

Low Radioactivity Techniques (LRT2024)



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The Underground Argon program of the GADMC

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DarkSide-20k is under construction at LNGS and is designed to lead the search for heavy WIMPs in the coming years. Argon has the advantage of pulse shape discrimination compared to other noble elements, but has the drawback of the cosmogenically induced Ar-39 content with an activity of 0.96 Bq/kg. Getting rid of this background is pivotal for the success of our scientific program. Hence, the Global Argon Dark Matter Collaboration (GADMC) has put in place a program for the exploitation of underground Ar (UAr), in which the concentration of this isotope is depleted by, at least, a factor 1400.

The extraction will take place in Colorado (US) in the Urania plant, the purification in Sardinia (It) in the ARIA plant and the characterization in Canfranc (Sp) in the DArT experiment. In this talk, I will present these infrastructures and their current status.

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