

# New technologies for future direct detection LXe TPCs: a large-diameter test platform and hermetic TPC

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Future liquid xenon direct-detection experiments, such as DARWIN, need to be larger and cleaner than those currently running. Both of these goals will certainly require advances in detector technology.

The Pancake facility, with its 3 m diameter cryostat, allows the development and testing of individual full-scale components such as new electrodes in an environment very similar to the experiments where they will eventually be used. This poster will present the facility as well as the successful operation of “hermetic TPC”, where the sensitive region is isolated from the region surrounding it. Since most radon is emanated from outside the TPC itself, this can help reduce the background level for dark matter searches.

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