Fast/Full sim integration

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Baseline strategy

- Discussed in a dedicate phone meeting
  - G4 (detailed geometry) to be used to the physics interactions in the innermost part of the detector.
  - At a given point, the status of the simulation (list of particles) to be dumped to file, for further processing by the fast-sim.
  - Interchange format will be at the beginning purely ROOT based (no additional dependencies)
- On the G4 side: parallel navigation used to define the scoring volume.
  - Requires some extra coding, but allows more freedom in defining the shape of the volume (i.e. no constraints from other existing detector volumes)
  - This also means some re-scheduling, i.e. parallel navigation was a medium-term, low-priority task at Orsay
- On the Fast-sim side: an input modul should be prepared, to seed the simulation starting from the G4 output

Status/Plans

- On the G4 side, a proof-of-concept has been implemented and tested
  - Adds parallel navigation to the default Bruno application
  - Uses a dummy shape (a box) as scoring volume
  - A dedicated SensitiveDetector takes care of collecting the particles and writing them to root file
  - Example output file (starting from geantinos) produced to help developments on the Fast-sim side
- Several refinements needed:
  - Choice of a more appropriate shape: needs input from geometry experts, but no particular coding effort.
    - Dave's proposal: cylindrical volume starting just outside the beampipe radius, and extending to include the calorimeter endcaps in Z; include beam line elements away from IP and DIRC readout region
  - Produce output files with real bg events