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Tracking at the HL-LHC

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The High Luminosity Large Hadron Collider (HL-LHC) will increase the instantaneous luminosity from $2 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ to $7.5 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ with an expected lifetime total integrated luminosity up to $4,000 \text{ fb}^{-1}$. To achieve this requires working in a more challenging environment to disentangle the hard-scatter event of interest from the average 200 additional pileup interactions expected in each event. ATLAS and CMS will both install a new tracking detector prior to the start of the HL-LHC extending the tracking coverage out to pseudorapidity of 4. The trackers will be key to maintaining and improving upon current performance in the harsh pileup environment. The individual designs were optimized to maintain track reconstruction efficiencies while reducing the overall mass of the detector. The tracking will be a critical element to mitigate pileup effects and enable a broader physics impact. The expected tracking performance and subsequently vertexing and b-tagging performance at the HL-LHC will be presented for both ATLAS and CMS.