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Observation and characterisation of the charge screening effect in LGAD

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The recently observed saturation of the charge multiplication mechanism in LGAD devices has been studied and characterised with an infrared laser used to replicate the particle charge deposition ranging from 1 to 80 equivalent MIPs. The observations are compared to the response from beta particles and impinging protons with different energies. The influence of regions with high electric field values, above 10 V/μm, on the saturation of the gain mechanism, has been studied via 2D and 3D Technology CAD device simulation.

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