White paper organization

5.1 Detector Concept

5.1.1 Charged Particle Identification at SuperB

5.1.2 BABAR DIRC

5.2 Barrel PID at SuperB

5.2.1 Performance Optimization
5.2.2 Design and R&D Status

5.3 Forward PID at SuperB

5.3.1 Motivation for a Forward PID Detector
5.3.2 Forward PID Requirements
5.3.3 Status of the Forward PID R&D Effort

References

Comment:

- We should use as much material from the White paper as possible.

X. Topics for PID in TDR

Task written by:

X.1. Summary of Physics Requirement and Detector Performance goals

- **X.1.1. Physics requirements** — **Cincinnati, Maryland**
- **X.1.2. Detector concept** — **SLAC**
- **X.1.3. Charged Particle Identification** — **Cincinnati, Maryland**

X.2. Particle Identification Overview

- **X.2.1. Experience of BaBar DIRC** — **SLAC, LAL**
- **X.2.2. Barrel PID: Focusing DIRC (FDIRC)** — **SLAC**

X.3. Projected Performance of FDIRC

- **X.3.1. Reconstruction** — **LAL + others**
- **X.3.2. MC Simulation**
  - Fast simulation — **Cincinnati**
  - Full simulation — **Maryland**
- **X.3.3. Effect of Background on performance** — **Maryland, SLAC**

X.4. The Barrel FDIRC Detector Overview

- **X.4.1. Detector layout** — **SLAC, Padova, Bari**
  - Overall figures
- **X.4.2. Impact on other systems** — **SLAC, Padova, Bari**
- **X.4.3. Mechanical support** — **SLAC, Padova, Bari**
- **X.4.4. Photodetectors**
  - Photon Detector choice — **SLAC, Trieste, Bari**
  - Modularity: packing fraction — **SLAC, Padova, Bari**
  - Photon detector mechanical support — **SLAC, Padova, Bari**
  - Optical coupling of detectors to FBLOCK — **SLAC, Padova, Bari**
  - Temperature requirements — **SLAC, Padova, Bari**
  - Rates and aging issues in H-8500 PMTs — **SLAC, Trieste**
  - Magnetic shield of H-8500 PMTs — **SLAC, Padova, Bari**
  - Prediction of number of photoelectrons per ring — **SLAC**

X.4.5. FDIRC Mechanical Design

- Description of BaBar bars, bar boxes	**SLAC**
- Fused silica optics: New Wedge and FBLOCK	**SLAC**
- Gluing Wedge to Bar Box Window	**SLAC**
- Gluing FBLOCK to Bar Box Window	**SLAC**
- Radiation damage of optical components	**SLAC**
- Fbox: Mechanical support of the Fused silica optics	**Padova, Bari, SLAC**
- Support of Fbox in the SuperB magnet	**Padova, Bari, SLAC**
- Bar box storage at SLAC	**SLAC**
- BaBar support structure and new FDIRC	**SLAC, Padova**
- Background shielding to protect electronics & detectors	**SLAC, Padova**
- Bar box shipment to Italy	**SLAC, Padova, Bari**

X.4.6. Electronics readout, HV and LV

- FDIRC electronics (Amp/TDC/ADC)	**LAL**
- Motherboard	**LAL, Padova, Bari, SLAC**
- Support services	**LAL, Padova, Bari, SLAC**
- HV power supplies	**LAL, Padova, Bari, SLAC**
- LV power supplies	**LAL, Padova, Bari, SLAC**

X.4.7. Laser calibration system

- Optics of calibration	**SLAC, Maryland**
- Laser and fiber optics choice	**SLAC, Maryland**

X.4.8. Integration issues

- Background shield and access to detector maintenance	**SLAC**
- Earthquake analysis of FBLOCK & bar box structure	**Padova**
- PMT protection (large backgrounds, helium)	**SLAC, Bari**

X.4.9. DAQ and computing

- Cabling and Access	**LAL, Padova, Bari**

X.4.10. FDIRC R&D Results until now

- Test beam results from the 1-st FDIRC prototype	**SLAC**
- CRT test results from the 1-st FDIRC prototype	**SLAC**
- Scanning setups to test H-8500 PMTs and Electronics	**SLAC, Maryland, Trieste, Bari, LAL**

X.4.11. Ongoing FDIRC R&D

- Experience with the final FDIRC prototype in CRT	**SLAC, Padova, Bari**

X.4.12. System Responsibilities and Management

- Management structure	**SLAC, LAL, Padova, Bari**
- Institutional breakdown by task	**SLAC, LAL, Padova, Bari**

X.4.13. Cost, Schedule and Funding Profile

- Budget — **SLAC, Padova, Bari, LAL, Trieste, Maryland**
- Schedule and Milestones — **SLAC, Padova, Bari, LAL, Trieste, Maryland**
- Critical path items — **SLAC, Padova, Bari, LAL, Trieste, Maryland**

X.5. Forward option

X.5.1. Introduction

- Physics motivation — **Maryland, LAL**
- Outline of FTOF detector technology — **LAL, SLAC**

X.5.2. Committee recommendation — **Maryland**

General comments:

- We are asked to provide explicit names of editors for individual chapters. Therefore we are asked for colunteers to be able to convert institution assignments in red into names.
- Total page count should probably be less than ~30 pages, judging from what was done for BaBar. Out of that we probably should have 3-4 pages for Forward section. (White paper had ~10 pages for PID)
- We should have the plan available by the London meeting.