Full Detector Simulations

Status

- **Frameworks** EicRoot (Virtual Monte Carlo: GEANT-3/Geant4), ESCalate (Geant4), Fun4All (Geant4)

- **EIC Generic Detector R&D** Handbook detector documented, only sub-detectors implemented in EicRoot, ESCalate, or Fun4All

- **Yellow Report Initiative**
  - Detector design ongoing, only sub-detectors implemented in EicRoot, ESCalate, or Fun4All
  - Full detector simulations required, e.g., for benchmark studies

Priorities of Yellow Report Initiative

- Detector simulations keeping the path open to alternative technologies

- Foundation for full detector simulations including all materials, support structures welcome where possible

Priorities for full (and fast) detector simulation software

← **We need your guidance!**

- To what extent should we ensure that the detector simulations of the Yellow Report Initiative can be reused.
  - E.g.: We recommend common detector description in Geant4 (C++). Should we build up a collection of subdetectors in Geant4 (C++) that can be integrated in EicRoot, ESCalate, and Fun4All?

- What background studies can and should we integrated in simulations?

- Is there any need for fast simulations in the DWG? Some discussed fast simulations including geometric acceptance.

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