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Prospects for BSM searches at the high-luminosity LHC with the ATLAS detector

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Discovering new physics beyond the Standard Model is a primary goal of research at the LHC. Recent searches by ATLAS and CMS, using data taken at a centre-of-mass energy of 8 TeV, have already probed a considerable fraction of the parameter space for a wide variety of models. The discovery reach is expected to be considerably extended at higher energy. The high-luminosity phase of upgraded LHC will provide datasets with a total integrated luminosity of about 3 ab⁻¹, allowing ATLAS to probe new physics well beyond the reach of the first 0.3 ab⁻¹ of 14 TeV running. In this talk, the prospects of ATLAS searches for new heavy bosons, dark matter candidates, inclusive strong production of squarks and gluinos, direct production of 3rd generation squarks and weak production of electro-weakinos at the 14 TeV LHC are presented. The results make use of parametrisations of the expected performance of the LHC for the first 0.3 ab⁻¹ of 14 TeV running and for the high-luminosity phase.

Summary

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