1.

In lieu of the other CLAS12 RICH publications, e.g., https://reader.elsevier.com/reader/sd/pii/S1875389212017695?token=AD950F3DD8174E9BBDD451ED6BFF80BF0F809F2AF809D4795825C07A53954626E21E072959B1383CE850C3DA0A8AA17 , it may make sense to have a unique title to capture the intent of paper.

This article is part of a NIM volume dedicated to CLAS12. We keep the title style as for the other sub-detectors in the same volume: “The CLAS12 Ring-Imaging Cherenkov Detector”.

2.

This is a long paper. It helps if there is a table of contents which keep the readers to follow of the information. I literally had to write down the section titles on a sheet of paper helping me keep track of the details. Or, one could combine some of the sections into one. For example, the short section 2 and 3 can be put into one and just call it "The RICH Detector Design".

We did not put the table of contents to conform to the general style of the sub-detector articles in the NIM volume dedicated to CLAS12.

However, we rearranged the section structure following your suggestions. Section 2 and 3 are merged into one: “The RICH Detector Requirements and Design”.

3.

Section 4 is good one. However, there is single subsubsection 4.4.1. Somehow, one may combine section 4.3 with 4.4.1. I do understand that one needs to introduce the readout electronics in order to discuss the PMT characterization. I think that the order could or shuffled a bit. I would also change "Photon Detector" to "Photon Sensor" throughout the text.

Note: Section 4 in the previous version is now Section 3. We rearranged Section3 to contain 3 sub-sections: “The Aerogel Radiator”, “The Mirror System” (comprising “The Spherical Mirrors” and “The Planar Mirrors”), “The Photon Detector” (comprising “The Photo-sensor”, “The Readout Electronics” and “The MaPMT Characterization”) and “The Detector Services”.

We also adopt *sensor* for the single MaPMT, and *detector* for the whole active area of the RICH.

4.

The title of section 5 can be changed to "The RICH Detector Installation and Commissioning". The current section 6 and 7 can be subsections of section 5.

We grouped section 5, 6 and 7 into one: "The RICH Detector Installation and Commissioning" (comprising “RICH Assembling”, “RICH Commissioning” and “RICH Slow Control and Interlocks”).

5.

I also think that one could combine the current section 8 to 10 into one section and called it "The RICH Event Reconstruction". The calibration and hadron separation can be put into subsections.

As above, we grouped section 8,9 and 10 into one: "The RICH Detector Initial Performance" (comprising “RICH Event Reconstruction”, “RICH Time Resolution” and “RICH Hadron Separation”).

6.

The event topology examples shown in Fig. 42 to 45 look great! I am wonder how they are matched with simulation. To me, it is helpful to have these patterns overlaid with simulated pattern. More text in the captions of these Figs are helpful.

During the design study, the RICH detector simulation was developed as a standalone package that does not anymore reflects the real CLAS12 configuration. The migration process to the CLAS12 MC (GEMC) service is ongoing, but has not been completed yet, because the priority has been given to the data processing. A detailed comparison between data and MC is foreseen for a future publication, in conjunction with the investigation of some physics channel. The caption of Fig.42 to Fig.45 has been extended, but without details to avoid unnecessary repetitions.

7.

Some of the axis labels are too small in printout. e.g., Fig 8 and 30. Missing x-axis label in Fig. 10.

Fig.8 and 30 has been regenerate with increase label size. The missing label has been corrected in Fig.10. The figure layout is still in progress: we already modified Fig.12, 15, 17, 39 and 49, but plan to improve label visibility also in many others (e..g 5,7,13,14, 24 25).

8. There are a few places one needs to change "frontal" to "front", e.g. on pages 4, 9 and 12.

We will perform the correction with the help of a native English speaker.

9. In section 10, "proximity focusing" is mentioned. Does this mean that you actually have multiple layers of aerogel with different index of refraction. This is not discussed in the "RICH Components" section.

Actually, proximity focusing refers to the general case when an extended gap is used to minimize the effect of the radiator finite thickness. Multiple layers of aerogel with different index of refraction have been employed (e.g. by BELLE-II) to limit the gap dimension, as they can provide an effective focalization. The CLAS12 RICH employs the basic version of proximity focusing in the direct configuration.

10. It is good to know that "Electrons can be distinguished from pions at low momenta below 2 GeV" using aerogels.

Such relatively low momenta are outside the design working range of the CLAS12 RICH. Nevertheless is encouraging to confirm a separation power between pions and electrons even at this relatively high refractive index.