sid02

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The LOI Silicon Detector

- sid01 defined two years ago.
- A number of changes have occurred since then, so need to update the description of the silicon detector for the LOI.

The Beampipe

- Beampipe has not changed from sid01.

Vertex Detector

- Has not changed from sid0.

Tracker

- Outer tracker has not changed from sid01.
- Far-forward tracking disks inside vertex support tube have been modified to reflect baseline change to pixel readout.

EM Calorimeter

- Has not changed from sid01.

Hadronic calorimeter

- Has had six layers added, for a total of 40 layers (2 cm steel absorber + .8cm RPC readout).
- RPC remains the baseline readout. Scintillator also an option (studying 1cm x 1cm vs 3cm x 3cm readout sizes).

Solenoid

- Thicker HCal has moved solenoid out to 255 cm.

Solenoid

```
<!-- Solenoid -->
    <detector id="0" name="SolenoidCoilBarrel" type="MultiLayerTracker" insideTrackingVolume="false">
      <layer id="1" inner_r="SolenoidBarrelInnerRadius" outer_z="SolenoidBarrelOuterZ">
        <slice material="Steel235" thickness="SolenoidBarrelInnerCryostatThickness" />
        <slice material="Air" thickness="SolenoidBarrelInnerAirgapThickness" />
      </layer>
      <layer id="2" inner_r="SolenoidBarrelConductorInnerRadius" outer_z="262.5*cm">
        <slice material="Aluminum" thickness="SolenoidBarrelAlConductorThickness" />
        <slice material="Steel235" thickness="SolenoidBarrelSteelThickness" />
      </layer>
      <layer id="3" inner_r="SolenoidBarrelOuterCryostatInnerRadius" outer_z="SolenoidBarrelOuterZ">
        <slice material="Air" thickness="SolenoidBarrelOuterAirgapThickness" />
        <slice material="Steel235" thickness="SolenoidBarrelOuterCryostatThickness" />
      </layer>
    </detector>

    <detector id="0" name="SolenoidCoilEnds" type="DiskTracker" reflect="true"
  insideTrackingVolume="false">
      <layer id="1" inner_r="SolenoidBarrelInnerRadius" inner_z="SolenoidBarrelOuterZ"
  outer_r="SolenoidBarrelOuterRadius">
        <slice material="Steel235" thickness="SolenoidEndcapCryostatThickness" />
      </layer>
    </detector>
```

Muon System

- Thicker HCal has moved muon barrel system out to r = 338.8cm, z = 294.0 cm.
- Eleven layers of 20cm absorber plus double RPC readout.
- Endcaps start at z = 303 cm

Far Forward region

- Baseline has all elements within 19.5cm support tube. Forward calorimeters begin at r=20cm.
- Changes made to LumiCal, BeamCal, mask and low Z shield in front of BeamCal.
- 14 mr crossing angle demands separate incoming (r=1cm) and outgoing (r-1.5cm) beampipes.

Current Status

- All subsystems implemented.
- sid02 compact.xml committed to cvs.
- Single particle files generated for sampling fraction calculations.
- Subset of benchmarking physics samples put through simulation to gain timing numbers.
- LOI dataset production started.
- Documentation started. Will present full description, along with subsystem performance characteristics, at Boulder meeting.