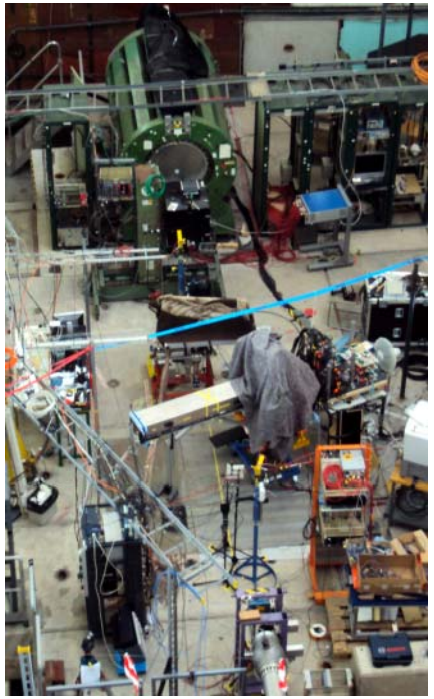
PANDA DIRC

TEST BEAMS IN 2012



PANDA DIRC prototypes in several test beams in 2011 (CERN, DESY, GSI, Juelich).

Vital tool in testing design, verifying performance.

Need test beam opportunities again in 2012.

Application for CERN beam time due this month.

Jochen Schwiening

PANDA CollabMeet
Cherenkov Session
GSI, Dec 2011

PANDA DIRC TEST BEAMS

Barrel DIRC very interested in test beam at CERN PS

Plan to test at least one, hopefully two prototypes

"Proto 2" – large oil tank with bar or plate attached,
MCP-PMT readout (prototype with bar used in 2011)

"Proto 3" – compact prism from solid fused silica,
bar or plate attached, MCP-PMT readout,
higher photon collection efficiency (still to be designed and constructed)

This will be the first test of plate design, first test of fused silica expansion volume.

Hope to use additional MCP-PMTs (Erlangen, Mainz) and new front-end electronics (Mainz).

Want to measure single photon resolution, light yield, track Cherenkov angle resolution.

Delivery of first two prototype plates expected in March/April 2012, prism already received.

Should be ready for beam time in summer.

T9 beam line at CERN PS can provide mixed hadron beam with 1-10 GeV/c momentum.

Need to add tracking to determine particle angle to bar with ~1mrad resolution,
integrate readout with our HADES TRB-based DAQ.

PANDA DIRC TEST BEAMS

Brief DIRC test beam planning discussion yesterday:

Giessen and Glasgow interested in very similar conditions at T9,

Glasgow also requires new tracking to ~1mrad.

We plan to apply for three weeks hadron beam at T9, 1-10 GeV/c, positive polarity.

We believe that need this additional time (we had 10 days in 2011)

to vary beam settings (momentum, beam focus)

to have option to take some data with single prototype in beam

(concerns about material budget, multiple scattering)

to collect enough statistics

(in 2011 we were very lucky, received three times higher data rate than expected)

to make sure we get hadron-rich beam at least some of the time

(the other experiments using the same target may need electrons)

We may need approval for this extended beam time from a CERN committee.

PANDA DIRC TEST BEAMS

We propose to dedicate a large part of the Cherenkov session at the March 2012 CollabMeet to test beams in 2011 and 2012.

By then we should know more about our CERN beam request,
can do some initial planning in March.
(May also know more about a possible beam time at GSI in 2012 by then.)

We have not heard much about results from the 2011 GSI/CERN campaigns yet.

We would like to ask each of the groups from the GSI/CERN beams (Erlangen, Glasgow, GSI, Vienna), DESY beam (Giessen), and the 2012 MAMI beam (Mainz) to present the status of their data analysis and/or “lessons learned” at the March meeting.