Seminário, Terça 03/10/2023 16:00h

Local: Auditório: Méson Pi - DRCC

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Title: Exploring New Physics with Light Particles

The Standard Model (SM) of particle physics currently stands as the most successful description of matter's fundamental structure. Nevertheless, despite its great triumph, it remains an incomplete theory, as a range of unsolved questions persist.
Among them, we can cite the absence of a viable Dark Matter candidate, the nature of neutrino masses, or even the smallness of the Higgs mass. In this seminar, I will first present an overview of the SM and motivate why we should look for signals of new physics.
After that, I will focus into some specific extensions that include new light particles, such as the dark photon, the dark Higgs and axion-like-particles (ALPs). In each one of these scenarios I will show how we can use data from several different experiments to put bounds on the parameter space of these theories and, in certain cases, exclude particular candidates.