

# The DARWIN experiment: the ultimate detector for direct dark matter search.

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The DARWIN (DARK matter WImp search with liquid xenON) experiment will be the ultimate ultra-low background underground detector for direct Dark Matter (DM) search. Its primary goal is to access the parameter space between the XENONnT maximal sensitivity and the so called “neutrino floor”, where neutrino interactions with the target become an irreducible background for direct dark matter search detectors.

The unprecedented large xenon mass (about 40 tons of active target), the extremely low radioactive background and the low energy threshold will allow for a diverse science program (i.e. neutrinoless double beta decay) beyond the DM search. The detector core is a 2.6 m diameter - 2.6 m high dual phase Time Projection Chamber (TPC) equipped with two arrays of sensor for light/charge collection of the prompt (S1) and proportional scintillation signals (S2) installed above (Gas phase) and below (Liquid phase) the liquid xenon target. The project status, current design along with science requirements and sensitivity will be presented in details. The DARWIN collaboration currently consists of more than 160 members from 26 institutions of 12 countries.

## Secondary track (number)

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