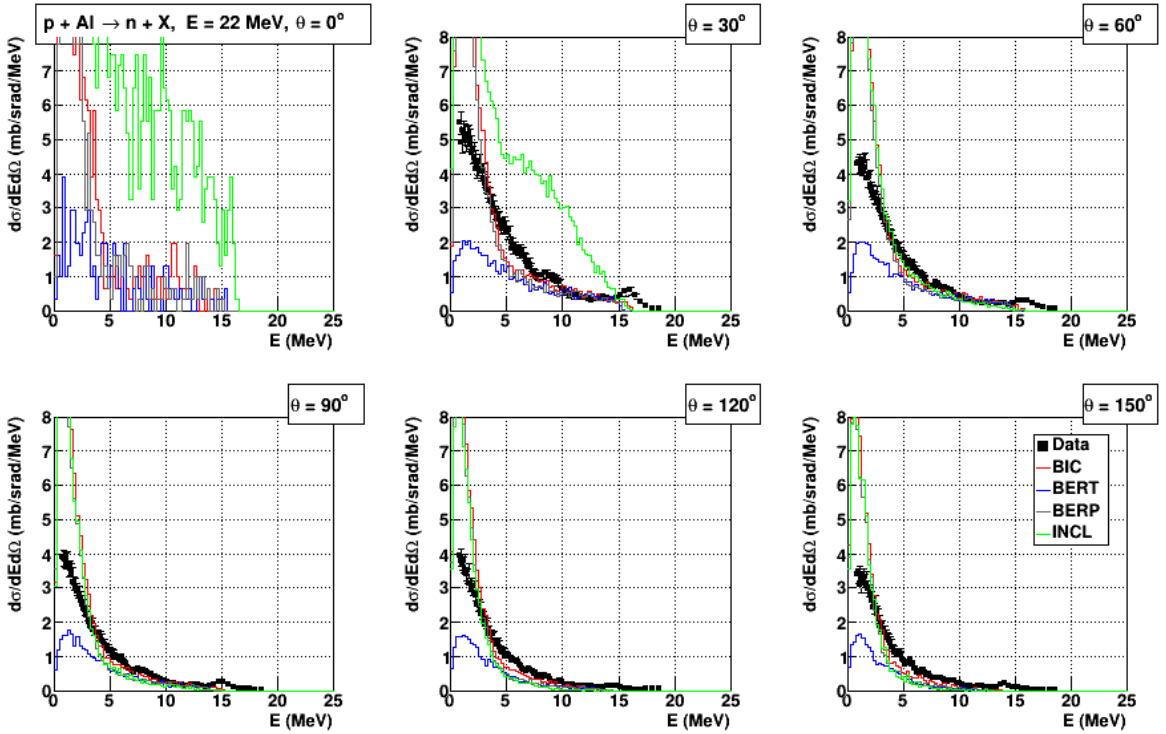
- Classes implementing radioactive decay
  - G4RadioactiveDecay – renamed to G4VRadioactiveDecay
    - Has Print Info – dump of radioactive decay parameters
  - G4Radioactivation – renamed to G4RadioactiveDecay
    - Implements several variants of radioactive decay biasing
- Bugzilla problem reports:
  - 2592: radioactivedecay biasing
  - 2566: Converted electrons are emitted as gammas
  - 2451: Anomalous high energy photons generated in Pu-239 decay
  - 2437: Problem with radioactive decay of Eu-152

De-excitation module updated

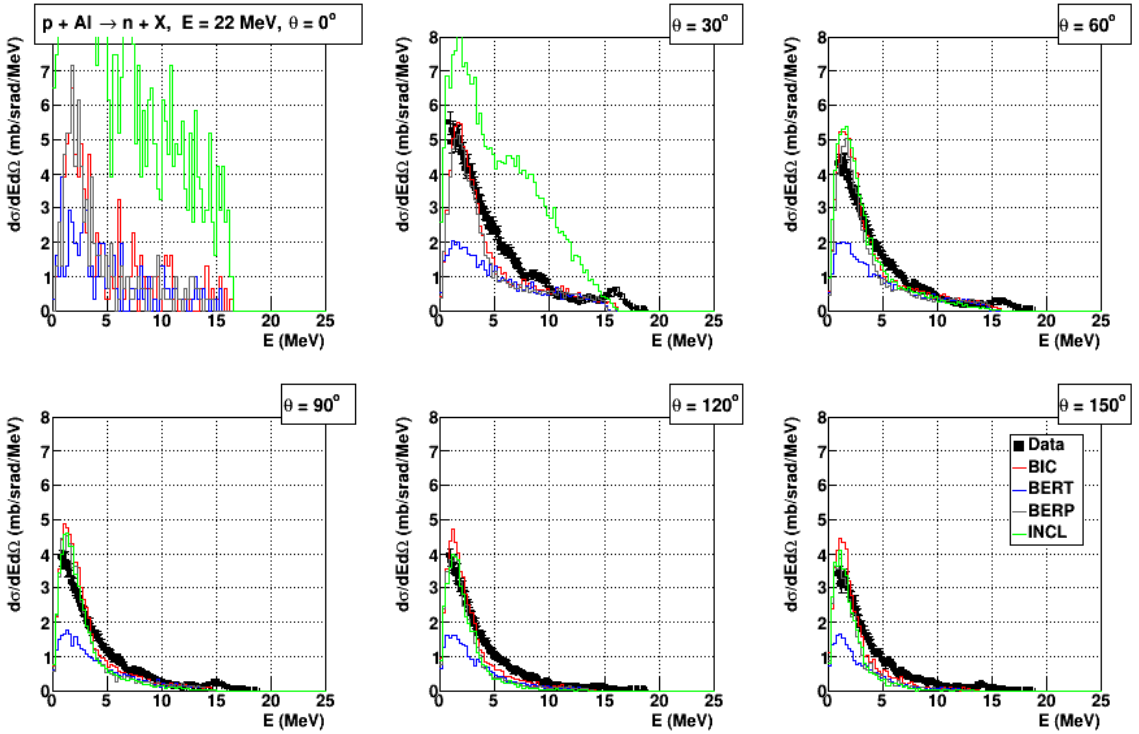
- The main formula of emission probability is revised
  - Paring correction does not totally vanish emission probability
  - Inverse x-section is reference recomputing in system of residual nucleus
- Improved low-energy spectra of final particles
- See talk of Nikita Chalyi

Neutron production by 22 MeV protons

11.2.0



11.3beta



- Outstanding problem was there for many years
- After change of probability function better agreement between the Binary cascade and the data

Other modifications

- NUDEX neutron capture model is delivered with 11.3beta for the first time
  - Can be tested only in QGSP_BERT_HP
  - Only inside Hadr01 example
- New GEM model is prepared but not yet tested

Proposal for updates in this year

- To start validation of the new GEM model
- Try to introduce cross section from G4PARTICLEXS4.1
- Try to extend G4HadronicParametersMessenger