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Latest developments and characterisation results of DMAPS in TowerJazz 180nm for High Luminosity LHC

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The last couple of years have seen the development of Depleted Monolithic Active Pixel Sensors (DMAPS) fabricated in TowerJazz 180nm with a process modification to increase the radiation tolerance. While many of MAPS developments focus on low radiation environment, we have taken the development to high radiation environment like pp-experiments at High Luminosity LHC. DMAPS are a cost effective and lightweight alternative to state-of-the-art hybrid detectors if they can fulfil the given requirements for radiation hardness, signal response time and hit rate capability. The MALTA and Mini-MALTA sensors have shown excellent detection efficiency after irradiation to the life time dose expected at the outer layers of the ITK. Our development focuses on providing large pixel matrixes with excellent time resolution (<2ns) and tracking. This talk will discuss characterisation results of the DMAPS devices with special focus on the new MALTA2 sensor and will show the path of future developments.

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No, this is an entirely new submission.

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