DCH: Decisions needed for the TDR

1. Mechanical structure
   - Material
   - Shape
2. Cell Geometry
3. Gas Mixture
4. FE Electronics
DCH: Decisions needed for the TDR

1. Mechanical structure
   - Material
   - Shape
   - Baseline
     - Carbon Fiber
     - Spherical end-plates
       - Alternative: spherical+conical
   - To Do
     - Finalize requirements
     - Make detailed calculations and technical design
   - Manpower
     - Physicists, Mechanical Engineers
DCH: Decisions needed for the TDR

2. Cell Geometry

• Baseline
  ▪ Hex. cell a la BABAR, 2cm side
  ✓ Alternatives
    – hex. cell, smaller size
    – at least for inner layers
    – Square cell a la KLOE/CLEO-c
    – All-stereo layers/superlayers

• To do
  ▪ Simulation
  ▪ Prototypes

• Manpower
  ▪ Physicists, Technicians, Electronic Engineers
DCH: Decisions needed for the TDR

3. Gas Mixture
   • Baseline
     ▪ BABAR gas
     ✓ Alternative
       – faster mixture
   • To do
     ▪ Garfield simulations
     ▪ Prototypes
   • Manpower
     ▪ Physicists, Technicians, Electronic Engineers
DCH: Decisions needed for the TDR

4. FE Electronics

• Baseline
  - BABAR concept, with state-of-the-art components
  ✓ Alternative
    - to be evaluated
    - cluster counting?

• To do
  - Simulations
  - Understand requirements, design new system

• Manpower
  - Physicists, Electronic Engineers
Goals for this Meeting

• Assess status of manpower
  o New Canadian institutions
• Define list of tasks needed for the TDR
  o Simulations
    ▪ FAST for performance on benchmark channels
    ▪ FULL for background studies
    ▪ Magboltz/Garfield for gas mixture simulation
  o Detector-related R&D
    ▪ Mechanical quenching
    ▪ Optimizations
      ▪ Cell geometry
      ▪ Gas mixture
  o Mechanical Engineering
  o Electronics
Proto WBS

- Need to turn the WBS draft below into a detailed one, as requested in [http://agenda.infn.it/conferenceDisplay.py?confId=1048](http://agenda.infn.it/conferenceDisplay.py?confId=1048)
- Our main task for this meeting

<table>
<thead>
<tr>
<th>WBS</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCH (TDR)</td>
</tr>
<tr>
<td>1.1</td>
<td>Design study</td>
</tr>
<tr>
<td>1.1.1</td>
<td>Simulation</td>
</tr>
<tr>
<td>1.1.1.1</td>
<td>Detector geometry optimization</td>
</tr>
<tr>
<td>1.1.1.2</td>
<td>Background studies (FULL simu)</td>
</tr>
<tr>
<td>1.1.1.3</td>
<td>Performance studies (FAST simu)</td>
</tr>
<tr>
<td>1.1.2</td>
<td>Prototyping</td>
</tr>
<tr>
<td>1.1.2.1</td>
<td>Design</td>
</tr>
<tr>
<td>1.1.2.2</td>
<td>Mechanics</td>
</tr>
<tr>
<td>1.1.2.3</td>
<td>Stringing</td>
</tr>
<tr>
<td>1.1.2.4</td>
<td>Electronics</td>
</tr>
<tr>
<td>1.1.2.5</td>
<td>DAQ</td>
</tr>
<tr>
<td>1.2</td>
<td>Mechanical structure</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Structure design</td>
</tr>
<tr>
<td>1.3</td>
<td>Electronics</td>
</tr>
<tr>
<td>1.3.1</td>
<td>HV distribution</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Front-End</td>
</tr>
<tr>
<td>1.3.3</td>
<td>DAQ</td>
</tr>
<tr>
<td>1.3</td>
<td>Gas System</td>
</tr>
<tr>
<td>1.3.4</td>
<td>Design</td>
</tr>
<tr>
<td>1.4</td>
<td>Testbeam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Man-months (2 years)</th>
<th>Manpower sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys</td>
<td>Eng</td>
</tr>
</tbody>
</table>

| Phys | Physicist |
| Eng | Engineer |
| Tecn | Technician |
| Comp Prof | Computing Professional |
| In1,2,3 | Institutions contributing |
| Miss | Missing Manpower |

All numbers in man-months, with the hypothesis of two years for TDR preparation (2009-2010).