

# Draft Minutes of the PANDA Magnet Meeting FZ-Jülich, 8 Sept. 2009

Inti Lehmann

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## 5 Participants

Ingo Augustin, Andrea Bersani, Maria-Pia Bussa, Alexander Gruber, Inti Lehmann, Bernd Lewandowski, Yuri Lobanov, Jost Lühning, Andrea Raccanelli, Philippe Rosier, Jerzy Smirski (joined later), Herbert Orth, Renzo Parodi, Alexander Vodopianov, Guangliang Yang.

**COMMENT by Inti: Please let me know if I missed anyone!**

## 10 Agenda

- Current status of the solenoid flux return yoke design — Yuri Lobanov
- Magnetic field calculations for the Dipole — Guangliang Yang
- Cryogenic Set-Up — Renzo Parodi
- Update on Responsibility List — Inti Lehmann
- 15 • Strategy for the Interface Document — Inti Lehmann
- Discussion on Moveable Platform — All
- Muon Filter – Current Design — Jerzy Smyrski on behalf of Edward Lisowski

Please find the talks from the session in the PANDA Indico system.  
<https://indico.gsi.de/conferenceDisplay.py?confId=672> .

## 20 Minutes

This agenda and the minutes of the previous meeting were approved.

- Current status of the solenoid flux return yoke design — Yuri Lobanov** Yuri showed that the additional requests from last meeting were introduced, i.e. cut outs for the forward drift chambers in the downstream doors and more space in the cut out for the cryostat chimney. He
- 25 agreed to upload the updated figures to the Wiki. Yuri requests the cryogenic turret to start 35cm above the level of the upper suspension bars to have access to the screws of the upstream doors. Renzo promised to look into that and report whether this would be a problem. Yuri pointed out that at this stage details are now important. It is crucial that the system for the opening of the doors guarantees high precision (few parts of mm). Therefore the design of the
- 30 platform is relevant. Furthermore, we should be updated on the design of the support structure for the Barrel DIRC.

**Magnetic field calculations for the Dipole — Guangliang Yang** Guangliang reminded us that the field is not uniform at all. This is particularly true close to the iron. He has performed studies with more than 1000 curved trajectories. The ideal bending in the horizontal plane is varying as previously shown in the TDR. However, the vertical bending is significant, up to a maximum of 0.4 deg, which translates into 5 mm at the end of the dipole but up to 1.5 cm in the forward detectors. Guangliang posed the question whether this would be a problem for the detectors. Inti promised to bring it to the attention of the collaboration on Friday. Furthermore, Guangliang performed studies on the dynamic properties, where he compared static, solid and laminated yoke. These studies confirm Jost's earlier results. Further studies show that, due to saturation effects in the edges of the pole shoes, non-linearities in the field appear. This may influence the amount of field maps required and, clearly, the control needs to take care of correcting for the effects on the beam.

**Cryogenic Set-Up — Renzo Parodi** Renzo briefly informed the magnet group about what he intends to show at the Technical Board meeting. Alexander asked what we intend to do about the design of the cryogenic supply system. Inti pointed out that this was always be recognised as the FAIR duty. Andrea R. stated that he believes this still to be in HESR hands, though he would not be the right person to ask. Renzo pointed out that we were merely asked to specify the requirements, and that is what has been presented. Renzo stated that he assumes that he gets those fluids/gases supplied at the cryostat chimney. Clearly this is necessary at the operation as well as at the parking positions.

**Update on Responsibility List — Inti Lehmann** Inti showed the responsibility list, which is unchanged from the one printed in the TDR. He urged all collaborators to have a close look at it and let him know if modifications are suggested. Alexander pointed out that with the likely splitting of the platform from the solenoid in terms of responsibilities something might need to change there.

**Discussion on Movable Platform — All** This topic arose and was discussed here though initially foreseen later. Inti reported that he had e-mail exchange with Edward on that topic. Edward had briefly looked into the different solutions again and had send Inti some comments before the meeting. Inti reported that Edward offered to actually develop both design, such that one can draw conclusions. Inti mentioned that he was more worried about the slow shaking of air cushions, which Jost remarked previously.<sup>1</sup> Bernd suggested to have a discussion during the next collaboration meeting. Inti said that this had been his intention and he agrees to organise this. Alexander remarked that, in his opinion, we should fix a deadline for a decision. He expects that tender could start before summer next year. It was debated whether the decision on the system could be taken in December. Bernd was not so sure, whether we will have a TB meeting in the December meeting.<sup>2</sup> Furthermore, it was pointed out that we first need to evaluate the pros and cons. We agreed that we will try to have a decision as soon as we can, but we do need to take a decision the very latest on the March 2010 meeting.

**Strategy for the Interface Document — Inti Lehmann** Inti brought the item of the Interface Document up for discussion. The question to the group was concerning the scope of the document. In his opinion this document should be restructured and written such that it can form part of the tendering documents for both magnets. Currently, it reads more like a collection of ideas and a historical account. Some updates were introduced by Guanliang, who updated

<sup>1</sup>Edward stated in a later mail that high frequency vibrations need to be investigated.

<sup>2</sup>In the TB Lars said that a TB meeting would be foreseen for the December meeting as well.

75 the document with parts of the TDR. Inti has started to restructure the document in order to reflect this aim. The document can be found in SVN in the directory "Inter" and a nightly build on: <http://www.nuclear.gla.ac.uk/~inti/share/pa/TDR/InterfaceDoc.pdf>. A document which could be used for tender should, in his mind, contain very little (if at all) pictures, but rather specify the bare requirements.

80 A lengthy discussion started, where I may have missed some comments in the following. Yuri's concerns were that for their tender they would require detailed technical drawings, as this will be a direct construction tender. Andrea B. argued that there would be a lot of technical details to be specified in the tender documents, which may distract the attention of the critical topics. It was pointed out that we also may have to look into some legal regulations at the  
85 future FAIR facility. These regulations, however, probably won't exist yet. Bernd suggested to have several people signing for PANDA. Inti stated that he would like to see one single blessing by the collaboration. How this is organised internally, would not matter. It was agreed that this document may not be the sole document put into a tender and some technical drawings should be present in the Appendix. Additionally, it is not clear yet, whether we should at some point  
90 split up the document or keep it in one piece. In any case we need something which must be signed by the collaboration before the tender, and we need to work on it such that it is ready when needed.

**Muon Filter – Current Design — Jerzy Smyrski on behalf of Edward Lisowski** Jerzy showed briefly the concept of the support structure developed by Edward for the muon filter.

95 This was announced to be discussed in more detail in the Forward Detector session. Bernd asked how access to the detectors is guaranteed. Jerzy promised to try to get the CAD file from Edward and provide it, such that the details can be clarified. The magnet group welcomed this design.