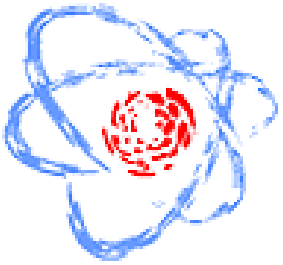

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Robustness test of a Micromegas detector with resistive DLC anode

Wednesday 11 June 2025 10:50 (10 minutes)

Micromegas is a modern type of gas detector that combines good spatial resolution and loading capacity with reasonable cost and manufacturability. An unavoidable disadvantage of such detectors is their tendency to discharge when passing strongly ionising particles such as, for example, slow protons. This leads to the impossibility of using classical micromegas detectors in the high background loading conditions typical of hadron colliders such as NICA. The standard solution is to use detectors with an anode made of high resistivity material. In this case discharges become localised and do not lead to temporary inefficiency of the whole detector. One of the most promising methods to fabricate a resistive anode is the deposition of a diamond-like carbon (DLC) layer. The typical thickness of a DLC coating is about 0.1 μm. Such a small coating thickness requires confirmation that the coating is sufficiently resistant to the discharges inherent in detector operation

Summary

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