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Monitoring ^{39}Ar Background for DarkSide-20k with DArT in ArDM

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The current landscape for the hunt of particle Dark Matter (DM) requires us to achieve state of the art ability to mitigate and account for the various backgrounds. DarkSide-20k, a 20-tonn scale double phase TPC, will commission its voyage for the DM with an exclusion sensitivity to spin-independent WIMP-nucleon interaction of $6.3 \times 10^{-48} \text{ cm}^2$ (90% C.L.) @ 1 TeV/c² with a 200 t \times year exposure. Thorough material assays campaign is being carried out to report and avoid various instrumental background, leaving aside the background contribution of ^{39}Ar from the total mass of LAr inside the TPC itself. With purpose of solving this, the project DArT in ArDM is almost ready for commissioning at LSC, Spain with a sensitivity to measure UAr depletion factor exceeding 1000 with statistical accuracy better than 10% in one week of counting time. At present, the primary detector is taking data in a test setup.

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