Contribution ID: **716** Type: **Poster**

Long-term and efficient operation of the MWPC muon detector at LHCb

With its ˜1650 mˆ2 of MWPCs, the muon detector of LHCb is one of the largest instrument of this kind worldwide, and one of the most irradiated.
Currently we run at the relatively low instantaneous luminosity of 4x10ˆ32 cm-2s-1, nevertheless the most irradiated MWPCs already integrated ˜0.7 C/cm of accumulated charge per wire. The statistics of gas gaps affected by high voltage trips in the proportional chambers is presented for the whole period of operation.
Most of the problematic chambers were successfully recovered in situ during data taking, under the nominal LHC beam conditions, by means of a long-term HV training
(with the working gas mixture). The appearing of self-sustained currents in one of the MWPC gaps and the effectiveness of the recovery procedures put in place, indicate that the large majority of the trips are due to Malter effect.
The method has proven to be very effective, allowing to keep the muon detector efficiency very close 100%, as it was initially designed. In parallel, a test has been performed of a systematic addition of a small amount of oxygen to the nominal gas mixture: results of this test will be discussed.

Author: KOTRIAKHOVA, Sofia (Petersburg Nuclear Physics Institut (RU))

Presenter: KOTRIAKHOVA, Sofia (Petersburg Nuclear Physics Institut (RU))

Session Classification: Poster Session B

Track Classification: Gaseous Detectors