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ArDM, a 1t liquid argon detector for dark matter searches

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We are assembling a 1t liquid argon detector at CERN using the two-phase technique to detect both charge and luminescence produced by recoil nuclei from WIMP interactions. We have investigated background suppression capabilities and impurity effects in argon using the scintillation light and its decay time. We are studying ways to efficiently collect and detect the VUV-light to reach a detection threshold of 30 keV in a large liquid argon detector, and to efficiently suppress background from neutrons and electrons. First results for the light collection efficiency in the 1t detector will be presented.

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