



The Galileo Galilei Institute for Theoretical Physics Arcetri, Florence



Next Frontiers in the Search for Dark Matter

August, 26 2019 - October, 11 2019

The origin of dark matter (DM) is among the most urgent questions in fundamental physics, as astronomical observations do not inform us directly about its particle nature. The proposed workshop will bring together theorists and experimentalists to explore new theoretical avenues and detection strategies. During the workshop we will focus on well-motivated and long-standing theories of DM, such as WIMPs and axions, and we will assess the status of fast-moving current searches. We will identify new DM theories, with particular emphasis on those giving distinct predictions from WIMPs. There will also be extensive discussions about new ideas for discovering DM through direct detection, indirect detection, collider production, and cosmological observations. Finally, we will explore dark-sector extensions of the standard model, which can yield distinctive cosmological and astrophysical signals, as well as exotic events at colliders.

Topics:

- Week 1: New theories and the dark matter mass landscape
- Week 2: Direct searches
- Week 3: Indirect and astrophysical probes
- Week 4: Searches at accelerators
- Week 5: One week conference covering the themes of the workshop
- Week 6: Axions and ALPs
- Week 7: Primordial black holes dark matter and gravitational waves

Organizing Committee:

Marco Battaglieri (INFN Genova)
Laura Baudis (University of Zurich)
Francesco D'Eramo (University and INFN Padova)
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