

A meeting of the MPD Detector Advisory Committee (DAC) took place on February 4 2020 in VBLHEP, JINR. The agenda of the meeting is under the following link:

<https://indico.jinr.ru/event/1118/>

Present: Hans H. Gutbrod, Itzhak Tserruya

From JINR/WUT (Warsaw): A. Kisiel

From NCBJ (Swierk): M. Bielewicz

From JINR (Dubna): MPD Team

Status of the MPD project (A. Kisiel, JINR/WUT, MPD Spokesperson)

A. Kisiel overviewed the status of the MPD project. He presented the progress in MPD construction and feasibility study, addressed the process of signing of MoU by participating Institutions, and overviewed the growing of MPD computing resources.

The DAC notes with satisfaction the achieved progress. Several questions arose during discussion and were answered. The DAC emphasized the importance of the integration management system during MPD construction and commissioning stage. The MPD project manager (V. Golovatyuk) described the current MPD integration management in detail.

Status of TPC TDR (S. Movchan, VBLHEP)

S. Movchan presented the current status of the MPD TPC construction. An overview of the readiness of TPC elements and service systems, as well as the integration scenario and an updated time line of TPC commissioning was given.

The DAC notes the progress. During discussion, the speaker was asked about the TPC gas mixture with respect to the expected dE/dx resolution, about the noise level and protection against sparks in SAMPA chips, about TPC gain variation in high multiplicity events, about estimates for the overall material budget in the front-end plates, about accessibility and sustainability of the water filtration system. Those questions were answered. The DAC asks for more detailed explanation of the necessity of the cooling system for the TPC barrel part. The DAC repeats the request to the TPC team to finish designing TPC FEE ASAP and make necessary calculations/simulations with all service systems and cables included in the MC database.

Progress in ECAL TDR (I. Tiapkin, VBLHEP)

I. Tiapkin reported on recent progress in ECAL construction. He overviewed the achieved progress in designing support frames for ECAL modules, explained the calibration procedure proposed by the ECAL team, and presented very recent results of ECAL tests with FIAN electron beams in the energy range from 30 to 300 MeV. The updated time line for the ECAL production and assembling was also discussed.

The DAC notes the progress. The DAC expressed concern that the ECAL module construction has not yet started in China and that the Chinese budget necessary to cover the anticipated Chinese contribution is only partially approved. The DAC asks to be informed regularly about the progress in the fabrication process, especially the commitment by MPD partners for obtaining the anticipated full coverage. In addition, ECAL cabling, cooling and integration issues were discussed.

Since V. Riabov (and others) presents the progress in ECAL simulation regularly during the period between the DAC meetings, there was no dedicated talk about the results on the ECAL feasibility study.

MCORD – MPD Cosmic Ray Detector at NICA (M. Bielewicz, NCBJ Swierk)

M. Bielewicz presented an update of the proposal for a new MPD sub-system – a muon detector made of scintillator tiles with SiPM-based readout (MCORD). In answer to DAC requests from the recent DAC meeting, the speaker presented the motivation for MCORD physics cases from astrophysics and recent calculations of the possibility for muon flux registration with MCORD. The results of laboratory tests with a MCORD demonstrator were also discussed.

The DAC notes with satisfaction the achieved progress. The DAC requests to optimize the position resolution along the slats. The DAC asks the team to address next time in more detail the MCORD integration procedure with MPD and to present updated simulation results for MCORD occupancy and muon detection efficiency.