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# Testbeam Analysis for the LHCb Upgrade-II Mighty Tracker

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LHCb is expected to see an increase in integrated luminosity from 50 $\text{fb}^{-1}$ to as much as 300 $\text{fb}^{-1}$ by the end of Run 5-6. Such an increase prompts an upgrade to the LHCb tracking system: to deal with higher occupancy, more interactions per bunch-crossing, and harsher radiation conditions - to name a few key challenges.
For Upgrade-II of the LHCb detector (expected $\geq$ 2030), the proposed Mighty Tracker aims to address these challenges by incorporating monolithic HV-CMOS sensors into the design for the innermost region of the downstream tracking detector, whilst retaining the current Scintillating Fibre-based approach for the outer region. The HV-CMOS sensor for the Mighty Tracker, the MightyPix, is being developed to have sufficient radiation-hardness, and a time resolution of approximately 3 ns to deal with the high occupancy expected in the inner region.
This talk will cover the analysis and experience gained from Testbeam data obtained at DESY with the AtlasPix3.1 (a predecessor to the upcoming MightyPix1) at varying irradiation levels, with the Corryvreckan analysis software and snakemake workflow automation.

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