

Routes beyond the Standard Model

Monday 15 December 2025 15:00 (12 minutes)

Despite the countless experimental confirmations, the Standard Model (SM) leaves many unanswered questions. Tensions have emerged over time between its predictions and experimental data, mostly in the flavor sector. For these reasons, a theory capable to account at least partially for the observed discrepancies is actively sought for.

Notable examples in the exploration of physics beyond the SM (BSM) include models predicting new mediators (e.g. a new Z' boson, leptoquarks, etc.) or extra dimensions, and the class of 331 models, based on the gauge group $SU(3) \times SU(3) \times U(1)$. A complementary approach treats the SM as an effective low-energy approximation of a more fundamental theory at higher scales.

In this seminar, after reviewing the key motivations and strategies driving the search for BSM physics, the different paths currently followed in the quest for New Physics will be presented.

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