

MAUS - Feature #1033

EMR Monte Carlo

30 June 2012 13:06 - Rogers, Chris

| | | | |
|------------------------|---------------------|------------------------|--------------|
| Status: | Closed | Start date: | 30 June 2012 |
| Priority: | Normal | Due date: | |
| Assignee: | Drielsma, François | % Done: | 100% |
| Category: | EMR | Estimated time: | 0.00 hour |
| Target version: | Future MAUS release | | |
| Workflow: | New Issue | | |

Description

MC

Convert existing EMR code to three classes
In `src/common_cpp/DetModel/EMR`

- ParameterisedVolume for the bars
- SensitiveDetector to make hits
- EMRVolume to gather it
In `src/legacy/Simulation`
- Interface is in `MICEDetectorConstruction.hh`; add detector classes
- Check `FillMaterials.hh` has correct materials
In `MiceModules`
- Add an EMR MiceModule or something
In `src/common_cpp/DataStructure`
- Check EMRChannelID
- Add typedef to EMRHit
- Check `LinkDef.hh`
In `src/common_cpp/JsonCppProcessors`
- Add EMRChannelIdProcessor
- Add configuration datacards to `src/common_py/ConfigurationDefaults.py`

Access to data cards is through `MICERun->jsonConfiguration`. This is set by the `MapCppSimulation` module.

Add unit tests in `tests/cpp_unit/` for C++ code. This is directly built into the `test_cpp_unit` exe
Add integration tests/`integration/test_simulation/test_emr/`

- integration tests should usually call the `simulate_mice.py`, `analyze_mice_offline.py`, etc, run the code, and check the output
Check style guide
Add documentation in `doc/doc_src/detectors/emr.tex`

History

#1 - 08 February 2014 04:46 - Rajaram, Durga

Notes from Ruslan

as far as the EMR simulation is concerned, it was implemented but not finalized. The code is here:

<https://code.launchpad.net/~maus-emr/maus/dev1> :

```
src/common_cpp/DataStructure/EMRChannelId.cc
src/common_cpp/DataStructure/EMRChannelId.hh
src/common_cpp/DetModel/EMR
src/common_cpp/DetModel/EMR/BarParameterisation.cc
src/common_cpp/DetModel/EMR/BarParameterisation.hh
src/common_cpp/DetModel/EMR/EMRBar.cc
src/common_cpp/DetModel/EMR/EMRBar.hh
src/common_cpp/DetModel/EMR/EMRSD.cc
src/common_cpp/DetModel/EMR/EMRSD.hh
src/common_cpp/JsonCppProcessors/EMRChannelIdProcessor.cc
src/common_cpp/JsonCppProcessors/EMRChannelIdProcessor.hh
src/legacy/BeamTools/BTFastSolenoid.cc
```

```
src/legacy/BeamTools/BTFastSolenoid.hh
src/legacy/FILES/Models/Configurations/EMRTest.dat
src/legacy/FILES/Models/Configurations/EMRtest.dat
src/legacy/FILES/Models/Modules/EMR/EMRBar.dat
```

And the following needs to be done before merging it with the trunk:

```
- implement configuration file with geometry parameters (bar sizes, materials etc.)
  src/legacy/FILES/Models/Modules/EMR/EMRBar.dat
- implement new data structure:
  ./maus-data/src/datalib/EMREvent.hh
  ./maus-data/src/datalib/EMRBar.hh
  ./maus-data/src/datalib/EMRDaq.cc
  ./maus-data/src/datalib/EMRBarHit.cc
  ./maus-data/src/datalib/EMRBarHit.hh
  ./maus-data/src/datalib/EMRPlaneHit.cc
  ./maus-data/src/datalib/EMRBar.cc
  ./maus-data/src/datalib/EMRDaq.hh
  ./maus-data/src/datalib/EMRPlaneHit.hh
  ./maus-data/src/datalib/EMREvent.cc
```

- make the code compatible with MAUS coding stile

It will take a couple of weeks to finileze it.

As to the reconstruction, the code will be merged with the trunk within a month.

#2 - 12 November 2014 14:44 - Drielsma, François

- Assignee changed from *Asfandiyarov, Ruslan* to *Drielsma, François*

#3 - 18 May 2015 17:43 - Dobbs, Adam

- Status changed from *Open* to *Closed*

- % Done changed from *0* to *100*

Fixed since 0.9.4.