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Study of noise characteristics of irradiated pixel detectors

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The Inner Tracking System (ITS) plays a key role in the precise determination of secondary vertices in high energy hadron collisions in ALICE at the LHC. The beam luminosity of the collider will be increased by more than 10 times after the upgrade planned in 2020. This will provide new possibilities of studies of rare processes in high energy hadron collisions including production of short-lived particles containing heavy-flavour quarks. Monolithic Active Pixel Sensors (MAPS) will be used as a base detector of the new ITS to meet the challenging requirements of charged-particle tracking. As part of this work we will present the main characteristics and noise performance of the irradiated MAPS which were studied at various temperatures using special experimental set-up equipped with a cryogenic module.

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