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The hunt for non-resonant signals of new physics at the LHC

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10 years after the discovery of the Higgs boson, the LHC is gearing up for two more decades of operations, during which it will evolve into a precision machine. Amidst a shortage of particle discoveries, precision will allow the implementation of new strategies to search for new physics, aiming for non-resonant signals.
This is the main motivation underlying the huge development in EFT methods that we have seen in the past decade. The SMEFT is now established as the preferred framework for the interpretation of non-resonant searches, but the implementation of a global campaign of SMEFT measurements is still in the early phases and presents a number of unsolved aspects. At the same time, alternative EFTs are being studied in the same context, including HEFT but also EFTs with new light degrees of freedom, such as axion-like particles.
The talk will give a broad overview of recent developments in the quest for non-resonant new physics signals and discuss the main challenges that will need to be addressed in the (near) future.

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