

**Prize Talk** PV V Fri 9:00 PVa  
**On top of Dark Matter searches at the LHC** — ●PRISCILLA  
PANI — DESY, Hamburg and Zeuthen, Germany — Laureate of the  
Hertha Sponer Prize 2020

Astrophysical observations have provided compelling evidence for the existence of a non-luminous component of the universe: Dark Matter. If Dark Matter is a particle, characterised by weak-scale interactions with the Standard Model, it can be recreated in the high-energy proton-proton collision at the Large Hadron Collider (LHC) at CERN. The LHC experiments have a vast and diversified experimental programme, designed in collaboration with the theoretical community, which aims to discover and precisely measure dark matter. In this talk I will provide an overview of this programme, outlining both the fun-

damental assumptions and the experimental challenges of this effort. Finally, I will briefly detail one specific aspect of these searches, which focus on the particularly interesting possibility that the interaction between ordinary matter and Dark Matter is mediated by new scalar particles that extend the Higgs sector.