

## **Complex estimation of the proportional chamber cathode surface condition after work at Large Hadron Collider experiment**

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In the report the complex study of the multiwire proportional chamber cathodes surface that had worked under continuous radiation exposure conditions at Large Hadron Collider (LHC) experiment was performed. At the areas where the spontaneous self-supporting electron emission effect (Malter-effect –ME) was observed and where there was no effect, the cathode surface was investigated. For the first time the detector cathode surface was studied with the help of a set of methods including nuclear-scanning microscopy, atomic-scanning microscopy, Raman spectrometry and Roentgen-phase analysis. An essential difference at cathode surface structure at the regions with or without ME was detected. Possible mechanisms inducing this electron emission effect are discussed.

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