

Description of Super C-Tau detector (Geometry)

Dmitry Maksimov

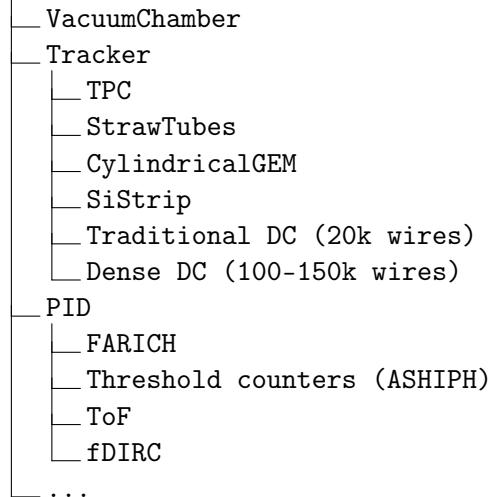
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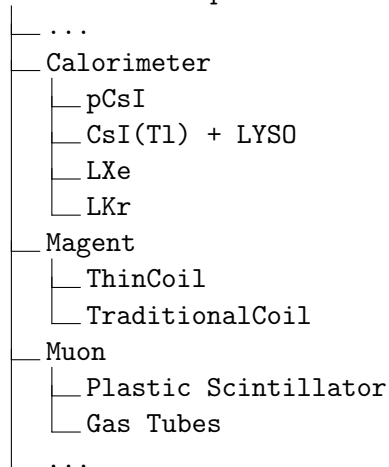
Directory layout (1)

DetectorDescription



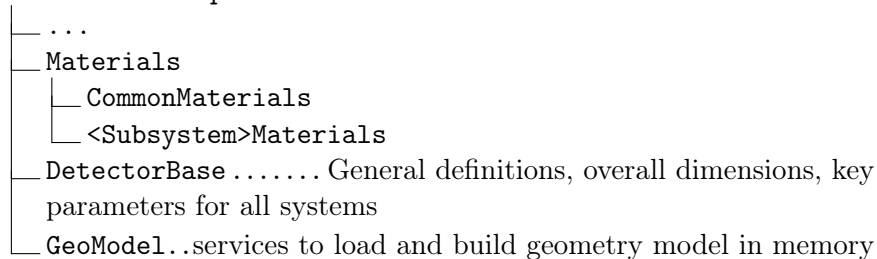
Directory layout (2)

DetectorDescription



Directory layout (3)

DetectorDescription



Package structure

<PackageName>	
_ <PackageName>	C++ headers
_ src	C++ sources
_ python	python modules
_ doc	documentation
_ data	data files
_ share	data files, scripts, joboptions
_ joboptions	jobs configuration fragments
_ scripts	scripts
_ xml	xml files, Detector geometry for example
_ CMakeLists.txt	Package building rules description, required

CMakeLists.txt Example

```
#####  
# Package: FARICH  
#####  
sctau_subdir(FARICH)  
  
sctau_depends_on_subdirs(PUBLIC  
                          External/DD4hep External/Geant4  
                          External/ROOT)  
  
sctau_add_dd4hep_component(FARICH  
                            src/*.cpp  
                            PUBLIC_HEADERS FARICH  
                            LINK_LIBRARIES GaudiKernel DD4hep ROOT Geant4)  
  
sctau_install_joboptions(share)  
sctau_install_xmls(xml)
```

cmake functions

- `sctau__subdir` — declare package, set its name, **must be first** in `CMakeLists.txt`
- `sctau__depends__on__subdirs` — specify dependencies
- `sctau__add__library` — declare package library (generic)
- `sctau__add__component` — package library plus generate joboptions configurables and Gaudi/Aurora components list, **not linkable** to other libraries
- `sctau__add__dd4hep__component` — package library plus generate DD4hep components list, **not linkable** to other libraries

python module

In the `python` subdir of package, provide a callable object (function) `xml_list` that returns a list of relative pathes to required XMLs in order they should be read.

List of parameter is an open question.

Coding recommendations

- **DO NOT** use `std::cout` for message output!

Use Gaudi Message services:

```
#include "GaudiKernel/IMessageSvc.h"
#include "GaudiKernel/MsgStream.h"
#include "GaudiKernel/ServiceHandle.h"
```

```
ServiceHandle<IMessageSvc> msgSvc("MessageSvc",
                                   "CaloConstruction");
MsgStream lLog(&(*msgSvc), "CaloConstruction");
```

```
lLog << MSG::DEBUG << "... " << _var << endmsg;
```

- **DO NOT** use numbers in XML geometry definitions

Make them named constants, use constants in geometry definitions

Workdir setup

```
# Setup project, branch and build version
asetup SCTauSim, master, latest
```

Workdir management commands

Create working branch

```
$ git checkout -b <DevBranch> upstream/master --no-track
```

List local (in workdir) packages

```
git sctau list-pkg
```

List all available packages

```
git sctau list-pkg --all
```

Add some package to workdir

```
$ git sctau addpkg <PackageName>
```

Remove package from workdir

```
$ git sctau rmpkg <PackageName>
```