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The WARP program for Direct WIMP Dark Matter Search. Results from the operation of a 2.3 liter detector prototype in Gran Sasso CRISTIANO GALBIATI, Princeton University, WARP COLLABORATION — The WARP detector is characterized by a unique technology for the identification of nuclear recoils, eventually induced by WIMPs' interactions with argon. The detection technique takes advantage of a double discrimination between argon recoils and gamma or beta induced background, providing a discrimination power against betas potentially in excess of one event over 10^8. The 100 liter (140 kg) detector, presently under construction and to be commissioned during the second half of 2006, will be also equipped with an active shield for identification and rejection of neutron induced recoils. A 2.3 liter volume prototype (3 kg active mass, 1.8 kg fiducial mass) is installed in Gran Sasso since May 2004 and was run underground in several operating conditions: with and without gamma shielding, with and without neutron shielding. Our measurements confirm the discrimination power indicated above. I will present results on the characterization of the background. I will also present results of a run for direct search of WIMP Dark Matter, with the complete neutron and gamma shielding, in which a total exposure of about 80 kg·day was accumulated.

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