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Search for low mass WIMP dark matter with DarkSide-50

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DarkSide-50 is a direct WIMP dark matter detection experiment at Laboratori Nazionali del Gran Sasso (LNGS) that uses argon as the target material. Exploiting the ionization signal from a dual-phase time projection chamber (TPC) filled with low radioactivity argon from an underground source, it has set the strongest limit against WIMP with a mass in the GeV/c² region. A new analysis has recently been carried out with a larger exposure coupled with an improved understanding of the detector response. In this talk, we give the new result for the low mass WIMP search. We also highlight the latest status of an advanced analysis exploiting event rate modulation.

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