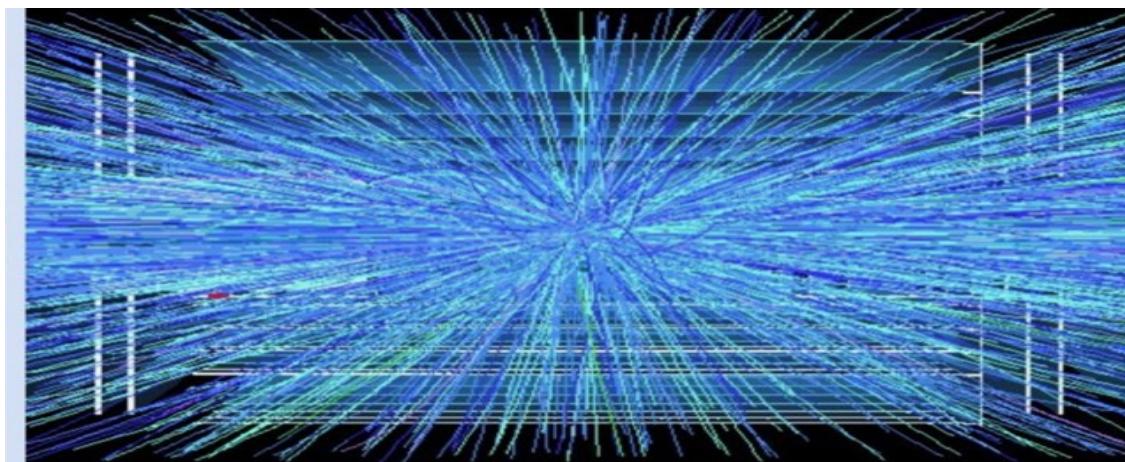




Physics at the HL-LHC.

Tuesday, 27 November 2018, DESY Auditorium, 16:45 h

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Run-2 of CERN's Large Hadron Collider (LHC) is just being completed with record integrated luminosities of about 150 pb⁻¹ for pp data at a centre-of-mass energy of 13 TeV and in excess of 1 nb⁻¹ of PbPb data. The Run-2 data have already brought about a wealth of new precise results and a significant increase in the search for new phenomena. The High-Luminosity LHC (HL-LHC) is designed to fully exploit the LHC at the highest luminosities, and is going to start operation in 2026.

Dedicated upgrades of machine and detectors are underway and will facilitate operation at yet increased instantaneous luminosities yielding up to 200 concurrent pp collisions. Experiment upgrades include substantially improved detectors with larger acceptance, better triggers, and enhanced background suppression. During Runs-4 and 5 an integrated luminosity of 3000 fb⁻¹ of pp data will be recorded. Based on the recent new and precise results of Run-2, the projections and expectations for the physics yield at the HL-LHC are currently being updated as part of the "Workshop on Physics at HL-LHC and Preparation for HE-LHC" which is ongoing since Fall 2017. The final report is expected in the coming weeks. In my talk, I am presenting the latest projections and expectations of the physics results achievable with the HL-LHC.