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New Directions for Discovering Physics Beyond the Standard Model

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The Standard Model (SM) of elementary particle physics has been outstanding in explaining much of the microscopic phenomena observed to date. However, there are a number of fundamental questions, about our Universe, it cannot resolve. Open puzzles, such as the nature of dark matter, the baryon asymmetry of our Universe and the origin of Neutrino masses (the lightest neutral particles in the SM) point to the existence of some new physics beyond our known fundamental interactions. Hence, the key questions particle physicists are trying to address are 'does this new physics interact with the SM?', and 'If so, how can we experimentally find these interactions?'. In this talk, I will give a brief overview of the theoretical landscape of new physics ideas designed to solve some of the most open fundamental questions in our universe and the new directions for experimentally hunting for these new particles, from the laboratory to the cosmos.

Summary

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