Among the many candidates proposed to explain the nature of Dark Matter, WIMPs have been the most supported in the last decades, because of their success in a natural explanation of the current Dark Matter abundance and their ubiquitous presence in models addressing the hierarchy problem. Other candidates that have been attracting some attention recently are Primordial Black Holes, which would have formed in the early history of the universe. 

In my talk I will touch on both frameworks for the explanation of Dark Matter. As for WIMP candidates, I will discuss the interplay between their experimental searches and theoretical frameworks. On the side of Effective Field Theories, I propose a method to use them consistently for the recast of collider searches. On the side of simplified models, in the presence of apparent gauge anomalies at low energies I highlight the enhanced reach of indirect searches. 

In the last part I will illustrate a model for the generation of PBHs relying on a feature already present in the Standard Model, the metastability of the Higgs vacuum. Another signature of this remarkable property of the SM could be the generation of a background of gravitational waves. The observation of either of these signatures would represent a spectacular confirmation of the metastability of the Higgs vacuum.