

## Welcome to NICA days 2019 and IVth MPD Collaboration Meeting in Warsaw



Contribution ID: 78

Type: **not specified**

### Main parameters of MPD Electromagnetic Calorimeter in Latest Geometry Version.

*Wednesday, 23 October 2019 14:40 (20 minutes)*

As part of the NICA/MPD project, a unique cylindrical electromagnetic calorimeter (ECal) is being created with a diameter of 2 m, a length of 6 m and a total weight of about 60 tons. Recently, the design of a 12-ton power frame of ECal made of carbon and glass-plastic was completed. This led to the need for significant changes in the structure of ECal. A new program for the geometric description of ECal was created, including both the power frame and the new structure of the modules and their layout. The report is devoted to the first presentation of the main characteristics of ECal. The power frame contributes 10.9% of the radiation length in front of the ECal (in addition to 17.2% of the TOF), and also adds plastic partitions from 0.2 to 14 mm thick between the modules. This leads to an average decrease in the total ionization signal from the ECal by 10%, which weakly affects the energy resolution, which remains at 4.5% for 1.0 GeV photons, but significantly distorts the Gaussian shape of the energy response distribution due to an increase in the low-energy tail. The energy and angular accuracy of the ECal and their dependence on the photon energy and the threshold of the electronics, the detection efficiency of photons, muons and neutrons, the expected resolution in the mass of the neutral pion will be given. This work was supported by RFBR grant No. 18-02-40054.

**Primary author:** Dr KULIKOV, Viacheslav (NRC "Kurchatov Institute" – ITEP, Moscow 117218, Russia)

**Co-authors:** BULYCHJOV, Sergey (NRC "Kurchatov Institute" - ITEP (RU)); MARTEMIANOV, Maxim; MATSYUK, Mikhail (NRC "Kurchatov Institute" - ITEP (RU)); TYAPKIN, Igor (JINR); SKOBLIKOV, A.V. (NRC "Kurchatov Institute" – ITEP)

**Presenter:** Dr KULIKOV, Viacheslav (NRC "Kurchatov Institute" – ITEP, Moscow 117218, Russia)

**Session Classification:** MPD Collaboration Meeting

**Track Classification:** MPD Collaboration Meeting