Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Performance and Result from DarkDide-50 MASAYUKI WADA, Princeton University, DARKSIDE COLLABORATION — DarkSide-50 (DS-50) at Gran Sasso underground laboratory, Italy, is a direct dark matter search experiment based on a TPC with liquid argon from underground sources. The DS-50 TPC, with 50 kg of active argon and a projected fiducial mass of >33 kg, is installed inside an active neutron veto based on a boron-loaded organic scintillator. The neutron veto is built inside a water Cherenkov muon veto. DS-50 has been taking data since Nov 2013, collecting more than 20 M events with atmospheric argon. This data represents an exposure to the largest background, beta decays of Ar-39, comparable to the full three-year run planned for DS-50 with underground argon. When analyzed with a threshold that would give a sensitivity in the full run of about 1e-45 cm^2 at a WIMP mass of 100 GeV/c^2, there is no Ar-39 background observed in WIMP expected region. The detector design and performance will be presented as well as results from the atmospheric argon run still in progress. Plans for the underground argon run and for a ton-scale detector within the same neutron veto vessel will be presented.

Masayuki Wada
Princeton University

Date submitted: 26 Jun 2014 Electronic form version 1.4