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A Data-Driven of Test beam related LGAD mortality

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Using test-beam data on 80-120 GeV pion beams, a study of LGAD mortality is presented for neutron and proton irradiated samples for fluences up to 6e15n_{eq}/cm^2. An empirical model is established for estimating maximum safe operating voltage point and a link is demonstrated between bias voltage and beam-related damage. Comparisons are performed with similar operating points at laboratory conditions and a link with incoming particle rate is debated. Macroscopic and microscopic inspection of damaged devices is also presented with an emphasis on non-handling related incidents.

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