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The NOA Facility @ LNGS

Saturday 1 April 2023 08:00 (15 minutes)

Nuova Officina Assergi (NOA) is a Clean Room (CR) - classification ISO6 according to the ISO 14644-1 standard, intended for the construction and assembly of advanced electronic devices. This facility arises as a fundamental part of the Dark side-20K project and it has been realised thanks to two Italian government fundings called "Piano Operativo Nazionale 2014-2020"(PON) and "Programma di Sviluppo RESTART, Delibera CIPE 49/16"and through an agreement between LNGS, Abruzzo Region and Comune dell'Aquila in the field of scientific research. The scope of the NOA clean room is to realise and guarantee two experimental areas and volumes suitable both to produce electronic devices and to operate with big set-up installation for low background detectors. This will be the LNGS facility and once DarkSide assembly is complete it would be open to other activities.
The largest "area" (called CR3, about 350 m2) is devoted to the assembly of the so called "Silicon Photo-Multipliers"(SiPM), which will be used as innovative experimental electronic devices employed in cryogenic conditions as main detector units in the core of Dark Side-20k experiment. The second "area" (called CR2, about 70 m2) will be dedicated to the handling, cleaning and final set-up of big components (the TPC in the DarkSide case) before delivering it underground for the final assembling in the detector. For such reason, the CR has been built using only materials selected for their reduced radon gas emanation; moreover, the air ventilation system has been designed to be coupled with a "Radon abatement system"(of future installation) which will provide air with a reduced Rn concentration for the CR air-supply. These two main features, together with other technical details defined during the CR construction, make NOA a "Rn free"clean room (the expected Rn concentration in air will be lowered by a factor 100, at least).

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Session Classification: SESSION 16: Direct detection: New Concepts (CHAIR: Alvine Kamaha - UCLA)