Abstract Submitted
for the APR11 Meeting of
The American Physical Society

GAPS: A Novel Indirect Search for Dark Mater S.A. ISAAC MOGNET, UCLA, GAPS COLLABORATION — The General Anti-Particle Spectrometer is a balloon-born instrument currently under development, with an engineering flight planned for 2011 and a first science flight following in 2014. GAPS will conduct a search for antideuterons in the cosmic ray spectrum below 0.3 GeV/n in energy. If the DM particle is a suppersymmetric neutraleno, previous theoretical work has predicted a much enhanced low-energy anti-deuteron flux beyond that predicted purely by secondary production from cosmic ray propagation. Thus, antideuterons provide a background-free channel to search for evidence of DM, unlike other cosmic-ray antimatter species (p-bar , e+). GAPS will use a large acceptance, high detection efficiency payload flown on an LDB or ULDB-class balloon. The instrument will use a novel exotic atom detection technique not needing a magnet. GAPS will thus have a significantly larger total acceptance than other instruments.

Samuel Mognet
UCLA

Date submitted: 19 Jan 2011 Electronic form version 1.4