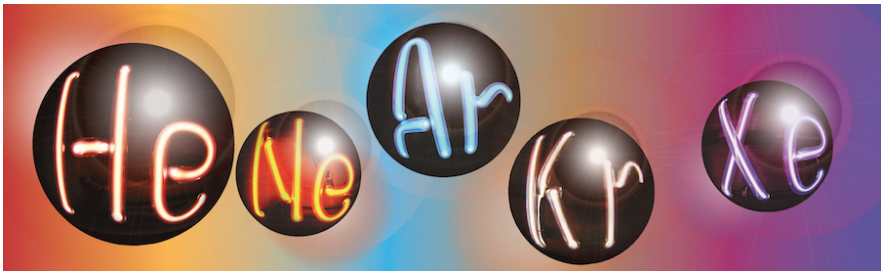

Contribution ID: **35** Type: **Oral**

The DarkSide-20k experiment

Monday 26 August 2024 14:40 (20 minutes)

DarkSide is a graded experimental project based on low background radiopure argon with the aim of the direct dark matter searches to probe the dark matter parameter space down and into the neutrino fog.
The experiment is presently under construction at INFN Gran Sasso National Laboratory.
The detector is constituted by a dual-phase liquid argon time-projection-chamber, acting as inner detector, made of low-radioactivity acrylic containing 50 tonnes (20 tonnes fiducial) of depleted (low Ar-39 content) argon and an optical read-out using Silicon Photomultipliers (SiPMs) and it is surrounded by two veto detectors respectively filled with 32 tonnes of depleted argon and 650 tonnes of atmospheric argon.
Several innovative technical solutions will be adopted for leading to outstanding sensitivities for direct dark matter searches.
In this context the design of the detector will be described, the ongoing activities as well as the current status of DarkSide-20k will be reported and the expected sensitivity will be discussed.

Primary author: CANCI, Nicola (INFN)

Presenter: CANCI, Nicola (INFN)

Session Classification: Applications

Track Classification: Applications (dark matter, neutrino, precision frontier, medicine, etc.): Dark matter