

Simulation of microscopic black-hole production at the LHC

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Modern theories suggest that microscopic black-hole might form as particle collision remnants in modern particle colliders. A remarkable consequence of quantum mechanics is that these black-holes should decay rapidly into a shower of particles. While it is clear that the particle and energy signatures of such a shower should be distinguishable from other processes of particles collisions, the actual signatures of such decays are not fully understood. Simulations are needed to study such decay signatures. In this presentation, current work on building a catalogue of black-hole emission spectra is summarised and the usefulness of such a catalogue in identifying decay processes of microscopic black-holes produced at modern particle colliders is discussed. Then, the decay signatures generated by a previous generation simulator and a novel simulator are compared in the context of current collider black-hole event searches.

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