



Contribution ID: 298

Type: **Parallel contribution**

## The DarkSide Program at LNGS

*Wednesday 10 August 2011 16:50 (20 minutes)*

DarkSide is a direct detection dark matter program based on two-phase argon time projection chambers using argon from underground sources that is naturally depleted in  $^{39}\text{Ar}$ . DarkSide-50, the first physics detector in the DarkSide program, will be deployed within the Borexino CTF tank in Gran Sasso Laboratory, Italy. The unique combination of the CTF muon veto, ultra-low background construction techniques, depleted argon, and a dedicated high efficiency neutron veto based on boron-loaded liquid scintillator should give DarkSide-50 the ability to convincingly demonstrate a background expectation of a fraction of an event in a 0.1 tonne-year exposure. This will not only give the experiment the ability to probe for WIMP interactions with a cross-section sensitivity of  $10\text{E-}45\text{cm}^2$ , but also allow it to demonstrate the ability of larger, tonne-scale, detectors in the DarkSide program to operate background free.

**Primary author:** WRIGHT, Alex (Princeton University)**Presenter:** WRIGHT, Alex (Princeton University)**Session Classification:** Particle Astrophysics and Cosmology**Track Classification:** Particle Astrophysics and Cosmology