

Scientific and computing challenges in fundamental physics

In this introductory lecture we will review the big picture of modern science, with the emphasis on biggest questions and challenges in fundamental physics. Higgs physics, neutrino experiments, dark matter, dark energy, multi messenger astronomy, physics beyond the standard model, gravitational waves and other scientific wonders will be presented, connecting great theoretical ideas and modern experiments trying to test them. Computing is now established as the crucial part of any present and future experiments. We will review and discuss the biggest challenges in computing for the next decades, including traditional increase of data throughput, data volume and data complexity, but also other emerging concepts like quantum computing, machine learning and artificial intelligence.

Summary

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