Abstract Submitted
for the APR05 Meeting of
The American Physical Society

VLADD : An Extra Dimensions Detector HEATHER RAY, RICHARD VAN DE WATER, Los Alamos National Laboratory, PAUL VETTER, Lawrence Berkeley National Laboratory — The existence of extra-dimensions may be detected by observing the invisible decay of orthopositronium (oPs) at a branching ratio of 10^{-10}. Previous experiments have searched for invisible decays at a branching ratio of 10^{-6} but were unable to achieve greater precision due to electron backgrounds. None of these experiments attempted to utilize a detector which would distinguish positrons from electrons. The VLADD experiment proposes to use a mini-TPC placed in a small, stable magnetic field as a means to separate e^+ from e^-. VLADD will be a demonstration experiment to verify that this technique will in fact work and will allow adequate rejection of backgrounds. Should the techniques used in VLADD reach a branching ratio sensitivity on the order of the most sensitive current measurements (10^{-6}), then a proposal will be made to build a larger version of VLADD for a more sensitive extra-dimensions search.

Heather Ray
Los Alamos National Laboratory

Date submitted: 07 Feb 2005 Electronic form version 1.4