

Abstract Submitted
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The APEX experiment for the study of positron-electron “pair” plasmas.¹ J. R. DANIELSON, University of California San Diego, E. V. STENSON, J. HORN-STANJA, U. HERGENHAHN, S. NIBL, M. SINGER, A. DELLER, A. H. CARD, T. SUNN PEDERSEN, Max Planck IPP, M. R. STONEKING, Lawrence U., M. SINGER, C. HUGENSCHMIDT, TU München, S. KÖNIG, L. SCHWEIKHARD, U. of Greifswald, H. SAITOH, U. of Tokyo, C. M. SURKO, University of California San Diego, APEX COLLABORATION — The APEX (A Positron Electron eXperiment) collaboration is working toward achieving simultaneous confinement of large numbers of electrons and positrons in a magnetic dipole trap, with the goal of creating a “pair” plasma in the laboratory. Pair plasmas are predicted to exhibit unique properties that differ from the usual electron-ion plasmas and would provide a novel system for studying basic plasma physics. After a brief overview, several recent experiments utilizing the intense, reactor-based cold positron source NEPOMUC to inject positrons into a dipole magnetic field will be presented. These experiments demonstrate several important milestones along the path towards the production of a pair plasma. Current and future activities will also be discussed.

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