

**Subject:** Summary of TIC meeting on April 20: DSC papers in the NIM-A special issue; pFRICH, dRICH testbeam preparation

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Dear Colleagues,

please find here below a short summary of the April 20th TIC meeting dedicated to

- DSC papers in the NIM-A special issue;
- pFRICH, dRICH testbeam preparation;
- the BIC studies of the background challenges

Best greetings, Silvia

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TIC meeting, April 20th - Summary

### **DSC papers in the NIM-A Special Issue.**

DSC Planning for the contribution to the Special Issue requested:

16 Expected (DSCs and el/R-O/DAQ cc WG), 14 received so far.

Planning includes subsystem overview papers and specialized papers.

A discussion session followed. Here the main resulting guidelines and suggestions:

- The overview papers can be more or less extended according to the subsystem maturity level and the complementary information in the specialized papers. It is recommended to avoid to fraction too much the material to artificially increase the number of papers (not a correct professional attitude!)
- There is no limitation on the number of pages. Of course, the text length should be consistent with the scientific content.
- The paper draft must follow the submission rules by the Publication Committee.

- It is suggested that there are separate papers from the three CD ECals due to the different technological approach and the different requirements in the various CD regions.
  - It is proposed to have a single paper for HCals having in common the sampling approach Fe+ scintillators with relevant space dedicated to FLHCAL.
  - About FEE ASICs, they will be presented in short in the global electronics and DAQ paper, while papers dedicated to single ASICs are encouraged.
  - Two different papers dedicated to ZDC testbeams are discouraged: all the testbeam effort should result in a single stronger paper.
  - Detector technologies used in more than one subsystem. Two approaches: (i) when the development is synergistic a dedicated specialized paper is prepared (example: the proposed AC-LGAD paper) and the subsystem overview refer to that; (ii) when the major development is within a well-defined subsystem, the technology is discussed in the subsystem paper, while other subsystems make reference to it.
- A paper discussing the whole stack of software for the simulation studies in ePIC has been requested. This request goes beyond the mere TIC responsibility and it will be discussed with S&C colleagues.

### **Testbeam preparation.**

The new approach is by asking the DSCs to answer a specific list of questions for a comprehensive assessment of the preparation status. dRICH and pfRICH have reacted positively and the result is very effective communication.

These DSCs will share the same testbeam at SPS and then at PS in the period end-of-May till June 24th.

### **dRICH testbeam preparation**

The main goal of the 2026 testbeam is the validation of the real scale 1-sector prototype with demo components. The main progress respect to past testbeams is the real-size device and the off-axis optics, which is a must for the final configuration. All the equipment components are available and functionality tests are ongoing.

The main elements are the real-size one-sector box with equartz window, a unit of Photodetector, medium size mirrors and aerogel.

A reduced scale gas system handling C2F6 with recovery will be used.

Acquisition and monitoring software tools are available, developed and tested for the past dRICH testbeams.

Globally, the preparation status is very well advanced.

### **pfRICH testbeam preparation**

The goals are well defined, the main ones being the first HRPPD particle beam measurements, demonstrate timing & imaging performance,

directly measure of Npe and provide a pi/K separation estimate up to  $\sim 7$  GeV/c.

The test with FCFD ASIC is lower priority, but still in the list.

The large majority of the equipment (radiator, sensors, non-final electronics, power supply) is already available,

while dark box, electronic cards to test using FCFD FEE and mirrors are being completed.

Monitoring software is available.

Globally, the preparation status is very well advanced.

### **The BIC studies of the background challenges**

The reports illustrates the foreseen studies, which are in a preliminary status concerning BIC performance with background.

The occupancy map with background has been produced. A clarification is needed concerning the electron beam gas interaction in the available simulation files.

Further results are pressingly needed.

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