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- Plate design
- prototype (#PMTs, Electronics)

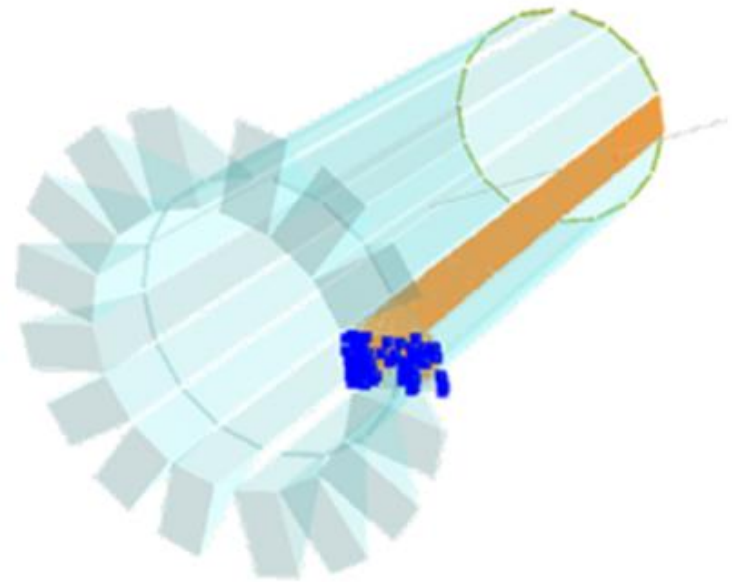
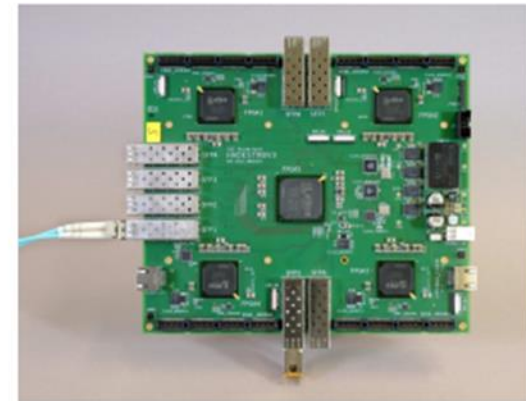


Figure 3.3: Barrel DIRC design 1: Optical elements, i.e. radiator plates, focussing lens and prism shaped expansion volume. The example of a particle track is shown with a pixelized pattern of the photon hits on the sensor plane.

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description of prototype electronics
to be adapted to highly integrated version



(a) The TRB3 is equipped with a central FPGA and four peripheral FPGAs in the edges. Source: [6]



(b) The PaDiWa front-end boards have connectors to directly connect them with the photon sensors.

Figure 4.2: TRB3 readout electronics.

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to be developed/described

- holding structure for the EV
- Integration procedure
- cable routing

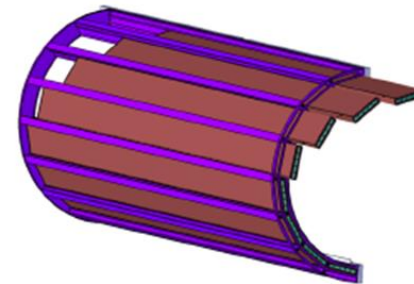


Figure 5.3: Slots for the bar-boxes

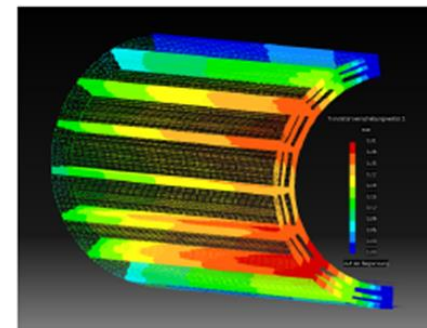


Figure 5.8: FEM analysis of the Barrel DIRC support structure. The values used for the wall thicknesses are written in the text.

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To be extended
 expected performance for the plate design

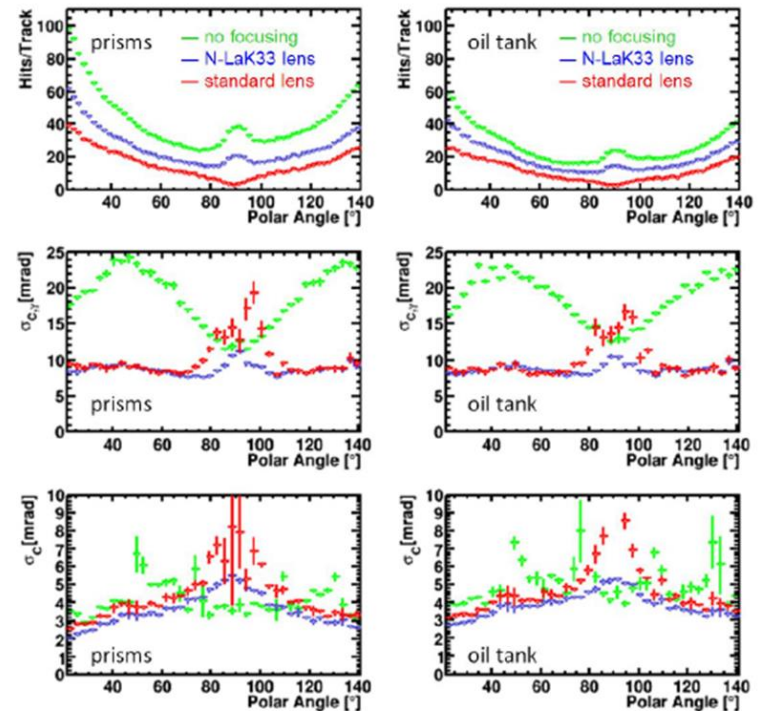
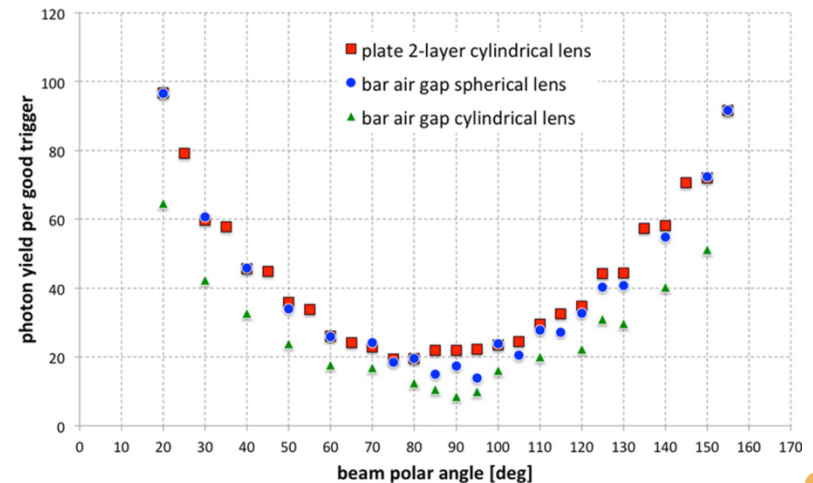
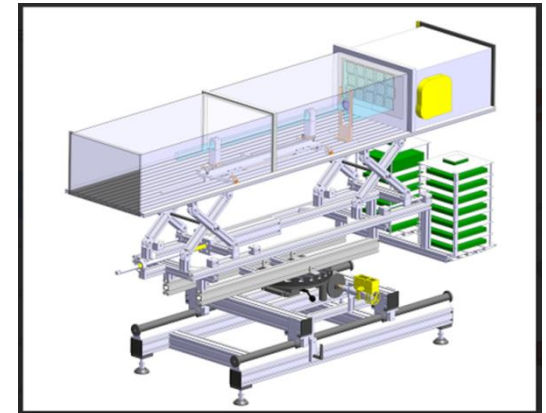


Figure 6.3: Reconstruction results for simulated 3.5 GeV/c muons for narrow bars in two EV configurations: compact prisms (left column) and oil tank (right column). The photon yield (top), single photon resolution (middle), and track Cherenkov angle resolution (bottom) are presented as a function of the polar angle for three focusing options. Results for the high-refractive index N-LaK33 lens without an air gap are shown in blue, for a standard lens with air gap in red. The configuration without focusing, where the bar is coupled directly to the prism, is shown in green.

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To be included
- (preliminary) results of beam time



- Some instructions

- To allow that the "master" adds your username to the GitLab you have to make yourself known to the system and login once:
- You can go via <http://panda-repo.gsi.de/>
- You log-in with your GSI-Web-account (m.mustermann@gsi.de)
- The Project is "PandaDirc / BarrelDircTDR"
- Git is quite similar to SVN

To get the repository

> git clone <http://lxpndauth.gsi.de/PandaDirc/BarrelDircTDR.git>

you will be asked for your GSI-Weblogin

As a result you will get a directory named "BarrelDircTDR" with all subdirectories and files)

When you **add a new file** you have to write

> git add .

„.“ means all

You can **ask for the status of your files**

> git status

When you **commit a new/changed file to the repository.**

1. > git commit -a (thus the files are prepared (locally))
2. > git push (thus the files are pushed to the repository)

If you only want **to read the latest version of the TDR**:

As alternative to "clone" the full repository you can

- click on <http://panda-repo.gsi.de/> in the GitLab (on the left) on "files".
- then you can choose (e.g.) the pdf-file of the TDR and download it.

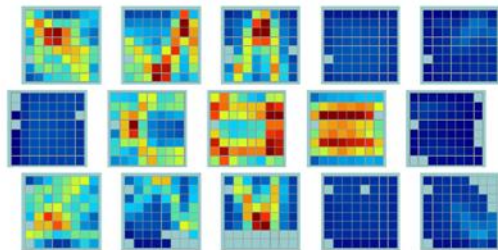
Technical Design Report for the:

\bar{P} ANDA
Barrel DIRC

(AntiProton Annihilations at Darmstadt)

Strong Interaction Studies with Antiprotons

\bar{P} ANDA Collaboration September 7, 2015



TDR accepted

2nd half of 2016

**presented to
PANDA Colab.**

1rst half of 2016

**internal review with
external reviewers**

Q1/2016

Results of beamtimes

Q4/2015

**Git repository with
first draft**

Oct 2015

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