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ATLAS strip detector upgrade for the HL-LHC

From 2024, the HL-LHC will provide unprecedented pp luminosities to ATLAS, resulting in an additional integrated luminosity of around 2500 fb-1 over ten years. To withstand the much harsher radiation and occupancy conditions of the HL-LHC necessitates a complete replacement of the present ID. The new all-silicon tracker design is driven by the performance requirements that cannot be met by the present ID. The sensors are of finer granularity than the existing tracker, to meet the challenges of very high pile-up and to be able to reconstruct tracks in the core of multi- TeV jets. In addition, the replacement tracker has to be much more radiation hard and the readout links need to provide much greater bandwidth. Present ideas and solutions for the strip detector and current R&D program will be discussed in this talk.

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