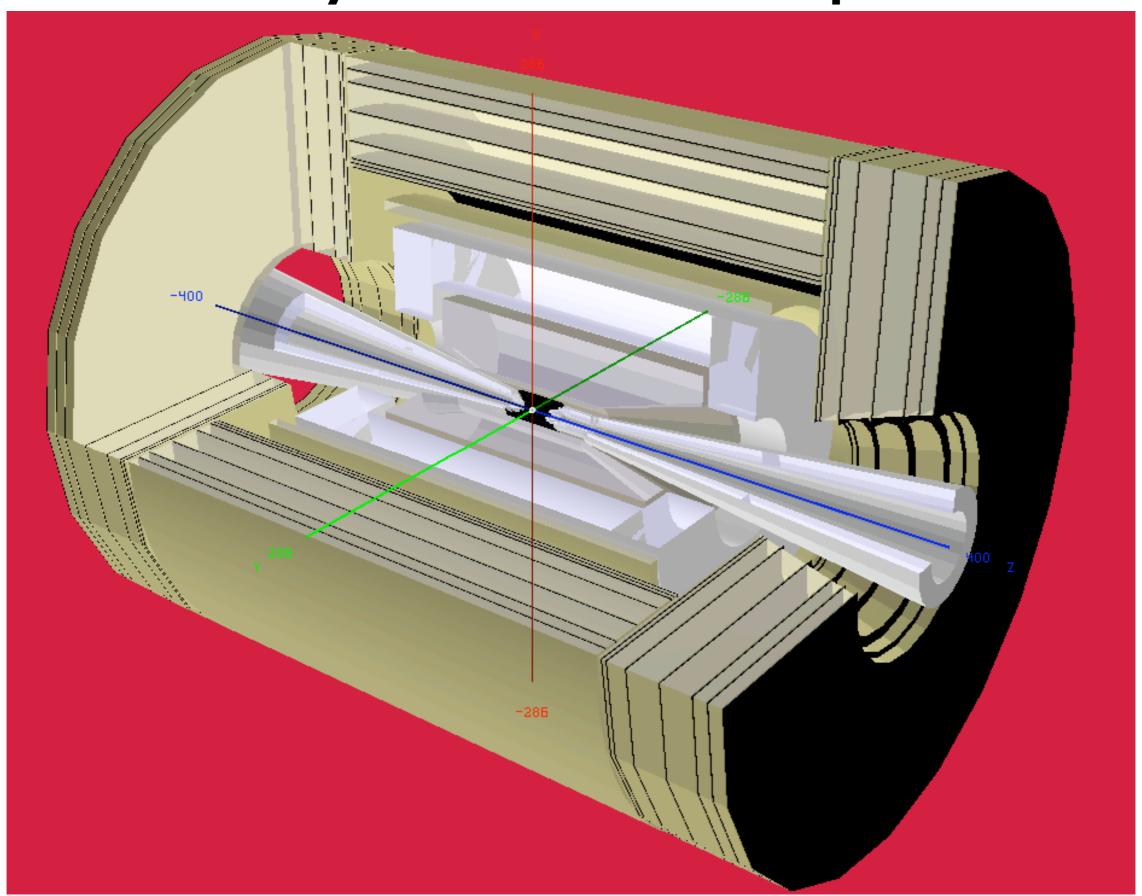
SuperB: Geant4 backgrounds simulation

Giovanni Calderini, Giovanni Marchiori, E.P. (INFN & Università di Pisa)

Present status

- GDML interface implemented in Sim4Sup.
 Yes we can!
 - write the "simple detector" geometry
 - rebuild the "simple detector" geometry

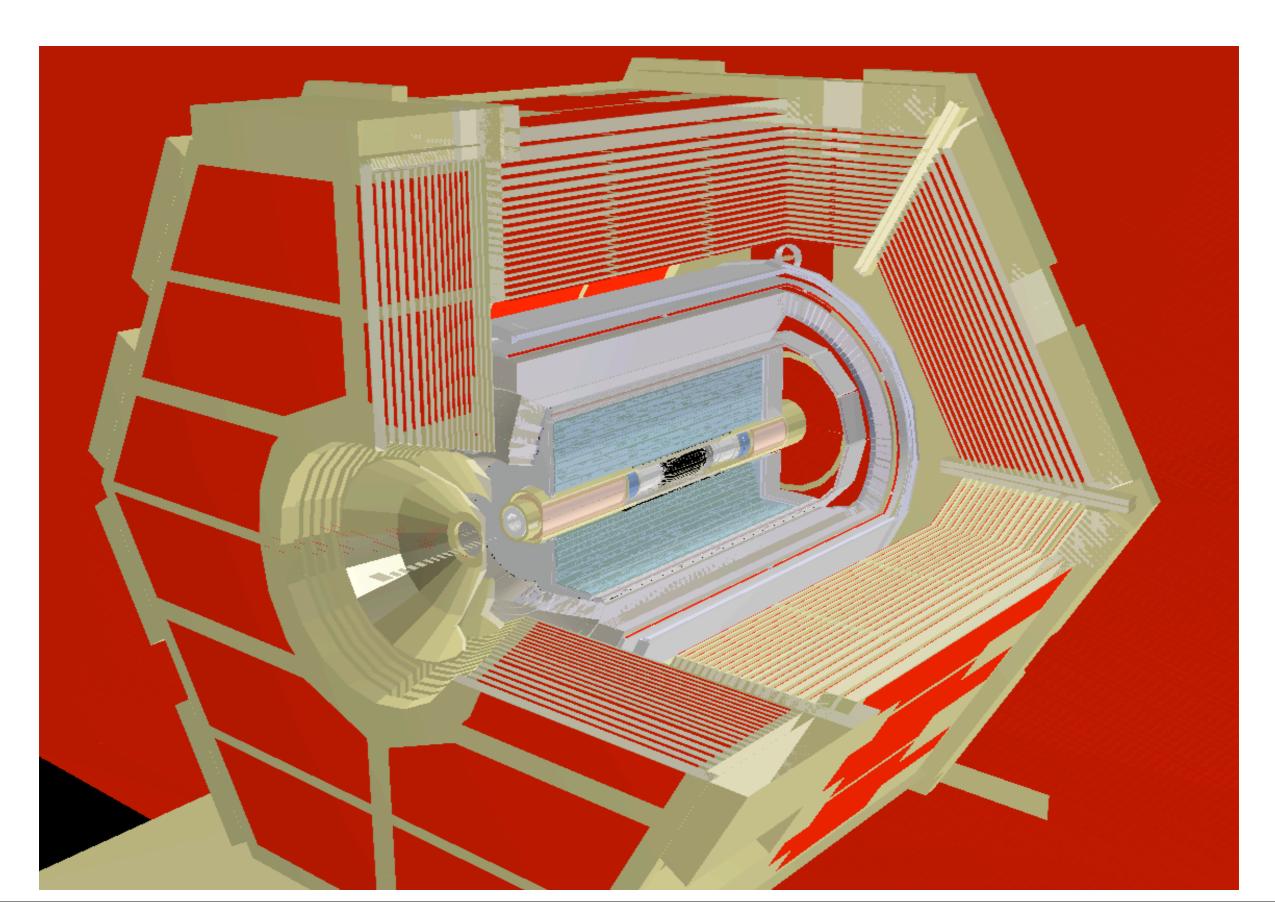
Cut-away view of "Simple det"



More challenging...

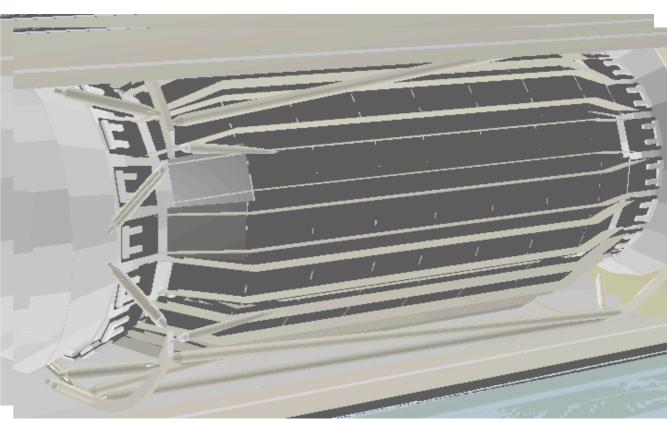
- GDML interface embedded in the official BaBar MooseApp
- Full BaBar geometry written in a single GDML file "human" readable/editable

BaBar rebuilt outside Moose



Reality vs Geant4





BaBar in GDML

Human readable (although quite big)

52147 lines, 2 MBytes... the berillium beam pipe:

```
<materialref ref="pepBeryllium0xae71de28" />
<solidref ref="PepBePipe0xqe7227e8" />
(phusvol)
            ef="WACHB0x16363a70" />
 Cpositionref ref="WACHB0x16363ad0inBePipe0x16361508p" />
 (volumeref ref="WACHB0x163636d0" />
 Kpositionref ref="WACHB0x16363730inBePipe0x16361508p" />
</physvol>
(phusvol)
<volumeref ref="WACHB0x16363330" />
Kpositionref ref="WACHB0x16363390inBePipe0x16361508p" />
</physvol>
<physvol>
 <volumeref ref="WACHB0x16362e38" />
 Kpositionref ref="WACHB0x16362e98inBePipe0x16361508p" />
  nysvol>
 <volumeref ref="WACH40x16362b80" />
 </physvol>
 <volumeref ref="WACH30x16362920" />
 Kpositionref ref="WACH3 phys0x16362980inBePipe0x16361508p" />
</physvol>
(physvol)
<volumeref ref="WACH20x16362668" />
 Kpositionref ref="WACH2 phys0x163626c8inBePipe0x16361508p" />
</physvol>
<physvol>
<volumeref ref="WACH10xae722af0" />
 Kpositionref ref="WACH1_phys0xae722b50inBePipe0x16361508p"
</physvol>
```

What do we need?

- Software Release Tool.
- External packages:
 CLHEP, Geant4, GDML, XERCES (bleeding edge)
 ...now is way too early to freeze a production release
- Platform "supported" so far (and in future):
 - OSX (Intel, G4?)
 - Scientifix Linux (Intel)

To Do List

- Release a first version of the code to the proto-collaboration
- Put the magnetic field description in GDML
- Implement a GDML ouput in BSDIM (MAD to Geant4 converter)
- Cross-check of the results obtained from GDML with the Simple Detector